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## REPOSITIONING OPEN UNIVERSITIES IN THE DIGITAL ERA

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TRENDS AND DYNAMICS IN OPEN AND DISTANCE LEARNING: CHALLENGES AND SUSTAINABILITY

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Abstract
The globalization of distance education provides many opportunities for developing countries for the realization of their education system-wide goals. Two main factors have led to an explosion of interest in distance learning: the growing need for continual skills upgrading and retraining; and the technological advances that have made it possible to teach more and more subjects at a distance. This study was conducted to develop the different “Innovative Approaches in Open and Distance Learning Among the State Universities and Colleges in Region 1” The descriptive research through convenience sampling serve as the research design using questionnaire as the primordial data-gathering tool with the faculty and students as the respondents. From the result of the study, several innovative approaches were developed essential to the sustainability of distance learning in the region. As manifested, the level of implementation of RA No. 10650 along identified areas was highly implemented; the level of effectiveness of blended instructional practices was highly effective; using the SWOT Analysis, several innovative approaches were developed. Based on the findings of the study, the following conclusions revealed that salient provisions of RA No. 10650 are strictly enforced to ensure compliance and sustainability essential to innovative practices; effective blended-learning instructions serve as gateway to inclusivity, internationalization, and innovativeness not only in the region but also across the globe; open and distance learning is also essential to global competitiveness that geared towards political, social, and economic development amidst trends and challenges for its existence; and innovative approaches are the distinct features of the influx of technological advancement and modernization leading towards the concept of development in all its aspects.

Keywords: Open and distance learning, level of implementation, innovative

INTRODUCTION
The globalization of distance education provides many opportunities for developing countries in the realization of their education system-wide goals. Two main factors have led to an explosion of interest in distance learning: the growing need for continual skills upgrading and retraining; and the technological advances that have made it possible to teach more and more subjects at a distance.

UNESCO’s initiatives in open and distance learning are based on its overall priority to ensure the right to education for all. While the use of distance education was given early support by the Organization, new developments in information and communication technologies, in particular the Internet and the World Wide Web have radically increased the demand for lifelong education but also provided new means to meet the demand. Facing the educational challenges of the 21st century, UNESCO continues, through its support of open and distance learning, to contribute to
the construction of knowledge societies in a lifelong learning context. Within its overall priority, UNESCO focuses on fostering basic education for all to meet the commitments of the Dakar World Education Forum, encouraging and supporting action in its Member States with special emphasis on co-operative efforts to develop open and distance learning systems and programs to the benefit of those deprived of basic learning skills (UNESCO, 2002).

In the Philippines, the Distance Education System is in fulfillment of specific provisions embodied in the 1987 Constitution of the Republic of the Philippines, Article XIV: “to make quality education accessible to all Filipinos and develop non-formal, informal, and indigenous learning systems, as well as, self-learning, independent, and out-of-school study programs particularly those that respond to community needs.”

As introduced earlier, the House Bill No. 13483 known as the Open University System Act. Of 1994, Section 2 states “it is hereby declared the policy of the state to expand and further democratize educational opportunities for our people in a more effective educational technologies. In view thereof, the state recognized the open learning system as a necessary mode to achieve equitable access to quality education even as it guarantees academic freedom of institutions of higher learning on what to teach and how to teach. Republic Act No. 7722 known as the Higher Education Act of 1994 Section 2 Declaration of Policy: “the state shall protect, foster, and promote the right of all citizens to affordable quality education shall be accessible to all...”

In Region 1, there are three existing open and distance learning state universities having a distinct characteristic and created pursuant to the mandate of their charter, namely: DMMMSU-Open University System, City of San Fernando, La Union; University of Northern Philippines-Open University System, Vigan, Ilocos Sur; and Pangasinan State University-Open University System, Lingayen, Pangasinan.

The three Open Universities in the region cater various programs essential to the needs of the community especially through distance mode. This would enable people with remote resources to have greater access to higher education. More often than not, there is a need to evaluate the competencies of the faculty especially when it comes to their pedagogical strategies, faculty workload management, and their interpersonal communication skills vis-à-vis online teaching since some of the faculty members in an open university are not that well-versed in online teaching so as to include their course or learning management system that they were used. The same is true to the students when it comes to literacy and feedback skills relative to their academic requirements. Some of the students don’t even know how to use the learning management system of the university so that it is best to consider as well the essence of time since most of them are working in remote places far from the institution so as to include the technology available thereat, but none to avail.

Hence, as one of the tutors in an open and distance learning, it is but just important to consider the contributions of open and distance learning in the context of political, social, cultural, and social development taking into consideration the issues and challenges that need to be addressed both in local and international arena.
PURPOSE OF THE STUDY
The study aimed to determine the level of implementation of Open and Distance Learning among SUCs in Region 1 as a basis of developing innovative approaches. Specifically, it sought to answer the following:

1. What is the extent of implementation of the Open and Distance Learning Act based on the following:
   a. Guiding principles for ODeL Courses;
   b. ODeL program, curriculum and course development offerings and requirements;
   c. Mode of delivery;

2. What are the strengths, weaknesses, opportunities, and threats of the level of implementation of instructional competencies in Open and Distance Learning environment along the identified areas?

3. What are the trends and dynamics of open and distance learning among the SUCs in region 1?

METHODOLOGY
The study used the Descriptive Research Design. Aggarwal (2008) cited that descriptive research is devoted to the gathering of information about the prevailing conditions or situations for the purpose of description and interpretation. This type of research method is not simply amassing and tabulating facts but includes analyses, interpretation, comparisons, identification of trends, and relationships. For the purpose of this study, descriptive research design was used to determine the innovative approaches of open and distance learning among the selected state universities and colleges in Region 1. The researcher utilized the Lynch Formula and then applied the proportionate sampling to get the total respondents from each university. Out of the total sample, the researcher administered the questionnaire through convenience sampling. Convenience sampling was done through proportionate sampling technique. The researcher administered the questionnaires for three Saturdays during their scheduled classes from 8:00-12:00 in the morning and 1:00-5:00 in the afternoon.

The respondents were composed of faculty and students for the Second Semester, School Year 2016-2017. Using the convenience sampling, there is a total of three-hundred sixteen (316) students. For the faculty, total enumeration was utilized with a total of thirty-five (35) core faculty members.

Responses derived from the questionnaires were tallied, computed, and treated using the following statistical tools.

To determine the extent of implementation and level of effectiveness of instructional competencies in online learning environment of the respondents, weighted mean was employed. The five-point Likert Scale below will be used to determine the level of effectiveness.

<table>
<thead>
<tr>
<th>Point Value</th>
<th>Percentage Range</th>
<th>Descriptive Equivalent Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.20 – 5.00</td>
<td>Highly Implemented/Strengths</td>
</tr>
<tr>
<td>4</td>
<td>3.40 – 4.19</td>
<td>Moderately Implemented/Strengths</td>
</tr>
<tr>
<td>3</td>
<td>2.60 – 3.39</td>
<td>Slightly Implemented/Weaknesses</td>
</tr>
</tbody>
</table>
RESULTS AND DISCUSSION

Extent of Implementation of Open and Distance Learning Act

Guiding Principles for ODeL Courses

Figure 1 reflects the guiding principles of ODL under RA 10650. It can be gleaned from the table that the over-all mean is 4.35 described as highly implemented. This implies that ODL programs are well-framed in accordance with the existing principles essential to their existence in the learning environment.

Taking it singly, learner-centered course/program garnered the highest mean of 4.48 described as highly implemented. As such, it would only mean that curricular offerings among the ODLs in Region 1 are student-centered in line with the outcomes-based education programs of higher educational institutions essential to national development.

Figure 1: Guiding Principles for ODeL Courses

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Faculty Mean</th>
<th>DER</th>
<th>Students Mean</th>
<th>DER</th>
<th>Over-all Mean</th>
<th>DER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The course/program is learner-centered.</td>
<td>4.54</td>
<td>HI</td>
<td>4.42</td>
<td>HI</td>
<td>4.48</td>
<td>HI</td>
</tr>
<tr>
<td>2. The course/program is relevant and of quality.</td>
<td>4.53</td>
<td>HI</td>
<td>4.39</td>
<td>HI</td>
<td>4.46</td>
<td>HI</td>
</tr>
<tr>
<td>3. The ODL information (programs, grants, support services) is accessible</td>
<td>4.23</td>
<td>HI</td>
<td>4.16</td>
<td>MI</td>
<td>4.19</td>
<td>MI</td>
</tr>
<tr>
<td>through media like internet.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Programs/course offerings are subject to CHED Recognition.</td>
<td>4.43</td>
<td>HI</td>
<td>4.47</td>
<td>HI</td>
<td>4.45</td>
<td>HI</td>
</tr>
<tr>
<td>5. Consumer protection is given priority to ensure public responsibility</td>
<td>4.23</td>
<td>HI</td>
<td>4.16</td>
<td>MI</td>
<td>4.20</td>
<td>HI</td>
</tr>
<tr>
<td>and accountability.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Observes quality and continuous improvement leading to ODL sustainable development.</td>
<td>4.40</td>
<td>HI</td>
<td>4.25</td>
<td>HI</td>
<td>4.32</td>
<td>HI</td>
</tr>
</tbody>
</table>

Grand Mean

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Students</th>
<th>Over-all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>4.39</td>
<td>4.31</td>
<td>4.35</td>
</tr>
</tbody>
</table>

Legend: DER – Descriptive Equivalent Rating
MI – Moderately Implemented
HI – Highly Implemented

Corollary to the above-mentioned indicator is the accessibility of ODL information in the internet through social media having a mean of 4.19 described as moderately implemented. This implies the unavailability of internet in accessing general information about ODL since not all the respondents are technologically advanced and they are living in far-flung areas where internet connection is a problem.
ODEL Program, Curriculum and Course Development Offerings & Requirements

Figure 2 presents the ODL program, curriculum and course development offerings & requirements of RA 10650. As reflected in the table, the over-all mean is 4.31 described as highly implemented. This would only mean that programs and course offerings are not only necessary but also indispensable to educational development that geared towards distance learning.

As gleaned from the table, the mode of study being the option of the student obtained the highest mean of 4.40 described as highly implemented. This characterized by the constitutional guarantee on academic freedom giving the students the sole prerogative to choose the mode of study in a manner suitable to their comfort and convenience in the learning process whether self-paced, group-paced, and online.

Figure 2: ODeL Program, Curriculum and Course Development Offerings & Requirements

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Faculty Mean</th>
<th>Faculty DER</th>
<th>Students Mean</th>
<th>Students DER</th>
<th>Over-all Mean</th>
<th>Over-all DER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The mode of study is at the option and convenience of the student.</td>
<td>4.56</td>
<td>HI</td>
<td>4.24</td>
<td>HI</td>
<td>4.40</td>
<td>HI</td>
</tr>
<tr>
<td>2. The HEI formulates/implements a mechanism to monitor the progress of</td>
<td>4.31</td>
<td>HI</td>
<td>4.06</td>
<td>MI</td>
<td>4.19</td>
<td>MI</td>
</tr>
<tr>
<td>the students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The curricular offerings of ODeL conform to the policies set forth by</td>
<td>4.48</td>
<td>HI</td>
<td>4.31</td>
<td>HI</td>
<td>4.39</td>
<td>HI</td>
</tr>
<tr>
<td>CHED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Practicum or OJT is observed under the program.</td>
<td>4.29</td>
<td>HI</td>
<td>4.15</td>
<td>MI</td>
<td>4.22</td>
<td>HI</td>
</tr>
<tr>
<td>5. Graduates under ODeL are given academic credentials essential to</td>
<td>4.38</td>
<td>HI</td>
<td>4.28</td>
<td>HI</td>
<td>4.33</td>
<td>HI</td>
</tr>
<tr>
<td>employment and board examinations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Mean</td>
<td>4.40</td>
<td>HI</td>
<td>4.20</td>
<td>HI</td>
<td>4.31</td>
<td>HI</td>
</tr>
</tbody>
</table>

Legend: DER – Descriptive Equivalent Rating
HI – Highly Implemented
MI – Moderately Implemented

Contrariwise, monitoring the progress of the students obtained the lowest mean of 4.19 described as moderately implemented. Policy dictates that to ensure the welfare of the students, it is essential to monitor and guide them all through their academic endeavors to the extent that their best interest is not compromised and unevenly surveyed by the school despite the nature of the learning environment.

Mode of Delivery

Figure 3 presents the mode of delivery as enshrined under RA 10650. As a result, the over-all mean is 4.39 described as highly implemented. This satisfies the nature of blended learning among the respondents taking into consideration the methodologies of distance learning.
Apparently, conducting classes under the various modes (self-paced, group-paced, and online) obtained the highest mean of 4.50 described as highly implemented. This is in consonance to the nature of distance learning according to the student’s best choice of mode to study vis-à-vis their personal and working schedules they tend to engage with.

**Figure 3: Mode of Delivery**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Faculty Mean</th>
<th>Faculty DER</th>
<th>Students Mean</th>
<th>Students DER</th>
<th>Over-all Mean</th>
<th>Over-all DER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The OUS utilizes printed materials (textbooks, study guides, workbooks, course syllabi, correspondence feedback and other print formats).</td>
<td>4.50</td>
<td>HI</td>
<td>4.16</td>
<td>MI</td>
<td>4.33</td>
<td>HI</td>
</tr>
<tr>
<td>2. The OUS utilizes audio-visual materials (radio, audio cassettes, slides, film, videotapes, television, telephone, fax, audio-conferencing and video-conferencing).</td>
<td>4.48</td>
<td>HI</td>
<td>4.37</td>
<td>HI</td>
<td>4.42</td>
<td>HI</td>
</tr>
<tr>
<td>3. The OUS utilizes electronic/computer technology and Virtual Classrooms (internet, CD-ROM, electronic mail, e-bulletin boards, podcasts, m-learning, i-lectures, e-learning or online learning management systems).</td>
<td>4.31</td>
<td>HI</td>
<td>4.33</td>
<td>HI</td>
<td>4.32</td>
<td>HI</td>
</tr>
<tr>
<td>4. Classes are conducted either self-paced; group-paced; or online.</td>
<td>4.63</td>
<td>HI</td>
<td>4.36</td>
<td>HI</td>
<td>4.50</td>
<td>HI</td>
</tr>
</tbody>
</table>

**Grand Mean**

<table>
<thead>
<tr>
<th></th>
<th>Faculty Mean</th>
<th>Faculty DER</th>
<th>Students Mean</th>
<th>Students DER</th>
<th>Over-all Mean</th>
<th>Over-all DER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.48</td>
<td>HI</td>
<td>4.31</td>
<td>HI</td>
<td>4.39</td>
<td>HI</td>
</tr>
</tbody>
</table>

Legend: DER – Descriptive Equivalent Rating  
HI – Highly Implemented  
MI – Moderately Implemented

On the contrary, utilization of technology and virtual classrooms obtained the lowest mean of 4.32 described as moderately implemented. This implies that there is a need to upgrade the learning management system provided for by the institution to advance their potent skills through innovative technologies.

**Strengths-Weaknesses-Opportunities and Threats (SWOT) Analysis**

The guiding principle for the conduct of SWOT Analysis is to probe the various internal factors (strengths and weaknesses) as well as external factors (opportunities and threats) which could serve as basis in coming up with the innovative approaches in open and distance learning among the SUCs in Region 1.

Based on the data collected, the following strengths, weaknesses, opportunities and threats were identified:

Taking it singly, the strengths include the support delivered locally or the student-centered approach which tends to reach out students in conformity with their academic requirements going
through their place they are comfortable to study the subject to a scheduled appointment. More often than not, this gives the highlight of distance learning by virtue of academic engagement taking into consideration the benefit and advantage it may give to the clients in pursuit of their academic endeavors. Moreover, the iCEP approach (innovative Continuing Education Program) thru blended learning courses serves as an avenue to cater the clients who are working in the government service inculcating the unique trends of teleconferencing and mlearning (mobile-learning) that geared towards professional growth and capacitating them with the principles of efficiency, effectiveness, accountability, transparency, and social accountability in public service. Since learning materials are prepared for the clients, the three institutions ensure the outcomes-based approach and thereby adhering the policies as mandated by the Commission on Higher Education consistent with the constitutional guarantee relative to the accessibility to education for all. This is what it takes to be holistic in distance learning, it prepares clients to become more competitive and innovative at its finest.

To address the weaknesses, innovative approaches were developed. Taking it singly, using modal teleconferencing, passive and outdated website should be activated by creating a new portfolio and customizing internet accessibility using Google Classroom or Apple Classroom for video-conferencing. Synchronized mode in exchanging ideas including real-time adjustments will be considered as special features. Log-ins and log-outs are standardized to closely monitor the synchronized modal teleconferencing.

Another innovative approach is Learning Management Enabled (LMS-Based Support Services), this is developed to address lack of monitoring schemes for accessibility and coordination. Using configurable chat and ICT hardware, students’ academic performance will be closely supervised by the tutor. This includes database management platform or academic plan intended for the duration of the study. Likewise, synchronized submission of requirements, releasing of grades, and post-evaluation are categorized using LMS Portal and Customized LMS like Edu 2.0.

Moreover, to address limited linkages both local and international, mobile learning is developed. Its features include android application for easier and faster access in legitimate conferences, research institutions, and publications duly installed for that purpose. Mobile learning will also serve as an avenue to locate zonal centers and installation of projects and programs using essential to distance learning. As such, using GitHub, PhoneGap, Locator Map applications will be introduced as special features.

As to the opportunities, cooperation and linkages among government agencies, and even partnership to other non-governmental organizations pave the way both to localization and internationalization to fully recognize the existence of distance learning that geared towards sustainability in reaching out the dreams of other people. Collaboration is in fact essential to establish the pathway between quality education and professional growth. Hence, scholarship grants to that extent are likewise one of the opportunities in transforming human resources into productive and self-reliant citizens as to the community as to the nation.

Finally, in the context of threats to distance learning, integration or even its dissolution is not new to anyone. Such lethargic scheme is a waste of time, effort, money, and most of all, needs a warranted authority to that effect otherwise it could be easier to colleges and universities to put up distance learning down the river and thereafter dissolve swiftly without any justifiable
reasons. Non-compliance to CHED memorandum is also a ground for forfeiture of programs of distance learning which is also a threat to its existence. In practice, political influence is not even new in the culture of selection and recruitment process, which in the long run, poses a threat to other applicants who wish to be part of the academe notwithstanding their qualifications and eligibility.

**TRENDS AND DYNAMICS: INNOVATIVE APPROACHES**

**A. Learning Management System**
A learning management system (LMS) is a software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. A learning management system may also provide students with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums.

**B. Mobile Learning**
Mobile learning (m-learning) as an approach allows learners to obtain learning materials anywhere and anytime using mobile technologies and the Internet. It is necessary that the elements of mobile learning are organized correctly and the interactions between the various elements are combined in an efficient and optimum way so that the mobile learning is successful and the implementation is efficient.

**C. Modal Teleconferencing**
A modal teleconference or teleseminar is the live exchange and mass articulation of information among several persons and machines remote from one another but linked by a telecommunications system. Terms such as audio conferencing, telephone conferencing and phone conferencing are also sometimes used to refer to teleconferencing. Related terms also include webinar, simulcast and webcast. For institutions whose learning centers are located in distant places, this approach will be very instrumental in the delivery of learning materials to intended clients.

**CONCLUSIONS AND RECOMMENDATIONS**
Based on the findings of the study, the following conclusions were drawn:

1. Implementation of ODL among the SUCs carries in certain aspects the elements of innovativeness but most of the time well-framed with pedagogical practices.
2. ODL among the SUCs serves as an avenue to capacitate linkages, zonal centers including adoption of new trends in pedagogies in teaching learning distance.
3. Innovative approaches that were developed by the researcher as an output of the study include: modal teleconferencing, mobile learning, and learning management system to be utilized by the three open university systems.

Based on the findings of this study, the following are highly recommended:

1. SUCs should maintain the distinct characteristic of open and distance learning thereby encouraging its unique establishment as a separate academic unit.
2. SUCs should encourage ODL to have more partnerships/linkages across the globe for recognition
and accreditation as well.
3. Faculty members under ODL are encouraged to avail international scholarship grants offered thru
distance learning including students learning offshore.
4. Additional programs should be opened under open and distance learning essential to the needs
of the society.
5. Further studies should be conducted to complement the existing study.

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MASSIVE OPEN ONLINE COURSES (MOOCS) AND ITUNESU: DISRUPTIVE INNOVATORS TO THE TRADITIONAL OPEN DISTANCE LEARNING (ODL) AND CONVENTIONAL LEARNING INSTITUTIONS
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Abstract
Massive Open Online Courses (MOOC) was created in 2001 as a platform to distribute freely accessible, openly licensed documents and for the purpose of teaching, learning, assessment and research. iTunesU was introduced in 2007 as a subset of the iTunes; proprietary media software from Apple Inc. iTunesU was created to manage, distribute, and control access to educational audio and video content for students in a college or university.
Institutions of higher learning throughout the world used both platforms to distribute their material to their own registered students and to the public without a charge. Before 2012, both systems only distribute promotional material of the institutions to the public. In 2012, edX was created by Massachusetts Institute of Technology and Harvard University which enabled full courses to be delivered free to the public. However if the student requires a certification of the course attended, he has to pay for the course fee and sit for the examinations. Until today, both MOOCs and iTunesU present courses in a modular manner. Students who complete edX courses can apply to enter the Masters programmes of the edX provider with exemptions. However there are not many MOOC providers that allow a student to complete a full degree programme online.
This papers looks at structural issues such as accreditation and study pathways that once they have been successfully addressed can turn MOOC and iTunesU providers into full fledged ODL Institutions. This might become a threat to the survival of current ODL institutions. We applied Christiansen (1997)’s Disruptive Innovation to this paper.

Keywords: MOOCs, iTunesU, Reorganisation, Innovation, Survival, Disruptive Innovation

1 INTRODUCTION
The idea of Massive Open Online Courses (MOOC) began in 2001 as a platform to distribute freely accessible, openly licensed documents and for the purpose of teaching, learning, assessment and research. Massachusetts Institute of Technology (MIT) announced in 2001 that they would begin publishing its entire course catalogue free on the internet. However the first ever serious use of MOOCs only began in the fall of 2011 at Stanford University. Institutions of higher learning throughout the world used both platforms to distribute their material to their own registered students and to the public without a charge. Before 2012, both systems only distribute promotional material of the institutions to the public. In 2012, edX was created by MIT and Harvard University which enabled full courses to be delivered free to the public. However if the student requires a certification of the course attended, he has to pay for the course fee and sit for the examinations.
iTunesU was introduced in 2007 as a subset of the iTunes; proprietary media software from Apple Inc. iTunesU was created to manage, distribute, and control access to educational audio and
video content for students in a college or university. This was a separate initiative from Stanford’s MOOC initiative. Institutions of higher learning throughout the world used both platforms to distribute their material to their own registered students and to the public without a charge. Before 2012, both systems only distribute promotional material of the institutions to the public. In 2012, edX was created by MIT and Harvard University which enabled full courses to be delivered free to the public. However if the student requires a certification of the course attended, he has to pay for the course fee and sit for the examinations.

2 LITERATURE REVIEW
The first ever attempt with MOOC was in the Fall 2011 where Prof Sebastian Thrun and Peter Norvig mirrored as conventional Stanford University course “Introduction to Artificial Intelligence” for public consumption. Using a learning management system, the duo hosted short videos, quizzes, tests and discussion boards for members of the public who wanted access to the same material as Stanford students. The materials resembled a conventional face-to-face class that Stanford students need to attend on site. A course that would normally benefit 30 Stanford students now received an audience of 160,000 from the general public. Two more courses were added that fall. (Moe, 2014) 2012 become the year MOOCs whereby MOOCs became an alternative form of education whereby students were able to access university courses off-site and free. MOOCs have become a formidable medium of delivery due to the support of content from top tier universities such as MIT, Harvard University, Stanford University (who started off the idea), University of Massachusetts Amherst, and Vanderbilt University. (Wolfe-Sharp, 2015)

The introduction of MOOCs into the education industry has created new challenges to the traditional paradigm of higher education. As institutions of higher learning began to accept MOOCs as credit-bearing courses, issues pertaining to authentication, assessment, verification, and revenue generation crop up together with issues pertaining to accreditation. Using the Disruptive Innovation Theory as suggested by Christensen (1997), Seamen (2014) observed that MOOCs started as simple and humble applications in the education industry but they have moved up and they have threatened to displace current established higher education practices.

Bird (2011) looked at the success of iTunesU as a successful MOOC-like delivery channel for Open University (OU) courses. Before 2006, OU was delivering their courses internationally in a myriad of formats i.e. radio, television, Compact Discs (CDs) and Digital Versatile Discs (DVDs). There was a need for a more systematic form of delivery. OU tried developing a web-based repository of open educational resources with workspace and comment areas called OpenLearn. In 2008, Apple Computer Inc (now Apple Inc) invited OU to join their iTunesU initiative. OU used this new channel as an addition to their OpenLearn initiative. iTunesU was more accessible than OpenLearn. The channel attracted new subscribers from China and USA. This new channel attracted 4,621,400 visitors. iTunesU was considered as pure learning material by the Chinese government and thus access is not blocked unlike other media such as YouTube. This made iTunesU a very popular channel of distribution for OU in China. A study in Buffalo showed that iTunesU were widely accepted with education students because they felt iTunesU better suited their needs as learners than the traditional teaching, discussion boards, and streaming offered in traditional learning management systems (LMS). They liked the rich media that the system carried
and they were able to use it at their own pace whenever they needed it unlike the traditional LMS. (Yerrick (2013)

3 DISRUPTIVE INNOVATION THEORY

Disruptive innovation describes “a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors.” (Christiansen (1997)

![Disruptive Innovation Diagram](http://www.claytonchristensen.com/key-concepts/)

Figure 1: Disruptive Innovation as proposed by Clayton Christensen. http://www.claytonchristensen.com/key-concepts/ Accessed 20 July 2017

Christensen’s theory mentions that when organizations tend to innovate faster than their customers’ needs, they end up with products that are unsuitable for their customers. The organizations will promote their “premier product” because of the need of profits. By doing so, the organizations allow “disruptive innovations” to enter the market. In the end, the entrants would take over the market.

We apply Christiansen (1997) to the Open Distance Learning industry. Our disruptor to the Open Distance Learning industry is the MOOCs and disruptees include players like iTunesU and edX.

ITUNESU AS A DISRUPTIVE INNOVATION

The first MOOCs were introduced by Stanford in 2011 as a way to distribute their material to their own registered students and to the public without a charge. The MOOC was used as a delivery and depository network to their student population and at the same time provide *foedo sine* education to the public. Excerpts of the courses are released to the public as publicity material. OpenLearn was an in-house proprietary Learning Management System (LMS) of OU. However OpenLearn was not really open. Users i.e. registered students have to log in from a browser to retrieve course material and interact with other fellow students or instructors.

iTunesU, which is a form of MOOC, was a disruptee to OU. Originally a trial project, with complements from Apple Inc, iTunesU was able to bring OU courses to new markets i.e. US and China. Unlike OpenLearn which was only open to OU registered students, iTunesU was made
available to anyone who has an Apple device or an iTunes account on a non-Apple device through a podcast. One does not need to be a registered student to learn a course. Yerrick (2013) found that students were much happier with iTunesU rather than a traditional web-based LMS because iTunesU would prompt the user when new course material is available. iTunesU was available on multiple devices and platforms. Today, many institutions of higher learning around the world use the iTunesU delivery platform. Open University Malaysia (OUM) is one of iTunesU’s affiliate university in Malaysia. A screenshot of iTunesU delivering OUM courses is shown in Figure 2.

![Figure 2: OUM Courses on iTunesU](image)

MOOCS AS A DISRUPTIVE INNOVATION

We would use edX as an example to illustrate how MOOCs act as a disruptee to the present model of online distance learning. edX is a non-profit massive open online course (MOOC) provider. edX was created by the Massachusetts Institute of Technology and Harvard University in May 2012. edX uses the Open edX, an open-source platform software. This software is available for free to institutions of higher learning.

We chose the ACCA-X from the Association of Chartered Certified Accountants (ACCA) to discuss how MOOCs have disrupted the delivery of accounting courses in the present online distance learning model but also the current conventional face-to-face mode. The content was been developed by Epigeum, an Oxford University Press company. As at March 2016, ACCA planned to offer three Foundation Level courses in ACCA-X beginning with Introduction to Financial and Management Accounting in July 2017.
ACCA-X is a disruptive innovator as compared to other edX or MOOC courses because ACCA-X challenges the model of delivery of accountancy courses in the present online distance learning model, the current conventional face-to-face mode and also the MOOC.

Firstly, ACCA-X is the first professional body in the world to offer official free “tuition” for the examination for the first three courses in the body. The current practice in the professional accountancy training is that the body would come out with a syllabus. Manuals for the examinations would either be prepared by the body or book publishers who have been endorsed by the body. Students (whether to distance learning or face-to-face mode students) would have to purchase the materials and study for the examination. For the first time in history, ACCA has allowed their material to be accessed on-line by the public and not just only ACCA registered students and for free. The materials released on ACCA-X are as comprehensive as the study manuals ACCA students studied in the past and are enhanced with discussion boards and progress tracking.

Secondly, for the first time in history, the general public who have no interest what so ever in taking ACCA examinations can join the class and also the discussion boards for free. By attempting the assignments posted on ACCA-X, ACCA-X provides a tool to gauge whether the ACCA-X student has the ability to pass the real ACCA examination or not. This tool actually helps improve ACCA passing rates as students who do badly in ACCA-X assessments are discouraged from registering that particular ACCA examination.

Thirdly, ACCA-X too is a disruptive innovator to other MOOCs in general. Students who have successfully completed the assessment portion of current MOOC courses in edX can only enrol for an advanced standing entry to the institution that initiated the MOOC or no where else. ACCA-X students can register for ACCA examinations anywhere in the world the examinations are offered.
MOOCs create new challenges to all institutions of higher learning whether distance learning or face-to-face and publishers of college texts. Institutions of higher learning in the present day rely heavily on published college texts. Students of professional examinations rely on study texts published by their professional bodies or publishers or colleges affiliated with the bodies. The quality of MOOCs when first introduced in 2011 varied. There were courses that written by very famous professors and sponsored by top universities and others were questionable in standard. In 2013, MOOCs were more organised when major profit and non-profit institutions of higher learning, book publishers and non-governmental organisations took interest in developing MOOCs. The providers included the Khan Academy, edX, Udacity and Coursera. The quality of materials in the MOOCs improved tremendously as traditional book publishers like Pearson, Oxford University Press (for ACCA-X) and McGrawHill began to offer MOOC products and services in conjunction with their traditional print publications. Book publishers such as Pearson, Oxford University Press (for ACCA-X) and McGrawHill understand that if they do not shift their business model to the MOOCs model they would face financial difficulty like what the music industry faced with the advent of the birth of the digital music in the first decade of the 21st century. The music industry was slow to adapt to the new technology thus resulting with the merger of rival businesses (like Sony and BMG) and the breaking up of EMI in 2012.

Unlike the traditional book, MOOC providers might not charge a fee to their readers. edX and iTunesU courses are provided for free and the education providers only get to charge when their readers decide to sit for examination or tuition classes provided by the MOOC providers themselves. The business model has changed from the provider charging a fee for the product to the provider charging a fee for the value adds of the product. MasterClass Online take a different business model to edX or iTunesU. Experts are engaged to teach vocational courses. Oscar winners Aaron Sorkin and Kevin Spacey teach classes in scriptwriting and acting while Grammy winner, Christina Aguilera teaches singing. Diane von Furstenberg teaches a course in branding. The website charges USD90 for lifetime access of classes, workbook and interaction with the instructor and other students. In order for fee charging MOOCs to be successful, the MOOCs need to have outstanding instructors who are masters of their field.

In short, MOOCs whether it is free or charged must be of exceptional quality to succeed.
OPPORTUNITIES THAT LIE AHEAD

The Chinese equivalent for “crisis” 危机 (weiji) has both characters representing danger and opportunity. Although the standards of MOOCs have increased tremendously, this does not mean that smaller MOOC players would suffer in the end.

Until today, both MOOCs and iTunesU present courses in a modular manner. Although MOOCs such as edX provide a varied range of courses to offer (654 as at 21 July 2017), they are still very few MOOCs that offer a complete suite of courses to fulfil a full degree. Students who complete edX courses can apply to enter the masters programmes of the edX provider with exemptions. Udacity is one MOOC that offers a full Master’s degree in Computer Science in association with Georgia Institute of Technology (Georgia Tech) and AT&T Inc. There is still room for degrees that can be taken 100% online through the MOOC platform. Apple Inc should explore the opportunity of hosting full online degrees on the iTunesU platform.

Accreditation is one major issue in the MOOC industry. There are currently no formal guidelines on the accreditation of MOOC courses (whether academic or vocational) in place. We foresee the MOOC industry coming together to start institutions that will accredit the quality of products from the industry. Accreditation does not come about as an immediate problem because many universities still use MOOCs to distribute promotional material. Many universities in the edX consortium use the results of completed courses (i.e. the students who have successfully completed their assessments) as an advanced standing entry to their full time courses. Other than the Computer Science Masters programme from Georgia Tech on Udacity, they are not many institutions who want to offer a full programme on the MOOC platform.
Open universities can still exist at the present moment because MOOC providers are still not comfortable to provide a suite of courses that becomes a full-fledged degree and regulators internationally have not come up with standards and procedures to accredit MOOCs. Once MOOCs decide to pull their act together, the survival of open universities using the present business model is in jeopardy. With a proper study pathways and accreditation standards, MOOCs have the ability to become Open Universities.

As ODL players cannot rely on tuition to fund their finances, they should look into mergers and acquisition (M&A) activities to make sure they can pool their resources to provide the highest quality of products to the potential customer.

CONCLUSION

MOOCs undoubtedly are a disruptive innovator to the education industry whether to the traditional on-campus industry or to the distance learning industry. However like most innovations, the incumbent should be open to innovation and to re-engineer the industry to the times. MOOCs can be a threat to both industries because of the education for free or with a nominal fee and on demand nature. To top it all, the ability of MOOC providers to engage to world class educators and practitioners to teach courses in the platform makes MOOCs a formidable rival to the existing on-campus and distance learning players. Existing players should step their game to make sure that their product is not only accessible but also of a higher quality to make sure the MOOCs do not usurp their current market.
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LEARNING CORPORATE SOCIAL RESPONSIBILITY THROUGH BLENDED APPROACH FOR A SUSTAINABLE TOMORROW
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Abstract
The European Union defines CSR (Corporate Social Responsibility) as a concept whereby companies integrate social and environmental concerns in their business operations. CSR policies exist across countries and it is promoted actively because investors, customers, and public expect companies to act sustainable and responsible. This paper contextualises need for developing an ODL programme on CSR, in India, a developing country, where the landmark Company’s Act 2013 mandates spending 2% of a company’s net profits on CSR. This places an immediate necessity on learning CSR for promoting corporate citizenship. A review of existing ODL institutions reveals that no such programme of study exists in CSR so far.

The broad objective of the study was to understand CSR trends and practices for developing relevant academic trusts. Ten case studies of companies that fell in the eligibility of CSR were conducted, and both primary and secondary data were used. Areas of inclusive growth were covered, education being common to all, followed by livelihoods, environment, health care and rural development. The companies followed sustainable development initiatives basis SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact, generating indicators in economic, environmental and social performance. The findings suggest building a CSR curriculum for ODL through a blended approach, by incorporating CSR policies, practices and requisite skills, to strategically conduct CSR for sustainable business and equitable society.

Keywords: CSR, sustainable, ODL, blended approach, inclusive growth

INTRODUCTION
Today’s learners have become well versed with Information Communication and Technology (ICT) tools and can be seen browsing and surfing the internet, communicating by means of email, can listen to lectures delivered by a professor sitting in another university, attend virtual seminars and participate in video-conferencing. The coming of online education has not only changed the landscape of distance education, but has globally impacted teaching and learning in higher education as a whole. Hence online education is no longer a trend, but is mainstream. In recent times, the benefits of using blended learning have been identified for enhancing students' learning experiences [1]. This has necessitated the learning of certain subjects through blended approach of learning, for greater efficacy.

1.1 The Evolution of ODL: A brief overview
Educationists since long have been concerned with the qualitative nature of Open and Distance Learning (ODL) as compared to that of conventional education. The Open University (UK) established in 1969, the University of Phoenix founded in Arizona in 1976, and subsequently the Indira Gandhi National Open University established in Delhi, and the China Central Radio and TV University in Beijing are well established open universities based on their high enrolment numbers, dates of establishment and employee rolls. While the conventional educational system has undergone architectural changes in the past years, the open and distance learning mode has also been undergoing a transformative phase. The ODL system in India has witnessed a journey
of transformation, right since the establishment of the School of Correspondence Courses in University of Delhi, followed by establishment of the B.R. Ambedkar Open University in Hyderabad, and later the expansion of ODL through establishment of the Indira Gandhi National Open University (IGNOU), 14 State Open Universities and over 220 Directorates of Distance Education that come under the aegis of conventional universities. Today there is scope for use of web-based technologies in teaching-learning process giving rise to blended learning environments. Also seen globally today is the entry of dot.com companies, besides traditional universities, that are competing to develop distance education programmes that take advantage of new and improved methods of delivery.

1.2 CSR in the emerging global landscape
India a developing country has seen changes in the educational system on one hand and is striving to meet the complexities of today’s business world and the challenges of a global society, on the other hand. This includes the challenges of achieving inclusive growth, that are to be addressed towards health, regional and gender disparities, and education and poverty, that attempt to reach the marginalized particularly in the rural areas, tribal areas, and the remotest parts of the country. In the present times, Corporate Social Responsibility (CSR) is emerging as a capacity building strategy for sustainable livelihoods all across India and the world. India has been rated among the top ten Asian countries that is paying increasing importance to CSR [2]. The idea of CSR is not a new one and has been seen evolving over the last few decades, to gradually reach today’s understanding. Governments that are able to leverage CSR strategies of global businesses can contribute to enhancing the business competitiveness of their country [3].
Till recently majority of studies on CSR, have been embedded in the economic and organizational contexts of Europe and the US [4]. Few studies have explored the multiple theoretical concepts of CSR in India [5] [6] [7] [8]. But so far studies very few studies have viewed CSR mostly through the levels of integration within the business sector in developing countries.

THE STUDY
2.1 Significance of the study
Very few universities and institutions are teaching CSR as a programme of study across varsities in India, and in some foreign universities this subject is being taught through various disciplines. The present study was undertaken, as in the Indian context no study has been conducted to understand learning of CSR through blended approach because the subject is new and still emerging. At the same time the changing educational scenario of today’s world presents blended learning as a new form of learning that is assuming significance in teaching-learning situations. Virtually all courses in higher education are beginning to incorporate information and communication technologies to some degree. With the help of technologies new opportunities get created for students to interact with their peers, faculty, and content. Based on the global needs of understanding CSR principles and practices, the present study is timely as it will bring out the necessary CSR contexts, specifically designed for those who are engaged in CSR and are used to technology – the executives and managers handling CSR foundations of corporates, development practitioners, administrative staff of companies, staff of non-profit-organisations, and above all students who are interested to learn CSR.
2.2 Objectives
The present study highlighted the following main objectives: (i) To gain a conceptual understanding of Corporate Social Responsibility, trends and practices; (ii) To build relevant academic thrusts for learning CSR, by understanding present CSR practices of companies; and (iii) To suggest a blended approach of learning CSR in the present contexts through blended approach of learning, for greater efficacy.

2.3 Methodology
The aim of this paper is to set the intellectual context of CSR and to establish a blended approach to learning CSR. This paper is based on qualitative research design consisting of primary and secondary sources of data collection. Case studies of ten Indian companies who have successfully implemented CSR initiatives and followed the sustainable development initiatives basis SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact, generating indicators in economic, environmental and social performance, were conducted. The ten companies were randomly selected from the list of top 217 companies of the annual Indian sustainability report produced by the Indian Institute Management Udaipur, the Economic Times and Futurescape in 2016 [9]. CSR employees of the selected companies were contacted for the same. Secondary sources of data included reports, studies, online articles, papers from journals and books.

FINDINGS AND DISCUSSIONS
3.1 The evolution, role and relevance of CSR
Earlier writings reveal that CSR was referred to as social responsibility (SR). The concept evolved through its main phases of development during the 1950–1960s which represented the period when CSR was introduced in the academic arena and in corporate philanthropy. In the 1970s the concept of CSR saw a rapid growth, and in the 1980s the stakeholder theory and business ethics gained prominence. In the 1990s CSR was seen to be practised by corporate organisations, and from the year 2000 much empirical work investigating the determinants of CSR, its embodiment in corporate strategy, and the consequences of its effective implementation, has been undertaken. The reason why companies, in the present times of the 21st century, must look beyond profits is because of the economic, social, political and environmental crises being faced by the world population. The corporations in this regard have a role to play since they contribute to the economic and social well being of humanity and in turn influence the political and social trends [10].

Corporate Social Responsibility (CSR) refers to contributions undertaken by a company to contribute to a better society through its business activities and social investment. UNICEF defines CSR as ‘referring to a company’s responsibility when it comes to the impact of its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere’ [11]. The European Union has defined CSR thus: ‘CSR is a concept whereby companies or corporations integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis’ [12]. A number of companies across the world have started promoting their CSR strategies in an active manner because the investors, customers and the public expect them to act sustainable as well as
responsible. In other words CSR is the ethical behaviour of a company towards society. Known popularly as the process where there is continuous commitment by a business to behave ethically and contribute to economic and social development, CSR improves the quality of life of the workforce and their families, as well as of the local community and society at large. Increasingly, companies also want to promote their businesses through CSR [2]. In India the Tata Group, Microsoft, Reliance Industries Ltd., Aditya Birla Group, Infosys, Jindal Steel, Indian Oil Corporation, Bharat petroleum, SBI, ICICI Bank, Biocon, NASSCOM, HDFC, Mahindra Group, Maruti Suzuki, Siemens, Larsen and Toubro, Steel Authority of India Ltd., Coca-Cola, and many more companies are making notable contributions in CSR. [13].

3.2 CSR in India under the Companies Act 2013
The landmark Companies Act 2013, of India, requires firms to mandatorily spend 2% of net profit in the last three years on CSR projects. The act mandates not just CSR, but also provides a framework within which listed companies will have to operate. In this act, there is an element of flexibility for the companies to select their preferred CSR engagements that are in agreement with the overall CSR policy of the company. It is necessary that a company with a net worth of INR 500 crores or greater has to constitute a CSR committee, of the Board of Directors who will create a CSR policy of the company. Schedule 7 of the Companies Act lists out activities, which a qualified company can take up in discharging its CSR. This schedule includes eradicating extreme hunger and poverty, promotion of education, promotion of gender equality, empowering women, maternal health, contribution to the Prime Minister’s Relief Fund or any other central or state government fund for socio-economic development, environmental sustainability, and employment-enhancing vocational skills [14]. With the passage of the Companies Act 2013, India became the first country in the world to legitimise CSR. Indian companies spent INR 9,309 crores on CSR projects in 2015-16, which was INR 163 crores more than the amount required by the law [15].

3.3 The significance of GRI and UNGC
The companies that were covered in the study were either signatories of the Global Reporting Initiative (GRI) or the United Nations Global Compact (UNGC). The GRI is a multi-stakeholder effort for creating a common framework on voluntary reporting of economic, social and environmental impact of the activities by an organisation. With an aim to provide a more comprehensive guidance on reporting details related to various organizational impacts, especially areas such as human rights and local community, the GRI released it as G3.1 guidelines. These have been replaced by G4 guidelines. The GRI has been stressing on the need for a standardized approach to corporate sustainability reporting. As per G4, disclosures on governance, anti-corruption, ethics and integrity, supply chain, and GHG emissions should be updated. Sustainability reporting enables organisations to set goals, measure performance, and manage change in order to make their operations sustainable [16]. The United Nations Global Compact (UNGC) is the world’s largest corporate sustainability initiative. It was launched in 1999, by the then UN Secretary General, Kofi Annan. It is a coalition of large businesses, environmental and human rights groups, and trade unions who are brought together to share a dialogue on CSR. The UNGC mobilises and supports companies to: (i) do business responsibly by aligning their strategies and operations with ten principles on human rights, labour, environment, and anti-
corruption; and (ii) take strategic decisions to advance broader societal goals, such as the UN Sustainable Development Goals (SGDs) with an emphasis on collaboration and innovation [17].

### 3.4 Findings from case studies
The case studies revealed the areas of CSR that were practiced by the companies (Table 1.)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Company Name</th>
<th>Sector</th>
<th>CSR activities / projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Infosys Technologies India</td>
<td>Computers</td>
<td>Healthcare, education for the under-privileged, destitute care, rural development and livelihood projects including hygiene, sanitation, training in computers, vocational training and entrepreneurship</td>
</tr>
<tr>
<td>2.</td>
<td>TATAs</td>
<td>Automotive</td>
<td>Primary education, healthcare, skills training, computers and entrepreneurship, women’s empowerment, livelihoods, strengthening services for differently abled</td>
</tr>
<tr>
<td>3.</td>
<td>Ambuja Cements</td>
<td>Construction</td>
<td>Water resource management, disaster relief, agro-based livelihood, healthcare, women’s empowerment, education, infrastructure, energy conservation and wildlife protection</td>
</tr>
<tr>
<td>4.</td>
<td>JSW Steel</td>
<td>Metal products</td>
<td>Improving living conditions through medical services for children, women and elderly; improving learning ambience and infrastructures of schools in rural India; women’s socio-economic development; community water management and water conservation; preserving national heritage and; promoting sports excellence</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. Reddy’s Laboratories</td>
<td>Healthcare products</td>
<td>Improving managerial capacities of health workers; empowering youth with better skills in ICTs and for employability; quality education in government schools; increasing access and monitoring dropouts; effective agricultural extension services; rural women’s economic empowerment; nutrition for rural children</td>
</tr>
<tr>
<td>6.</td>
<td>ITC</td>
<td>General Industrials</td>
<td>E-choupal (village electronic kiosks), social and farm forestry, watershed development, women’s empowerment, social enterprises, livestock development and primary education.</td>
</tr>
<tr>
<td>7.</td>
<td>GAIL India Ltd.</td>
<td>Oil and Gas products</td>
<td>Improving accessibility to higher education of underprivileged children; promoting grassroots level athletics for Olympics; protecting historical</td>
</tr>
</tbody>
</table>
monuments; donating for homeless and underprivileged.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>ONGC Corporation</td>
<td>Oil and Gas products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education and vocational courses, healthcare, women’s empowerment, promoting sports, promoting artisans, protecting heritage sites, water management, environmental protection and ecological conservation.</td>
</tr>
<tr>
<td>9.</td>
<td>HPCL Ltd.</td>
<td>Oil and Gas products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Child care, education through computer awareness skilling programmes, mid-day meals for government schools, skill development and community development, and medical care in rural areas.</td>
</tr>
<tr>
<td>10.</td>
<td>NDMC Ltd. Company</td>
<td>Industrial Metals and Mining</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Education, health and hygiene, integrated village development, drinking water supply, infrastructure, environment and skill development.</td>
</tr>
</tbody>
</table>

The Tata's: A case study
The Tata Group comprises of a hundred companies operating across six continents. The Tata Sustainability Group of the Tatas, is a group that is driven by a vision to guide and provide leadership to the Tata group of companies in incorporating sustainability in their business strategies. Within the Tata group, the Tata Steel, Tata Consultancy Services and Tata Motors feature among the top 800 companies in the Global Dow Jones Sustainability Index 2016, as leaders in sustainable business practices. The Tata Group’s CSR activities are rooted in the knowledge that businesses have a duty to enable all living beings to get a fair share of the planet’s resources. Their ten core principles of CSR are: beyond compliance, impactful, linked to business, relevant to national and local contexts, sustainable development principles, participative and bottom-up, focussed on the disadvantaged, strategic and built to last, partnerships, and opportunities for volunteering. The Tata’s are committed to integrating social, environmental and ethical principles into their core business, thereby enhancing long-term stakeholder value and touching the lives of nearly a quarter of the world’s population. The CSR programmes of the Tatas are contextualised to be relevant for the local, national and global world, while keeping the disadvantaged communities in focus. Included in their social activities are primary education, information technologies, healthcare, skills training and entrepreneurship, women’s empowerment, livelihoods, strengthening services for differently-abled. Their CSR activities are based on globally-agreed sustainable development principles and implemented through partnership with governments, NGOs and other relevant stakeholders. The Tatas are a signatory to the United Nations Global Compact since 2002, and are committed to foster better CSR in the areas of human rights, labour, environment and anti-corruption.

It was found that ever since the Companies Act 2013, the companies have gained a deeper focus on Sustainability, CSR, Governance and Disclosure. A shift was seen in the focus towards sustainability and social responsibility in creating long term competitive advantages and management of risks, from a focus on compliance, market access and acquiring of customers. The findings however revealed that there is still a huge scope for improvement in biodiversity and
participation in global agreements, although there were improvements in governance. Most of the companies covered in the present study had disclosures, but needed improvement. Of all the companies that were covered in sustainability and CSR in 2014-15, very few companies participated in industry-specific sustainability initiatives on an average, only 60% companies had sustainability reports, and only 25% of the companies had GRI based sustainability reports [9]. This reveals that disclosures were not adequate, as sustainability reporting was adequate. Out of the ten companies in the present study, a majority (seven companies) had increased focus on sustainability with increased efforts on waste management, management of water and energy resources, reduction of emissions, and climate change. Disclosure on emissions needed more focus as only few companies disclosed information on Green House Gas (GHG) emissions and participated in Carbon Disclosure Project. There was focus on sustainable products and services, and more emphasis on renewable energy programmes for reducing emissions from the activities and operations of the companies. These were mostly in line with the government programmes.

The CSR experts revealed that they were working towards increasing the footprints as they were small. They also stated that there was a major sustainability gap in endeavouring towards sustainability efforts. This is because the companies were more focussed on immediate operations related to their programmes and compliance, rather than focussing on strategies towards sustainability on a long term basis. However the brighter side revealed that because of the Companies Act 2013, the companies had started working towards improving compliance on the basis of their company’s CSR committee recommendations and requirements, and on spending and reporting accountabilities. The companies were engaging in the delivery of government programmes aimed at national development such as ‘Swachh Bharat Abhiyan’ (Clean India Campaign) with a focus on construction of toilets in rural areas and cleanliness; solar energy; women’s economic and social empowerment programmes; programmes for farmers; programmes for health and nutrition of children, adolescents and women; Digital India mission; and other such programmes.

The study reveals that there is a need for companies to enhance focus on communities, create a synchronization of their CSR committees and teams with various other corporates and the government, while joining hands with NGOs to ensure greater impact through collective effort. It has been seen earlier that companies which are not managing CSR strategies properly resulted in degraded public opinion and loss of reputation. Top CSR icons like the Infosys and Tatas have set benchmarks for other companies not just in India but across the world in the way social responsibility and corporate governance are handled. Such companies reap benefits of having good corporate citizenship, increased revenues and top of the mind brand recall, because of their being model corporate citizens. The CSR employees indicated that there is an urgent requirement for developing a curriculum in CSR through the ODL mode. The companies focused their activities on communities primarily located around their operational areas, and were committed to reduce social and economic inequalities through providing better opportunities in health, education, skill development and employment. They were reaching out to stakeholders, the community and society who are directly and indirectly involved in their business operations.
3.5 **Need to articulate CSR**
The findings in the study reveal a need to make a case where a curriculum has to fit in to strengthen an understanding of CSR. This has to be done by highlighting that no company can survive without making profits, and the key is to understand the way in which profits (or efficiency) are created. The benchmarking here is to become good corporate citizens. The objective therefore is to build a strong understanding of CSR as a management and development concept, and a process that integrates social and environmental concerns into business strategies and operations. The objective of building a curriculum in CSR is also to - nurture talent, train future workforce, incubate ideas right from college levels and identify future leaders who are directly or indirectly involved in their business operations.

3.6 **A win-win situation for all stakeholders to learn CSR through Blended Approach**
In most parts of the world including India, the infusion of information and communications technology in higher education is taking place as already mentioned earlier in the study. This draws attention to the approach of blended learning. It can be best seen as an approach to catch the learners young and watch them grow, through blended learning of CSR [18]. Keeping in view of the growing need to understand and learn CSR, the course designed should highlight the core concepts, practices, strategies and principles of sustainability and CSR. The modules can be prepared as per the institutes’ requirements in the following areas (Table 2.):

<table>
<thead>
<tr>
<th>Table 2. Contents of the Course Module in CSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>History and definitions of CSR</td>
</tr>
<tr>
<td>Concepts on Corporate Governance, Volunteerism and Sustainability</td>
</tr>
<tr>
<td>Sustainable development initiatives based on SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact</td>
</tr>
<tr>
<td>Laws pertaining to CSR in countries (if any), the Companies Act 2013 (India)</td>
</tr>
<tr>
<td>Building CSR strategies and social entrepreneurship for CSR</td>
</tr>
<tr>
<td>Accounting for measuring impact and sustainability</td>
</tr>
<tr>
<td>Presenting CSR reports</td>
</tr>
<tr>
<td>Practical examples in CSR (Walmart, Infosys, Cadbury and others)</td>
</tr>
<tr>
<td>Sustainability ranking and awards</td>
</tr>
<tr>
<td>Applying definitions in practice</td>
</tr>
</tbody>
</table>

The course, that can be applicable in all ODL institutes and universities, aims to address the needs of current professionals in: corporate administration, those involved in the CSR foundations of companies, the NGOs, International Organisations, various Government bodies, individuals who wish to make CSR practice applicable in their companies / institutes, and above all learners who are interested to engage in CSR in the future. The suitability and efficacy of online learning and virtual learning environments (VLEs) have been documented [19]. By the end of the course the participants should be able to fulfill the following learning objectives: (i) to understand and define CSR, sustainability and good governance, (ii) to become familiar with CSR skills and strengthen them by gaining knowledge of best practices, (iii) to learn development
practices for leveraging CSR, and (iii) to become familiar with measuring social impacts and sustainability.

3.7 Using a Blended Approach to learning CSR

The approach to blended learning uses a combination of face-to-face and online delivery methods, with the aim of each complementing the other. Such an approach should, therefore, influence students’ perceptions of the learning environment and, subsequently, their study approach and learning outcomes. Here most of the learners would be CSR executives, development practitioners and other learners who are familiar with technology. Participants can be introduced to a range of effective learning methods and online technologies can be used to learn the concepts. It is preferable that such learning is student-centred. For example, an initial workshop can be delivered for designing and developing learning activities that will engage students and make effective use of blended approach. Taking from there the following variations in blended approach to learning, found suitable to learn CSR in various situations, be they face to face or virtual, to cater to learner’s convenience and availability to learn, are suggested in Fig. 1:

Fig. 1 Blended learning programme applicable to CSR
Source: https://time2learn.wikispaces.com
The content of the programme includes CSR policies, practices and requisite skills, to strategically conduct CSR for sustainable business and equitable society. Hence to practically navigate through the subject, reputed companies like Microsoft, Infosys, Tatas, Birlas, JSW, Larsen and Tubro, and others that engage in progressive CSR can get into online collaboration with such institutes. Such kind of industry-academia collaboration will help translate CSR concepts into tangible action and also skills such as mediation, coaching, organisational development and stakeholder dialogue in CSR. It would prove beneficial if corporates can provide funds to ODL universities for technology usage in such education. The corporates can combine their CSR activities with brand building and can also fund needy students. Many corporates are instituting leadership awards in business schools that are targeted at women leaders, future leaders and potential leaders so that the leadership skills can be honed right from the time the students start their education. This is the case with many business schools in the west where leading companies often give out leadership awards to those whom they consider potential leaders [18]. This will encourage them to enroll in CSR programmes.

Experiences and coaching can be disseminated online by CSR professionals of such companies. Environmental experts can also be engaged for online discourses on sustainability, climate change, green energy initiatives, GHGs etc. Learners are better facilitated, as they are already in a work based environment or in technology supported environments with good internet connection and e-mail access. Students can even present webinars. As shown in Fig.1. a comprehensive understanding of various blended learning programmes applicable to CSR has been depicted. The students can meet exclusively in a face to face (F2F) classroom and teacher / instructor uses technology such as e-mail or web conferencing for online lectures. Or it could be a F2F classroom learning along with simulated technology enabled sessions in the class, using F2F technologies. Similarly, based on the academic institutes resources and learner’s / stakeholder’s requirements, it could be an all online classroom where the students and instructor meet online and the instructor makes use of technology within the online class such as social networking and electronic bulletin boards, or uses a more advanced technology such as videoconferencing in the online classes [20].

A network of students from all across the world or a country, can from a network and can collaborate on best CSR practices on for example, education or health and respond in real time and to enrich the learning experiences acquired from the CSR academic programme, and share these learning experiences with others living outside the town, state or country. Tutors can respond to participants’ requests and questions on a regular basis through email or on discussion forums. Course material, documented bibliography and a glossary of terms can be uploaded in electronic formats on the Institute’s platform. This will help in ensuring participants’ motivation, and the course can apply follow-up mechanisms to monitor the working time and completion of assignment work. Different e-learning tools such as theoretical inputs, on-line discussions, free and guided chat sessions, exercises, games, and case studies will be useful [21] [22]. Activities such as course-end quiz to test learners’ understanding and online assignment submissions would reinforce students understanding and help in grading them.
CONCLUSION
The present study has highlighted the importance of CSR and how it can be operationalised in the changing diversity of corporate governance and meeting of SDGs, for a sustainable world. The subject warrants immediate and urgent concern in academic institutions of higher learning. A technology based blended learning approach is the need of the hour as this can potentially encourage a shift from teacher-centric and content-driven courses to student-centric courses that are enquiry-based. Such a programme will be able to effectively meet a greater diversity of students’ needs, enhance flexibility, motivate them, engage them, and enhance learners’ capacity and their organisations to better address social responsibility and promote efficient corporate citizenship in a globalised world.

REFERENCES


BACKGROUND

In Japan, cancer has been the leading cause of death since 1981, and its mortality is increasing. In 2013, 360,000 people died of cancer, and as many as 850,000 people are newly diagnosed with cancer every year.\(^1\) (Fig. 1) According to the Vital Statistics and the Comprehensive Survey of Living Conditions in 2001, malignant neoplasms (cancer) accounted for about 30% (28.9%) of all deaths in people 65 years of age or older (Fig. 2).

![Fig.1] Trends in death rates for causes of death

![Fig.2] Causes of death in people 65 years of age and older

In 2011, the Center for Cancer Control and Information Services at the National Cancer Center estimated that one in two Japanese people develop some type of cancer in their lifetime.

In addition, the five-year survival rates for stomach, colorectal and breast cancers exceed 70% (Cancer Statistics in Japan 2014); an increasing number of people are living with cancer after its development. Cancer patients and their family feel anxious both mentally and physically; they
also experience social distress (anxiety), such as difficulty to work while receiving medical treatment. Thus, cancer is very close to the lives of the Japanese.

**Cancer education is important**

“**Junior high and high schools do not provide adequate education on cancer prevention.**”

A questionnaire survey conducted by health nurses on new students at one university (women’s university) revealed that the respondents had received education about harms of tobacco and alcohol and about sexually transmitted diseases in their health (physical education) classes, but they had not received proper education about cancer and infection in school education (elementary and secondary).

An anonymous self-administered questionnaire survey was conducted in 2012 at a women’s university in Chiba Prefecture in freshmen attending a health education lecture; according to this survey, many students answered that they had received proper education on topics such as “health effects of smoking (65.0%),” “health effects of alcohol drinking (61.9%),” and “health effects of drugs (69.0%)” (all items exceeded 60%) in their junior high and high school health education classes. On the other hand, the fewest number of students answered that they had received proper education about “cancer prevention (13.9%)” and “appropriate use of medical products (18.4%)”.

Elementary and secondary education (junior high and high schools) do not provide adequate education on mechanisms of cancer development and carcinogenic factors (and in infections, knowledge such as the difference between bacterial infection and viral infection).

**1.2 Importance of health literacy education: “Health Literacy Education as Lifelong Education”**

Disseminating reliable information about cancer will help more people become familiar with the correct way of prevention and early detection, and will provide an opportunity for them to learn about appropriate management techniques, as well as help them protect themselves and their loved ones. Many people are interested in learning about cancer; it is necessary to develop education, materials and methods that are easy to understand for ordinary people including patients and their family.

We decided to create a course at the Open University of Japan, which provides lifelong education. An online course called “Understanding Cancer in Japan,” which consists of lectures about cancer, was started as part of lifelong health literacy education.

**1.3 Social security and medical expenditure in Japan**

Faced with rapid social aging, the Japanese government has made system reforms to secure needed benefits. As a result, social security expenditure including costs for pension, medical care and nursing care in Japan has kept growing and now exceeds 100 trillion yen. Controlling and slowing down the rate of increase in medical expenditure are important issues for Japan. In terms of controlling the growth of medical expenditure, health literacy education is important² (Fig. 3).
METHODS

In April 2016, an online course “Understanding Cancer in Japan” was started as a Living and Welfare course at the Open University of Japan. Gaining introductory knowledge of this disease, its causes, prevention and treatment, and knowing how to cope with it will not only help people protect themselves but also their loved ones (family and friends). Cancer patients and their family feel anxious both mentally and physically, and they also experience social distress (anxiety), such as difficulty to work while receiving medical treatment. To help resolve the anxiety and distress that cancer brings on patients and their family, an online course called “Understanding Cancer in Japan” was started; in this course, in addition to explanation of the disease, lectures on cancer are offered from different perspectives, including sociology and public health sciences, medical ethics, development of new drugs and medical technology, health policies and welfare programs.

The following is the structure of the online course “Understanding Cancer in Japan.”

1. The course consists of 15 sessions.
   The course period is four months; to align with the broadcast lecture courses held at the same time (15 sessions, 15 weeks), the starting date of each session is delayed; therefore, not all sessions are available at the start of the semester.
The session consists of a presentation by a host and a guest speaker, and a discussion about the theme.

The presentation portion of each session is about 45 minutes and is divided into three parts.

After each part, there is a multiple-choice quiz to check the student’s understanding. (Students can go on to the next part even if they cannot answer correctly)

After the completion of each session, there is a 10-question multiple choice test.

A total of 15 sessions are grouped into three blocks; when each block is finished (one month, two months, and three months after the course start date), there is a two-week discussion period which provides an opportunity for the students to discuss with each other.

First discussion (Sessions 1–4: introduction, cancer research, prevention, screening)
Second discussion (Sessions 5–10: specific cancer issues, palliative care, home palliative care)
Third discussion (Sessions 11–15: cancer treatment topics, cancer control, conclusion)

Discussions are held online about the information covered in the sessions. Students are evaluated by their opinions, comments, exchange of information that will help them write their reports, and their active participation in discussions online.

Students are required to submit a report in the fourth month. Students may choose their own theme. Students are also asked to give feedback about the course in their reports.

With an aim to manage the progress of students, an e-mail newsletter is sent to all students every Monday. The newsletter provides latest topics and relevant information, as well as the main points of the session of that week. It also offers tips on how to choose the report theme, collect information and read materials to be of some help when writing the report.

The titles of all 15 sessions are shown below.

**Session 1 Understanding Cancer in Japan – Objectives of the Course and Its Background**
**Session 2 Mechanism of Cancer Development**
**Session 3 Preventing Cancer**
**Session 4 Learning Properly about Cancer Screening**
**Session 5 Cancer Treatment and Care – Actual Example 1 Breast Cancer**
**Session 6 Cancer Treatment and Care – Actual Example 2 Lung Cancer**
**Session 7 Cancer Treatment and Care – Actual Example 3 Colorectal Cancer**
**Session 8 Palliative Care for Cancer**
**Session 9 Home Palliative Care for Cancer – Present and Future**
Session 10 Home Palliative Care for Cancer – Creating a Support System for Cancer Patients and Their Family
Session 11 Topic on Cancer Treatment – Radiation Therapy
Session 12 Topic on Cancer Treatment and Research – Drug Therapy for Cancer
Session 13 Considering Cancer Control – General Discussion
Session 14 Considering Cancer Control – Regional Perspective
Session 15 Conclusion: Creating a Society Where People Can Live with Cancer – From the Perspectives of Patients and Citizens

Students can watch these sessions anytime and anywhere and as many times as they wish, as long as they have internet access.

RESULTS

3.1 Number of students

During the first semester of 2016, which was the start of the course, 968 students (male: 339, female: 629) took the course, and 555 students (male: 186, female: 369) earned credits for this course; the rate of earning credits was 57.3% (male: 54.9%, female: 58.7%). In the second semester of 2016, 754 students (male: 243, female: 511) took the course, and 446 students (male: 140, female: 306) earned credits for this course; the rate of earning credits was 59.2% (male: 57.6%, female: 59.9%).

3.2 Number of students by prefecture

Fig. 4 shows the number of students by prefecture. There were 195 students from Tokyo, followed by 53 from Kanagawa, 51 from Osaka, 49 from Chiba, 49 from Aichi, 48 from Saitama, and 43 from Hokkaido; there were students from all prefectures.

[Fig. 4] “Understanding Cancer in Japan” 2016 1st semester distribution of students by prefecture
3.3 Report topics


3.4 Feedback from students

The following is the feedback from students in their reports for the online course “Understanding Cancer in Japan” during the first semester of 2016 (n=553). Seventy-five percent answered that the course was very helpful, and 23.1% answered that it was helpful. When asked how easy it was to understand overall, 46.1% answered that it was very easy to understand, 47.2% answered it was easy to understand, and 5.8% answered it was okay. As regards the amount of assignments (tests, discussions and reports), 22.4% felt the amount was appropriate, 59.5% felt it was slightly too much, and 16.8% felt that it was too much. To the question of whether they want to recommend this course to others, 36.5% answered that they would strongly recommend, 53.2% answered they would recommend, 8.1% had no opinion, and 1.4% answered they would not recommend.

3.5 Free-answer question

The following are some comments to the free-answer question:

- The sessions were very easy to understand.
- Knowing about cancer helps us ease our fear and reduces the risk of being misled by inaccurate information.
- It was the first time I heard about the Cancer Control Act.
- I didn’t expect this course would make me think so deeply.
- I was impressed by the enthusiasm of everyone during the discussions.
- I hope many people will take this course.
- Participation in the discussions made me realize that I was not the only one taking the course. I never felt isolated.

DISCUSSION

4.1 Students

Approximately 1000 students took the course during the first semester in 2016 (start of the course), which was more than we expected for an online course. Students were from all over Japan, suggesting a deep national interest in this topic.

When we look at the male-to-female ratio of the students, there are more than twice as many females than males. The reasons for this could be because the issue of breast cancer is covered
in Session 5; there are female-specific cancers like breast and cervical cancers which can develop at a relatively early age; and a popular female personality who suffered from cancer raised the social awareness of cancer, especially among women.

4.2 Report topics

Students chose their own report topics relatively freely; many students chose to cover issues such as cancer screening (especially measures to increase the cancer screening rate), harms of tobacco and smoking cessation support, cancer treatment (especially radiation therapy and chemotherapy) and palliative care, revealing a high interest in cancer screening, tobacco, radiation and chemotherapy, and palliative care.

4.3 Feedback from students

The course was highly appreciated by the students. Many students felt the course was helpful and easy to understand, and said they would like to recommend the course to other students. We believe that the course structure and contents are appropriate.

However, as regards the amount of assignments (tests, discussions and reports), far more students thought the amount was “slightly too much” or “too much,” (60% and 17%, respectively) compared to students who thought the amount was “appropriate” (22.4%); this may be the reason why the rate of earning credits for this course did not reach 60%. However, the rate of earning credits for other online courses are even lower than that for this course; the low rate may be unique to online courses. This issue must be considered further with other courses.

4.4 Free description

Comments from the free description section also show high appreciation for the course. Unlike broadcast lecture courses, online courses have an advantage of providing students with opportunities to discuss online, read opinions and comments of others, and communicate with each other. This helps students realize they are not alone in taking the course and prevents them from feeling isolated. This fact shows that online courses are active learning courses, in contrast to broadcast lecture courses which are one-sided and passive learning courses. The online course has also helped build a sense of unity among students. Even after the end of the course, interested students have created a mailing list and built an online community in order to communicate with each other. This is also a follow-up service.

4.5 Future prospects

I. We will explore the possibility of delivering the course “Understanding Cancer in Japan” in overseas countries. English translation of the course and its overseas delivery will be considered.
II. Social security expenditure in Japan, consisting of medical expenditure and other costs including pensions and care costs, impose a burden on the people (taxpayers and insured
persons) and the economy. Consultation behavior of the people and health literacy education to prevent diseases become important. As part of health literacy education, courses on health and medicine will be made into a series.

III. An online course called “Living with Cancer” (cancer survivor, job assistance for cancer patients, livelihood support), which is an application course that follows “Understanding Cancer in Japan,” will be started in April 2018.

IV. An online course called “Community Comprehensive Care System and Home Care,” which will cover issues on community health, care and welfare in Japan, healthcare for the elderly and the disabled, and pediatric care, will also be started in April 2018.

V. Health literacy education will be offered through hybrid cast service, with the combination of online, broadcast lectures and face-to-face sessions.

CONCLUSION

Although students must be familiar with digital devices like computers and smartphones, online courses have made it possible for a large number of people to learn about cancer easily at the same time. Online courses can provide learning opportunities that address individual issues and meet individual needs, by taking advantage of the interactivity and offering timely information of concern and recent efforts. We expect that this course, taking advantage of its interactivity, would promote communication and widely spread correct knowledge.

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MARKETING COMMUNICATION AND THE ROLE OF DIGITAL CHANNEL IN DIGITAL ERA

Hartati, S.Si, M.Sc¹, Iisnawati, S.E, M.Si²

¹Hartati, S.Si, M.Sc (Indonesia)
²Iisnawati, S.E, M.Si (Indonesia)

Abstract

The purpose of this research is to investigate marketing communications influence to student’s decision for studying in Open University of Palembang and the role of digital channels. The research draws from the literature on industrial marketing communications to examine the effective marketing communication to student’s decision for studying in Open University of Palembang. The research will be analyzed by using empirical data taken from the students of Open University of Palembang. The result will indicate the most effective marketing communication channel which is influence student’s decision for studying in Open University of Palembang. The research will draw the role of digital channels in marketing communication as a new opportunity for Open University of Palembang to deliver various marketing objectives in digital era.

Keywords: Marketing Communication, Digital Channel, Open University

INTRODUCTION

Indonesia government mission to be digital nation in 2020 has change the society, lately. Based on Asosiasi Pengguna Jasa Internet di Indonesia (APJII)’s data, this new era is indicated by the huge number of internet user in Indonesia. From 256,2 million of people of Indonesia, APJII’s in 2016 has recorded 51,8% or 132,7 million of them are internet user and Sumatera is on the second rank after Java Island.

Many company and institution including university participating and holding the role to support this mission. One of the university in indones at holding the role is Open University. Open University is an educational institution that implements distance learning system. Wide range area, distance and varian of marketing communication channel has become great challenge for Open University to reach their potential students. This challenge has force them to build an effective and efficient system with wide range to reach potential students, including the system of marketing communication. Many new innovation has been developed in marketing communication media starting from social media such us Facebook (FB), Twitter, Instagram, Blog, Vlogger and many more.

In service industry, service consumption can be divided into three-principal stages; pre-purchase, service encounter, and the last is post-encounter (Lovelock, 2011). When potential students are in this stage, their awareness of need, need to be arouse. In this stage, this potential students will search information about university that they will choose, University need to provide this information and deliver it with the right channel. If potential students find this information and fulfill their need, they will move to the service encounter stage. In this stage, potential students will apply as the student of Open University. We can conclude that effective marketing communication channel hold important role at the first stage of purchase decision in service industry. As a result of increasing and competition,, institutions need to be concerned with market positioning and differentiated offers to survive.
METHODOLOGY
This research is using data collected from 2,058 student of Non-Basic Educational or Non-Pendas at Open University of Palembang in year of study on 2016. This research is using secondary data in form of student data base information. The data is taken by choosing related data of the students including gender, age, domicile and their source information or their marketing communication channel. The data was taken from data base of registered students of Open University of Palembang. Open University of Palembang input this data from annual application questionnaire that issued for their new students. This research is using descriptive statistic analysis with cross-tabs method. Data analyzed by using IBM SPSS 20.

RESULT
The first stage in any market analysis is to establish the characteristics of existing customers (Mark & Ewan, 1997). The firm should know the segments of the market that potentially could be satisfied by their product and should involves product positioning on the next step (Peter & Olson, 2009). It can be conclude that to develop and decide the marketing communication channel, Open University of Palembang needs to analyze their basic market segmentation from student’s demographic information, which can be found from Tabel 1 as follow:

Tab. 1. Student’s Demographic Information – Open University of Palembang (Non Pendas)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Frequency (person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25 years old</td>
<td>896</td>
<td>43,5</td>
</tr>
<tr>
<td>25-29 years old</td>
<td>346</td>
<td>16,8</td>
</tr>
<tr>
<td>30-34 years old</td>
<td>358</td>
<td>17,4</td>
</tr>
<tr>
<td>35-39 years old</td>
<td>257</td>
<td>12,5</td>
</tr>
<tr>
<td>40-44 years old</td>
<td>129</td>
<td>6,3</td>
</tr>
<tr>
<td>&gt;44 years old</td>
<td>72</td>
<td>3,5</td>
</tr>
<tr>
<td>Total</td>
<td>2058</td>
<td>100</td>
</tr>
<tr>
<td>2.Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>966</td>
<td>46,9</td>
</tr>
<tr>
<td>Male</td>
<td>1092</td>
<td>53,1</td>
</tr>
<tr>
<td>Total</td>
<td>2058</td>
<td>100</td>
</tr>
<tr>
<td>3. Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>1751</td>
<td>85,08</td>
</tr>
<tr>
<td>SMK</td>
<td>67</td>
<td>3,26</td>
</tr>
<tr>
<td>D1</td>
<td>11</td>
<td>0,53</td>
</tr>
<tr>
<td>D2</td>
<td>44</td>
<td>2,14</td>
</tr>
<tr>
<td>D3</td>
<td>108</td>
<td>5,25</td>
</tr>
<tr>
<td>Demographic Information</td>
<td>Frequency (person)</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>D4</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td>S1</td>
<td>72</td>
<td>3,50</td>
</tr>
<tr>
<td>S2</td>
<td>2</td>
<td>0,10</td>
</tr>
<tr>
<td>S3</td>
<td>2</td>
<td>0,10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2058</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4. Domicile

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency (person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kab. Bandung</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td>Kab. Banyusain/Pangkalan Balai</td>
<td>75</td>
<td>3,64</td>
</tr>
<tr>
<td>Kab. Empat Lawang</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td>Kab. Lahat</td>
<td>196</td>
<td>9,52</td>
</tr>
<tr>
<td>Kab. Lampung Selatan</td>
<td>32</td>
<td>1,55</td>
</tr>
<tr>
<td>Kab. Lombok Barat</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td>Kab. Muara Enim/Liot</td>
<td>380</td>
<td>18,46</td>
</tr>
<tr>
<td>Kab. Musi Banyusain</td>
<td>430</td>
<td>20,89</td>
</tr>
<tr>
<td>Kab. Musi Rawas</td>
<td>57</td>
<td>2,77</td>
</tr>
<tr>
<td>Kab. Musi Rawas Utara</td>
<td>11</td>
<td>0,53</td>
</tr>
<tr>
<td>Kab. Ogan Ilir</td>
<td>46</td>
<td>2,24</td>
</tr>
<tr>
<td>Kab. Ogan Komering Hilir</td>
<td>108</td>
<td>5,25</td>
</tr>
<tr>
<td>Kab. Ogan Komering Ulu</td>
<td>6</td>
<td>0,29</td>
</tr>
<tr>
<td>Kab. Ogan Komering Ulu Selatan</td>
<td>53</td>
<td>2,58</td>
</tr>
<tr>
<td>Kab. Ogan Komering Ulu Timur</td>
<td>7</td>
<td>0,34</td>
</tr>
<tr>
<td>Kab. Penukal Abab Lematang Ilir</td>
<td>2</td>
<td>0,10</td>
</tr>
<tr>
<td>Kota Binjai</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td>Kota Lubuk Linggau</td>
<td>155</td>
<td>7,53</td>
</tr>
<tr>
<td>Kota Pagar Alam</td>
<td>5</td>
<td>0,24</td>
</tr>
<tr>
<td>Kota Palembang</td>
<td>300</td>
<td>14,58</td>
</tr>
<tr>
<td>Kota Prabumulih</td>
<td>172</td>
<td>8,36</td>
</tr>
<tr>
<td>Pagaralam</td>
<td>18</td>
<td>0,87</td>
</tr>
<tr>
<td>Prop. D.I. Aceh</td>
<td>1</td>
<td>0,05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2058</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

5. Media Information/MC Channel

<table>
<thead>
<tr>
<th>Media/Channel</th>
<th>Frequency (person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banner</td>
<td>108</td>
<td>5,2</td>
</tr>
<tr>
<td>Family/relatives</td>
<td>111</td>
<td>5,4</td>
</tr>
</tbody>
</table>
Demographic Information | Frequency (person) | Percentage (%)  
---|---|---  
Friend | 1449 | 70.4  
Leaflet | 4 | 0.2  
Non Printed Mass Media | 4 | 0.2  
Others | 246 | 12  
Printed Mass Media | 43 | 2.1  
Website | 93 | 4.5  
Total | 2058 | 100  

From the demographic information, we found basic segmentation for Open University of Palembang. If we look up from the age group category, student with the age group under 25 years old (43.5%) is the potential market for Open University of Palembang. As we know Open University is the only one university that accept student in all age. Open University known as a university for working people and most of them are not young anymore. But from data, we can conclude that Open University of Palembang now also known by young student with group age under 25 years old. From gender category, we found that male and female students in Open University of Palembang almost has the same portion. But male (58%) student is the dominant gender. For basic education category, we found that high school graduated is the dominant student. This result match to the age group category where the group age under 25 years old is dominating the student. As the university that using distance learning system, Open University has a wide range area. That is why, we found that domicile of the student is various, not only in Palembang city but also spread out in many kabupaten in South Sumatera and it is also reach another province. But for domicile category, the student dominated from Kabupaten Musi Bayuasin (20.89%), followed by Palembang City in the second rank (14.58%).

For source of information, Open University of Palembang divided their media information into 8 (eight) media channel which is including banner, family/relatives recomendation, friends recomendation, leaflet, non printed media, printed media mass, others (social media) and website. Banner is printed promotion media. Family/relatives is word of mouth media information, where the student get the recomendation from their family or relatives. Friend also word of mouth media information. Leaflet is printed promotion media. Non printed media mass are radio and TV advertising. Printed media mass is newspaper advertising. Others are including social media such us facebook and twitter. And the last, is website as digital channel of marketing communication. From data, we found that the dominant source of information that influence them to studying in Open University of Palembang is their friend recomendation (70.4%).

Sophisticated practitioners said that demographic information such as age, gender, domicile can tell the story about consumer’s buying preferences, media-usage habits, and purchase behaviors (Shimp & Andrews, 2010). To define media usage habits from the student of Open University of Palembang, we analyzed the data using cross tabulation method between student’s demographic information (including age group, education, gender and domicile) with media information or marketing communication channel (MC Channel) that they use. The result of the analysis will draw out marketing communication channel that influence student’s decision to studying in Open University of Palembang based on their demograpic information. This cross tabulation result could be found in Table. 2-5.
MEDIA USAGE HABITS

To define media usage habit of the students, we used cross-tabulation between the students’s demographic informations with media information/MC Channel.

Table 2. Cross tabulation between Age Group with Media Information/MC Channel
(Non Pendas)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Media Information/MC Channel</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Banner</td>
<td>Family/relatives</td>
<td>Friend</td>
<td>Leaflet</td>
<td>Non Printed Mass Media</td>
<td>Others</td>
<td>Printed Mass Media</td>
</tr>
<tr>
<td>&lt;25</td>
<td>65</td>
<td>80</td>
<td>559</td>
<td>3</td>
<td>3</td>
<td>126</td>
<td>23</td>
</tr>
<tr>
<td>25-29</td>
<td>19</td>
<td>16</td>
<td>250</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>6</td>
</tr>
<tr>
<td>30-34</td>
<td>10</td>
<td>5</td>
<td>272</td>
<td>0</td>
<td>0</td>
<td>47</td>
<td>8</td>
</tr>
<tr>
<td>35-39</td>
<td>11</td>
<td>3</td>
<td>211</td>
<td>1</td>
<td>1</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>&gt;44</td>
<td>2</td>
<td>4</td>
<td>57</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>111</td>
<td>1449</td>
<td>4</td>
<td>4</td>
<td>246</td>
<td>43</td>
</tr>
</tbody>
</table>

As the potential market for Open University of Palembang, we figure out that friend’s recomendation (62%) is the dominant media information that influence the student with the age group under 25 years old.

Table 3. Cross tabulation between Gender with Media Information/MC Channel
(Non Pendas)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Media Information/MC Channel</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Banner</td>
<td>Family/relatives</td>
<td>Friend</td>
<td>Leaflet</td>
<td>Non Printed Mass Media</td>
<td>Others</td>
<td>Printed Mass Media</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>65</td>
<td>648</td>
<td>4</td>
<td>3</td>
<td>130</td>
<td>22</td>
</tr>
<tr>
<td>Male</td>
<td>57</td>
<td>46</td>
<td>801</td>
<td>0</td>
<td>1</td>
<td>116</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>111</td>
<td>1449</td>
<td>4</td>
<td>4</td>
<td>246</td>
<td>43</td>
</tr>
</tbody>
</table>

From gender characteristic as the potential market for Open University of Palembang, we figure out that friend’s recomendation also become the dominant information source that influence the male students for about 73%.

Table 4. Cross tabulation between Education with Media Information/MC Channel
(Non Pendas)

<table>
<thead>
<tr>
<th>Education</th>
<th>Media Information/MC Channel</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Banner</td>
<td>Family/relatives</td>
<td>Friend</td>
<td>Leaflet</td>
<td>Non Printed Mass Media</td>
<td>Others</td>
<td>Printed Mass Media</td>
</tr>
<tr>
<td>High School</td>
<td>96</td>
<td>92</td>
<td>1287</td>
<td>4</td>
<td>3</td>
<td>167</td>
<td>41</td>
</tr>
</tbody>
</table>

43
As the potential customers, the student graduated from high school also using friend’s recommendation for about 74% as their dominant information source that influence them to study in Open University of Palembang.

Table 5. Cross tabulation between Domicile with Media Information/MC Channel (Non Pendas)

<table>
<thead>
<tr>
<th>Domicile</th>
<th>Media Information/MC Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Banner</td>
</tr>
<tr>
<td>Kab. Bandung</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Banyuasin/Pangkalan Balai</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Empat Lawang</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Lahat</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Lampung Selatan</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Lombok Barat</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Muara Enim/Liot</td>
<td>86</td>
</tr>
<tr>
<td>Kab. Musi Banyuasin</td>
<td>19</td>
</tr>
<tr>
<td>Kab. Musi Rawas</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Musi Rawas Utara</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Ogan Ilir</td>
<td>1</td>
</tr>
<tr>
<td>Kab. Ogan Komering Hilir</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Ogan Komering Ulu</td>
<td>0</td>
</tr>
<tr>
<td>Kab. Ogan Komering Ulu Selatan</td>
<td>0</td>
</tr>
</tbody>
</table>
Based on their domicile, the student of Open University of Palembang is dominantly come from Kabupaten Musi Bayuasin. From cross-tab analysis we found that 71% student from Kabupaten Musi Banyuasin are using friend’s recommendation as their important media information source that influence them to study in Open University of Palembang.

From all demographic information, we figure out that friend’s recommendation is media usage habits from Palembang’s Open University students (70,4%). Friend’s recommendation is word of mouth media communication. Word of mouth is personal communication, one of the marketing communication mix for services. And from all data, we can conclude that word of mouth is the most effective marketing communication channel that influence students to study in Open University of Palembang.

**Digital channel as new opportunity**

In planning a marketing communication, it’s essential to understand target market segmentation and their exposure to different media as well as consumer’s awareness of the product and their attitudes toward it (Lovelock, 2011). In the digital era, digital communication channels such as social media, blogs, vloggers, online communities (Facebook, LinkendIn, Twitter, extranet and intranet) are new opportunity for a company to deliver their marketing message. Not only low cost, digital communication channels also give an opportunity for the company to reach their potential customer globally. It means, digital communication channel is a good opportunity for Open University of Palembang to reach their students which is spread out in wide range area.

To define an effective digital communication channels for Open University of Palembang, we could analyzed it from their student’s demographic informations. From demographic information, we found that our target market segmentation is high school graduated, with the age group <25 years old. Internet user in this age group called as digital native. This digital native generation is already familiar with the internet. Digital native commonly communicated and interacted in many of digital communication channel such as social media like Facebook, Twitter, Path, Instagram, Online Game etc. Based on APJII (Asosiasi Penyelenggara Jasa Internet Indonesia) survey report 2016, found that internet users for age group 10-24 years old in Indonesia are 18,4% or 24,4 milion of people. They also found that the most
visited social media by internet user is Facebook (54%), followed by Instagram (15%), Youtube (11%), Google+ (6%), Twitter (5.5%) and LinkedIn (0.6%).

From student’s demographic information, potential market for Open University of Palembang is male (53.1%). Based on APJJI (Asosiasi Penyelenggara Jasa Internet Indonesia) survey report 2016, found that internet users for male in Indonesia is 52.5% from 256,2 million of people.

Before we decide to use digital communication channel, we need to find out the existing of internet access in our potential market area. Based on the data potential market area for Open University of Palembang is Kabupaten Musi Bayuasin. From website of one telecommunication provider in Indonesia, we figure out that most of domicile areas from student of Open University of Palembang are already coverage by internet access, specially Kabupaten Musi Bayuasin as the dominant domicile area of Palembang’s Open University students (www.xl.co.id, 2017).

Friend’s recomendation is a kind of word of mouth media communication. Recomendations from other customers are generally viewed as more credible than firm-initiated promotional activities and can have powerful influence on people’s decision to use (or avoid using) a service (Lovlock, 2010). Positive word of mouth is important for a service company such as university, because a university need to have a high proportion of experience and credence attributes.

As the growth of internet, word of mouth is no longer delivered in a conventional communication channel. In this digital era, word of mouth delivered in new package on the cyberspace. In this century, the internet has force the company to create a new package of communication channel. Lately, you could see word of mouth is amplified by chat, social media, and online communities.

One type of online word of mouth is blogs. Blogs are frequently modified web pages in which entries are listed in reverse chronological sequence, more like an online journals, diaries, or news listings (Lovlock, 2011). Nowadays, we could find the changing of a blogger to video blogger (Vlogger).

CONCLUSIONS
From the data analysis we have figure out that word of mouth is the most effective marketing communication channel that influence student to study in Open University of Palembang. Since now, the information are easy to be gained, Open University of Palembang should develop their communication channel from conventional word of mouth to digital communication channel such as blog, social media chats, social media testimonial, and lately we could also use vlogger to make a testimonial video as new innovation of digital communication channel. Digital communication channel is a new opportunity of media communication for Open University of Palembang. Digital channel is an answer for their problem because it can reach their potential customer globally in long distance and wide range area. This digital channel also an efficient way for Open University of Palembang to communicate with their potential customer, because it is a low cost media alternative. If we look up from demographic information of Palembang’s Open University student, there is a good opportunity for Open University to develop their marketing communication media. Their target market are internet user and commonly using media sosial such as Facebook, Instagram, Youtube, Google+, Twitter, and LinkedIn. The use of digital channel also will supported by internet access on their potential area. With digital communication channel customer will gain many information which can make them more knowledgeable and informed just in one click.
REFERENCES


Problem solving is main goal of students learn mathematics because through it the students acquire productive thinking which is critical and creative thinking. The research aimed to develop audio-visual media improved the ability of UT students in solving mathematical problems which met valid, effective, and practical criteria. This research was classified as developmental research. The subjects were undergraduate students of UT Surabaya, who taked Mathematics course. The development of this media used Plomp stages which were initial investigation, design, realization/construction, test, evaluation and revision, and implementation. The instruments were tutorial kits, audio visual media, expert assessment sheets, tutor activity observation sheets, and four mathematical problems. Each student's solution was scored using holistic rubric with scale 0 - 4. Therefore, the maximum score of each student is 16. The result of the research showed the students' scores as before and after the implementation of visual media were 7.51 and 11.9 respectively. The statistical test results showed the normal gain increase more than 0.5 significantly with a 95% confidence level.

Keywords: audio-visual, media, mathematical problems, problem solving, mathematics tutorial

INTRODUCTION

The National Council of Teachers of Mathematics (NCTM) in Principles and Standards for School Mathematics (NCTM, 2000: 52) states: "solving problem is not only a goal of learning mathematics, students should acquire ways of thinking, habits of persistence and curiosity, and confidence in unfamiliar situations ..." (National Council of Teachers of Mathematics, 2000). Furthermore, students who study mathematics but lack of the ability to solve problems, then their understanding of the benefits and usefulness of ideas, knowledge, and mathematical skills will be limited (Watters & Logan, 2004).

In addition, students can acquire high-order thinking skills through learning to solve math problems (Adams & Hamm, 2010; King, Goodson, & Rohani, 2016). The ability is divided into two, namely critical and creative thinking. Critical thinking is thinking that is directed to solving math problems. Creative thinking is the highest ability directed to find other ways or answers from mathematical problems (Krulik, Rudnick, & Milou, 2003). Based on these definitions, the two capabilities are directly related to math problems.

The math problem itself can be interpreted as question where the way to solve it is not immediately visible to students (Polya, 1973). An example of a mathematical problem is "A number consists of three numbers. The third number is equal to 16. The number of tens plus the unit number is equal to eight more than the unit number. If the
number of hundreds and unit numbers are converted to the same number. Determine the number ". Problems are different from routine exercises.

Routine questions can be solved by applying some mathematical formulas or procedures directly to obtain an answer (Hudojo, 2005; Posamenteir & Krulik, 2009). This means the student does not need to understand the problem by creating a mental image of the condition in the problem to determine the answer of the routine question. Students do not necessarily have to synthetized the previously learned concepts and procedures in developing the plan used to find the answer of routine question. Example of routine question is "Determine the answer of SPLTV: \( x + y + z = 1; x - y + z = -1; x + y - z = 4 \)."

There are different from math problem. Students perform both activities to determine the correct answer of the problem. In addition, students also need to implement the previously developed plan and look back the solution has been made (Polya, 1981). There are two different terms used in relation to problem solving which were solution and answer. The solution is the process that students undertake in solving problem from beginning to end. The answer is something produced at the end of the process (Krulik, Rudnick, & Milou, 2003).

The importance of solving math problem is not accompanied by the facts on the schools. The research results showed that students have difficulties in solving the problem. This difficulties occured because the students did not have a meaningful understanding of the concepts that exist in the problem, had no knowledge of approaches or problem-solving strategies, or lacked knowledge formed from previous experience in solving problems. It caused the students to hesitate in making plans, using other problem solving which is in contrast to the problem being solved (pseudoplan), incorrect in using symbols or mathematical concepts, using targets as the known, creating pseudosolutioning (the solution felt true by the students but actually wrong), unable to justify the solution has made, or not know the location of the error and how to correct it (Mairing, 2014).

Thus, one of the factors that influence the ability of students in solving math problems is their understanding of the concepts that exist in the problem. Students who have a meaningful understanding are more capability to solve problems than those that are not meaningful (Hudojo, 2005). A meaningful understanding is formed if the math concepts are associated with previous knowledge in the mind of the students. The linkage of concepts occurs when new knowledge is constructed actively and independently by students (Sutawidjaja & Afgani, 2011).

Tutors should create learning activities or tutorials that can encourage students to be actively involved and independent. Such conditions may occur if the tutorial is tailored to the student's condition, the depth of the material or concepts studied, the characteristics of the tutorial, and the availability of learning resources. Especially for tutorial activities at Open University, the role of students is very dominant where the students understand the materials of BMP (Buku Materi Pokok) and tutorial kit developed by tutor independently. Furthermore, the students reinforce this understanding in face to face tutorial activities. However, the activities are only 8 times so that students are required to use all their learning resources to construct a deep understanding.
Learning resources that can help students in self-study is a media of learning. Media itself is defined as everything that can channel the message, and can stimulate the thoughts, feelings and motivation to learn so that the creation of learning processes in students (Setiawan, Pribadi, Suroso, & Andayani, 2007). The intent is achieved if the media is interesting and easy to use. In addition, the characteristics of tutorials at the Open University that emphasize distance learning require a medium that can deliver tutor messages to students dynamically. One such medium is the audio-visual media. Audio-visual media is an intermediate medium or any form that is used to channel the message of information / material and its absorption through sight and hearing so as to build conditions that can make students able to acquire knowledge, skills, or attitudes. (Arsyad, 2002: 11).

Based on the above description, the researchers intended to develop audio-visual media that can improve the ability of open university students in solving problems in the Mathematics course. The researchers chose this audio visual media in addition to interesting, the media can also run on computers and smartphones (smartphones) so that students can learn many times, anywhere, and anytime independently. This media should be interesting because of the current tendency where students are very fond of everything related to computers and smart phones. Furthermore, this media also gave students the opportunity to learn over and over when something is still not understood. If the concept or material remains unintelligible, the student may ask the tutor in the next tutorial. Such a process can encourage students to have a deep understanding. Furthermore, this understanding can help students have the ability to solve math problems, and high-order thinking skills.

Based on the above background, the problem formulation in this research is how to develop audio visual media that can improve the ability of open university students in solving problems in valid, effective, and practical in Mathematics course? The media was said to be valid if two of the three experts agree or strongly agree that the media have been developed in accordance with theories of constructivist learning and mathematical concepts. The three experts are UT lecturers in mathematics courses, and two experts in mathematics or mathematics education. The media was said to be effective if the media can improve students' ability in solving math problems. The media was said to be practical if all students use the media in learning, and 80% of them agree or strongly agree that the media is easy to use.

Benefits of this research were seen from the outcome of this research is audio visual media that can be used not only by researchers, but also by lecturers who teach other subjects. The use of audio-visual media is intended to create enjoyable learning and that help students to construct meaningful knowledge. Such learning can encourage the improvement of students' skills in solving mathematical problems. These improvements have a direct impact on improving the quality of learning at the Open University.

The theoretical benefits of this research are to provide a theoretical background and ground on how to develop an educational product that is useful in creating active, creative, effective and enjoyable learning. Such learning is expected to help students
have a meaningful understanding. Students who have such understanding are expected to be able to learn something new independently, and be able to solve math problems.

Figure 1. The Development Procedure
RESEARCH METHOD

The purpose of this research is to develop audio-visual media that can improve the ability of UT students in solving problems in valid, effective, and practical Mathematics course. Thus, the output of this research was audio visual media. The media was developed using the product development stages put forward by Plomp (1997). In other words, this research produces a certain educational product which was audio visual media, so pertained in research and development.

The subjects of this research were 71 open university students of PGSD UPBJJ Surabaya in Lamongan, Mojokerto, and Madiun who take Mathematics course (code of course was PDGK 4108) during registration 2017.1. The research instruments are tutorial kits, audio visual media, expert assessment sheets, tutor activity observation sheets, questionnaire, and four math problems. Each student solution of the problems was scored using a holistic solution of problem solving on a scale of 0 - 4. They were four problems so the maximum score for each student was 16.

The development of audio visual media uses the stages of development of Plomp educational products (Plomp, 1997: 5). This development stages generally consists of four stages: (1) initial investigation, (2) design, (3) realization / construction, (4) test, evaluation and revision and (5) implementation. The stages could be seen in Figure 1.

Data analysis technique in this research was done by comparing data in each stage of development with valid, effective and practical criteria which have been predetermined, and to test hypothesis to know the improvement of students’ ability in solving math problem. The hypothesis was:

\[ H_0: \text{gain normal} \leq 0.5 \]
\[ H_0: \text{gain normal} > 0.5 \]

where

\[ G = \frac{\text{final score} - \text{initial score}}{16 - \text{initial score}} \]

The conclusion withdrawn by using a two paired samples comparison test. The test was conducted by researchers using statistical software which was Minitab 17.

THE RESEARCH RESULTS AND DISCUSSION

The Research Results

This research aimed to develop audio-visual media that can improve the ability of open university students in solving problems in valid, effective, and practical Mathematics course. The development used the Plomp stage which were (1) initial investigation, (2) design, (3) realization / construction, (4) test, evaluation and revision and (5) implementation. Description of the results of his research is based on these stages.
The Initial Investigation Stage

At this stage, the researcher identified the initial conditions of the students’ ability to solve and the factors that cause the current condition. The initial conditions were identified by giving four initial problems.

Initial Problems

1. Let \( g(x) = x + 1 \) and \( gof(x) = 3x^2 + 4 \). Determine \( f(0) \)!. Explain your solution!
2. From a group of students consisting of 6 men and 4 women, a team of 3 students will be formed. What is the probability that there are two men in the team?
3. Find all numbers that satisfy \( x^2 < |2x - 8| \)!
4. Adi is an employee of a textile company in charge of storing data. Adi asked the head of the company to prepare data on the increase of production for five periods. After searching, Adi only found four data, that is 4%, 9%, 7% and 5%. One of the data, fifth data not found. Investigate the fifth data, if Adi only remembers that the average and median of the five data are the same!

The results showed that the average score was 7.51 (maximum 16), if converted to a scale of 100 to 46.9 (Table 1).

Table 1. Initial Ability of the Students in Solving Problems

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awal</td>
<td>7.51</td>
<td>1</td>
<td>16</td>
</tr>
</tbody>
</table>

The ability of students in solving problems can be classified into good, routine, and naive problem solvers (Goldstein, 2011; Muir, Beswick, & Williamson, 2008; Sternberg & Sternberg, 2012). In this study, the student was naive problem solver if the score is in every problem 0 or 1, good problem solver if get score 4 in every problem, besides belong to routine problem solver. Tutors certainly hoped the students were classified as good problem solvers. However, preliminary investigation results show that the percentage of students who were classified as good, naive, and routine problem solvers respectively were 2.8%; 95.8%; and 1.4%.

The results of interviews with tutors and students indicated that the condition occurred because the students did not have a deep understanding of concepts in the Mathematics course, and the students had no experience in solving previous math problems. Both of these affect the ability of students in solving mathematical problems (Mairing, 2017).

The Design Stage

Based on previous results, researchers designed audio visual media that integrated with the tutorial kits. The tutorial kits consisted of the Tutorial Activity Plan (TAP), the Tutorial Activity Unit (TAU) and the Evaluation Plan (EP) and the student worksheet (SW). RE consists of Tasks 1, 2 and 3. Each task contained the math
problems. The audio-visual media emphasized deep understanding of the concepts in the Mathematics course, and gave students experience in solving problems. The media was designed in eight tutorials with the following details.

Table 2. Design Media Audio Visual

<table>
<thead>
<tr>
<th>Tutorial</th>
<th>Concepts</th>
<th>The tutorial aims</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Math problems, and Problem Solving</td>
<td>The students could explain an importance of solving problems as the main goal of students in learning mathematics, and Polya phases of solving problems.</td>
</tr>
<tr>
<td>2</td>
<td>a. Logics</td>
<td>The students could explain logics, set, relation, and function concepts.</td>
</tr>
<tr>
<td></td>
<td>b. Set, relation and function</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Task 1</td>
<td>The students could solve problems</td>
</tr>
<tr>
<td>4</td>
<td>a. Linear equation and inequality</td>
<td>The students could explain linear equation, inequality, quadratic equations, and non-quadratic equations</td>
</tr>
<tr>
<td></td>
<td>b. Quadratic equations, and non-quadratic equations</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Task 2</td>
<td>The students could solve problems</td>
</tr>
<tr>
<td>6</td>
<td>a. Probability</td>
<td>The students could explain probability and social arithmetics</td>
</tr>
<tr>
<td></td>
<td>b. Social Arithmetics</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Task 3</td>
<td>The students could solve problems</td>
</tr>
<tr>
<td>8</td>
<td>a. Transformation</td>
<td>The students could explain transformation, and congruent</td>
</tr>
<tr>
<td></td>
<td>b. Congruent</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, the researchers designed a data collection instrument consisting of an expert appraisal sheet, a tutor activity observation sheet, a student questionnaire, and a final test containing four mathematical problems which were similar to the initial test differing only in the numbers.

Final Problems

1. Let \( g(x) = 2x - 4 \) and \( gof(x) = 3x^2 - 11 \). Determine \( f(0) \)! Explain your solution!
2. From a group of students consisting of 8 men and 6 women, a team of 3 students will be formed. What is the probability that there are two men in the team?
3. Find all numbers that satisfy \( x^2 < |3x - 18|! \)
4. Adi is an employee of a textile company in charge of storing data. Adi asked the head of the company to prepare data on the increase of production for five periods. After searching, Adi only found four data, that is 4%, 10%, 6% and 8%. One of the data, fifth data not found. Investigate the fifth data, if Adi only remembers that the average and median of the five data are the same!
The Realization Stage

At this stage, the researchers were realizing tutorial kits, audio-visual media, and pre-designed research instruments. The tutorial kits consisted of eight meetings. The media were studied by students before the 1st, 2nd, 4th, 6th and 8th tutorials. Thus, there were five media developed in this study. The result of this stage is a first prototype of audio-visual media.

The Test, Evaluation and Revision Stage

At this stage, the first prototype was evaluated by three experts which were mathematics expert, mathematics education expert, and tutor. The result was the three experts agree or strongly agree that the media was in accordance with learning theories, and mathematical concepts. Furthermore, the three experts stated that the first prototype was feasible to use with some suggestions. The researchers revised the first prototype based on the suggestions from the three experts into a second prototype of audio-visual media. The second prototype was used in the implementation stage. Thus, audio visual media has met the criteria of validity.

The Implementation Stage

The second prototype was implemented on the subjects of research. The subjects studied independently the materials in the media before the 2nd, 4th, 6th and 8th tutorials. At the time of tutorial, the tutor and the subjects discussed materials that have not understood, or mathematical problems that students could not solve yet. The tutor facilitated the students to have a deep understanding and experience in solving math problems. During the discussion to solve mathematical problems, the tutor guided students to solve problems using the Polya stages which were understand the problem, develop plans, implement the plans, and look back a solution. The tutor did the activities by asking metacognitive questions at each stage.

At the eight tutorial, the researcher gave a student questionnaire and final test consisting of 4 math problems similar to the initial test. The aim of the test was to know the improvement of students' ability to solve problems after learning by using audio-visual media. The questionnaire results show that all students use the media in learning, and 80% of them agreed or strongly agreed that the media was easy to use. Thus, audio visual media has met the criteria of practicality.

The final test result showed that the average score of students' ability was 11.59, if converted to a 100 scale of 72.5. Furthermore, there had been an increase of a number of the good problem solvers from the initial test to the final test with an increase percentage of 21.1% - 1.4% = 19.7% (Table 3).
Table 3. Scores of Students' Ability

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Problem Solvers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td>Initial</td>
<td>7.51</td>
</tr>
<tr>
<td>Final</td>
<td>11.90</td>
</tr>
</tbody>
</table>

The hypothesis test was performed using two-sample comparison test. First, the initial and the final scores of each student were changed to normal gain. The average of normal gain was 0.56. Second, the researchers tested the normality of the normal gain using a Kolmogorov Smirnov test. The result using Minitab 17 was $p-value < 0.01 < 0.05 = \alpha$. The result of the normal gain spread was not normal, so the researchers used a nonparametric test Wilcoxon. The result using Minitab 17 was

**Wilcoxon Signed Rank Test: Gain Normal**

Test of median = 0.5000 versus median > 0.5000

<table>
<thead>
<tr>
<th>N for Wilcoxon</th>
<th>Estimated</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Test</td>
</tr>
<tr>
<td>Gain Normal</td>
<td>71</td>
</tr>
</tbody>
</table>

The result was $p-value = 0.012 < 0.05 = \alpha$ so the increase of normal gain more than 0.5 significantly with a 95% confidence level. Thus, the use of audio-visual media could improve students' ability in solving mathematical problems.

**Discussion**

The ability of students to solving math problems was influenced by students' understanding of the concepts existed in the problems, understanding of the problem being solved, prior experience in problem solving, understanding of approaches and problem-solving strategies, student attitudes toward math, and student confidence (Mairing, Budayasa, & Juniati, 2012; Pimta, Tayruakham, & Nuangchalerm, 2009). The results of this study emphasized on the use of audio-visual media in order to encourage the students had a deep understanding of the concepts related to the problems that contained in the students' worksheets, and task 1, 2 and 3. Such understanding helps students in solving math problems.

Furthermore, tutorial activities in this research were based on the use of the problems in the class. The tutor facilitated discussions to solve the problems contained in students' worksheets both in group and class discussions. The tutor also guided the students to solve the problems by asking questions on each stage of Polya. Furthermore, the tutor asked the students to determine different answers, and other ways of solving the
problems. The aimed to improve students' ability to solve problems. Such tutorial activities affect these abilities (Ho & Hedberg, 2005; Muir, Beswick, & Williamson, 2008).

CONCLUSIONS AND SUGGESTIONS

Math problem solving is main goal of students in learning mathematics because students acquired high-order thinking skills and positive attitudes by learning to solve some problems. Tutorials that emphasized the use of the problems, and audio-visual media could improve students' ability to solve math problems. The results of this research indicated that the average score of the ability increased from before (initial) and after using the media (final). The average of initial and final score were respectively 7.51 and 11.9 (maximum score was 16). There was increasing of 58.5%. The increasing was in line with the results of hypothesis testing showed that the normal gain of the scores increase was more than 0.5 significantly with a 95% confidence level. Thus, the use of the audio-visual media integrated with tutorials based on math problems could improve students' ability to solve math problems.

The results of this research can be used as an example for other tutorials in developing audio-visual media for other subjects. The tutors who develop the media should integrate audio-visual media with problem-based tutorials. The tutors should guide students in solving problems by asking some metacognitive questions in each Polya’s stage. The tutors should also encourage students to develop different answers, and other ways of solving problems. Such activities can improve the ability to solve math problems.

REFERENCES


DEVELOPMENT OF A HYBRID LEARNING SYSTEM TO ENHANCE ODL; PRINTED COURSE MATERIAL AMELIORATION VIA SMARTPHONES
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Abstract
The printed course material (PCM) content design and delivery-related aspects, is an attribute of students’ inclusive and equitable quality education in typical Open and Distance Learning (ODL) Institutions. A poor PCM content design in ODL institutions presents a major setback in endeavours to provide outstanding academic outputs. A web-based survey was conducted among a particular group of students of The Open University of Sri Lanka (OUSL) who have registered for the undergraduate course ‘Machine Vision’. The survey identified that the majority of students face abstruse problems which require more explanations in some chapters/sub-sections when referring PCM. This finding suggested that the ODL institutions should adopt a technological approach in the design and implementation of measures aimed at facilitating sustainable learning pathways. The smartphone-based technology is used to address this requirement. The project, Printed Course Material Amelioration via Smartphones (PCMAS), is considered as a revolutionary advancement to the conventional method of study using PCM. The entire PCM was analysed and Quick Response (QR) code labels were printed near the contents which require more explanations. To view supplementary multimedia contents, these QR codes required to be scanned via a QR code reader application with the aid of a smartphone. The code redirects to a video tutorial, an e-book, a website, lecture note prepared by the course expertise or any other relevant material that is stored in the cloud storage by accessing the internet at a glance and fosters learning attitude of students sensing that the - ‘Lecturer is close at hand’.

Keywords: Printed Course Material, Open Distance Learning, Lecturer is close at hand, QR codes, Hybrid Learning System

INTRODUCTION
In the modern knowledge-based globalised society, the ODL is becoming increasingly significant. An efficient course delivery plays a major role for the success of ODL. When the lecturer and the students are separated by physical distance, the PCM, audio, video, and internet, often in concert with face-to-face communication, is used to bridge the instructional gap [1]. For the enhancement in the field of ODL education, it should focus on PCM content design and efficient teaching methods amalgamating modern technology with the aim of delivering teaching often on individual basis, to students who are not physically present in a traditional educational setting such as classroom [2].

The OUSL adopts a multimedia system for teaching with a strong emphasis on distance study. The study system supports the students through PCM as of pre-packaged texts and images, audio-visual aids, discussions, day schools, laboratory/field work, industry visits and web-based learning. Continuous assessments and final examinations are also integral parts of the study system. However, PCM is the central element in the study package. Improving reading skills is therefore essential to be successful as an OUSL student. One of the major stumbling block for the enhancement in this system is that there is very limited number of students-lecturer interaction.
The rapid developments in technologies which relate with modern lives can be used to change this perspective that empower rich interactive distance learning. Smartphones and similar smart mobile-digital devices, such as phablets and tablets, can be extremely useful didactic components that support for the improvement of teaching methods in both distance and conventional face-to-face education systems. Among these digital devices, using a smartphone could be very much convenient in the ODL education system and it is the core component behind the focus of this paper. They may, moreover, be used as an instrument conducive to educational and personal interaction, fostering relationships between students and the lecturers. With the advancements of smartphone technologies, smartphone applications (generally known as mobile apps) opens up as a window for sharing knowledge, information, resources, and experiences, as well as providing communication opportunities with student peers, tutors, and the institution.

This paper presents about the development of a hybrid learning system (HLS) in the field of ODL. The HLS refer to method of study where there is an analytically planned mix of both conventional study notes and online learning resources. In other words, HLS combine the best of both styles of resources by carefully selecting and feeding it to the students in an attractive manner via QR codes, which fosters the students’ learning attitude [4].

The Data collection technologies are considered for the project PCMAS. Once, Barcode is the primary data representation. A barcode consists of series of vertical bars of varying widths in one-dimension (1D), in which each of the digits zero through nine, are represented by different pattern of bars that can be read by a laser scanner. Later, barcodes evolved into rectangles, dots, hexagons, symbols and other geometric flat patterns in two-dimension (2D). This innovative creation is known as QR code or 2D barcode [5]. A QR code can hold a larger amount of data in a smaller space when compared with 1D barcodes and it can encode various types of data such as text, uniform resource locators (URLs), messages, e-mails or a virtual business card. The information contained in QR code can be scanned and read by a camera-equipped Smartphone with a QR code scanner application software. In addition, an advanced error-correction method and its' characteristics allow the QR Code to be read more reliably than other codes. As a result, an average person can now decode or read a QR code, without special equipment such as conventional barcode reader device.

Such technologies and HLS based active learning methods results in better academic performance. The development of this HLS enables the students in OUSL to acquire an inclusive and equitable quality education by providing sustainable learning pathways. That is because HLS reduces the requirement of face-to-face interaction with instructor, where the system is accessible to anyone and from anywhere, which is perhaps the biggest advantage of all.

PROBLEM STATEMENT
The distance learning methodology adopted by the OUSL may initially appear as a challenging task for many students. Regular lectures, a feature of face-to-face teaching at a conventional university, is minimal at the OUSL. Instead, students learn through carefully prepared PCM together with other forms of support that facilitate learning.
A study on the development of PCM states, “Open and distance learning materials are based on the principles of learning theories to create desirable conditions that will facilitate effective self learning, i.e. knowing the objective, follow the content step by step, involving the students actively in learning” [6].

Given the penetration, it was identified from findings that the majority of students who follow some undergraduate course modules (the expression, ‘course’ in OUSL terminology refers to the fundamental entity in the dissemination process of knowledge. In other words, a course is equivalent to a subject [7].) such as ‘Machine Vision’ conducted under Bachelor of Technology Honours (B.Tech. Hons.) in Mechatronics Engineering Degree Programme offered by The OUSL require an additional effort to understand some chapters/sub-sections and to complete other integral components of study system. A suggestion given by a student who participated to the survey justifies the findings.

The statement pertaining to the suggestion is as, “The book is not enough to do assignments and mini project. We didn't familiar with this subject before. Therefore, need more information and clarification. I think that it will great help if you can provide any material or link to go through about that.”

As similar to this suggestion, the summery of the web-based survey results indicated that the main reason behind these difficulties is due to the course content that introduce some unfamiliar engineering terms and theories that make the students bewilder (refer Fig. 2). To enhance and relocate the learning experience of the students by providing subject knowledge of the course, a modification to the conventional method of study using PCM to suit self-study and independent learning is required, without disturbing the limitations of ODL perspective. Increasing the number of face-to-face sessions to teach students what they require is one such kind of perspective that is not in agreement with the concept of ODL. The summary and suggestions based on the issues regarding ‘Machine Vision’ course module paved the way towards the implementation of this project, PCMAS.

![Fig. 2 - Ability in understanding PCM content and the reason](image)

**METHODOLOGY**

Three main purposes of research are to describe, explain, and validate findings. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations [8]. The nature of study is
descriptive, involving collections of quantitative information in numerical form. The studies are aimed at discovering inferences or causal relationships; further methodology consists of following aspects:

**Target group and sample**
As the study was delimited to the course module being taught, the students who registered for the undergraduate course module, ‘Machine Vision’ conducted under The B.Tech. Hons. in Mechatronics Engineering Degree Programme offered by The OUSL were considered as the population of this study. Since this course is a higher level module (For undergraduate category, there are 6 levels. The ‘Machine Vision’ course module is at level 5), the average number of students who get registered in an academic year for this course would be around 70-80. The majority of target group were the students who completed the course entirely in recent past and the students who completed partly (those who got eligibility to sit for final examination. But, not faced the final examination) than the presently registered students. A total of 120 random students were selected for the study and the questionnaire was sent to their e-mail. Out of the 120 population, the responses of 72 students were acquired as the sample for this study.

**Research Design**
Using google forms, a comprehensive questionnaire was prepared and used to collect data from the students. This study used the quantitative research design. The primary response data were analysed automatically by google forms tools. Further, the most important results are expressed in detail using charts, diagrams, figures and numbers and percentages in the analysis part.

**Study Objectives**
This study mainly focused on investigating the chapters/sub-sections, which are included in the ‘Machine Vision’ PCM that require additional supportive information for deeper clarification of course contents. In addition, the availability of facilities for internet access and the accessibility of smartphone technology for learning purposes by students who registered for the course ‘Machine Vision’ are also investigated in the research.

**Research Findings**
The findings were determined through ten questions. Three out of Ten questions were mainly focused for this research and are discussed further in upcoming sub-sections. The Fig. 1 QR code contains a screenshot image of the entire web-based questionnaire response summary and is readily available to take a look as a supplementary information. The procedure required to retrieve information from the QR code is discussed in section 4.

Fig. 1 - QR code for questionnaire results summary
Ability in understanding PCM content and the reason
In selected sample, 38.9% of students managed to understand the contents of PCM and 50% of students managed it with an effort. There were 11.1% of students face difficulties in understanding the contents of PCM. In this case, the sum of 50% and 11.1% of students who needs help in understanding the contents of PCM were selected as a sample. This sample is also sub-categorised into three. Among these three, the majority of 64% students claims that the difficulty was due to unfamiliar engineering phrases. This analysis is represented using Fig. 2.

The requirement of students for more explanation and corresponding chapter selection
In the selected sample, 75% of students thinks that they need more explanations in some sections/sub-sections when referring PCM. While the rest 25% of students thinks that they do not need more explanations (refer Fig. 3 pie chart). In this case, the 75% of students (48 students) who demands more explanation were selected as a sample. The Fig. 3 bar chart indicates the frequency of students who demand more explanation and corresponding chapters.

Availability of devices for Internet access
In the selected sample, 68 out of 72 students (which is more than 94% of sample) owns at least a personal computer (PC) for the internet access and 42 students (which is more than 58% of sample) owns a smartphone. While only about of 6% of sample do not have any personal devices. In this case, the 58% of students who owns a smartphone were selected as a sample.
IMPLEMENTATION AND DISCUSSION

Integrating QR codes in PCM
The conventional method of integrating multimedia, which combines texts, audios and visual content such as charts, pictures, animations and videos into a PCM, is to provide a uniform resource locator (URL) which the student required to type into a web browser. With lengthy and complex URLs, this method becomes a tedious and inefficient task [9].

i.e. The following URL, acquired from Google Drive represents the QR code shown in Fig. 1.

https://drive.google.com/file/d/0B5SIKapzmXoqVmxXdURQS1FsVXM/view

Typing this URL in a web browser or Scanning the QR code shown in Fig. 1 using the smartphone directs to the same result. However, the time taken to process is very lesser and simpler in the case of QR codes. In this regard, the URLs were replaced by QR codes in an adequate manner for the project PCMAS. There are three steps involving in the integration of QR codes to the PCM and are discussed separately in the following sub-sections.

Obtaining URL from cloud storage
According to the findings based on the survey, the required supplementary multimedia contents has been designed or collected from available, reliable sources and then stored in the Google Drive cloud storage. Each of these stored multimedia files procure a unique URL. The URL can be obtained from the homescreen interface for Google Drive by clicking on the option Get shareable link.

The supplementary contents such as a video tutorial, a high quality image, an animation, an e-book, lecture note prepared by the course expertise or any other relevant material were stored in the specific Google Drive cloud storage with 15GB of space in Drive for free. This free storage plan can be upgrade to a premium plan for the expansion of storage requirements for up to 10TB by paying a monthly/annual rental. Using separate Google Drive cloud storage as the multimedia content database ensures that the multimedia contents that represents the QR codes in the PCM will not be loss in future due to third party decisions.

Generating QR codes
QR codes can be generated either using a smartphone application or an online free QR code generator such as QR Code Generator – create QR codes for free (Logo, T-Shirt, vCard, EPS) [10], QR Code Generator - Create QR codes here [11], The QR Code Generator [12]. In addition to these QR code generators, using a search engine, one can find thousands of online QR code generators. Out of these online available free QR code generators, The QR Code Generator available at the URL in reference [12] was used as the primary QR code generator tool for the project, PCMAS.

This specific QR code generator supports at generating both Static and Dynamic types of QR codes [13]. The Static QR code is a typical one in which the QR code image varies according to the content included. While, the Dynamic type QR codes enables the user to change the content of Dynamic Codes while the QR Code Image remains the same. The dynamic QR code contains a URL to a lookup service that directs to a predetermined place or performs a certain function. This method ensures that, even after the QR code is printed to the hardcopy of PCM, the contents
in the QR code can be changed. That enables the future improvements or modifications in the supplementary notes to be done easily.

_Placing QR codes in PCM_

The generated QR codes were saved in Encapsulated PostScript (EPS) vector graphics file format for better clarity when compared to the other image file formats. The soft copy of the typical 'Machine Vision' PCM is republished after including QR codes as required. The QR code captions were included below the figure. The QR code contained new PCM has been published and replaced with the conventional PCM of the students who are currently registered for the course module. A datasheet describing how to handle this PCM is also supplied along with the PCM. Anyone with these specific QR codes, and aware of the procedure to scan the QR code using a QR code reader app has the accessibility to view/download the relevant contents over the internet. The supplementary multimedia contents do not have any restrictions on 3rd party. It is open to anyone who needs it.

**Search/Installation of software application**

The majority of smartphone vendors uses Android as their mobile operating system (OS) other than Apple Inc. which uses iOS as their mobile OS. Also there are many other OS available in the market which are used by consumers. However, thousands of QR code reader smartphone compatible applications are readily available for download at their stores. *i.e.* Android has Google Play Store, iOS has App Store, Windows mobile has Windows Store and similarly there are many of them. Most of these basic QR code reader apps are free. So that, finding a QR code reader is not a difficult task for whom use a smartphone. The students who are confused when selecting a QR code reader app, the QR code scanner application shown in Fig. 5 is preferable. Searching in relevant store with app name will easily direct towards downloading the app to the users’ device.

![Fig. 5 – App details for Android (left) and for iOS (right)](image)

**Procedure for handling software application**

After installing an appropriate QR code reader app to the smartphone, just with three steps, a student can retrieve multimedia from the cloud storage. The following steps describes the procedure and are graphically represented using Fig. 6.

*Step 1* - Scan QR code using a camera-equipped smartphone and an appropriate QR code reader app to encode the information provided by the QR code.

*Step 2* - Once the app of the device scans and encodes the information, it displays the gathered information and requests next level input such as to copy the information in QR code or open the URL link given in QR code.
Step 3 - The contents stored in Google Drive relevant to the URL is retrieved over internet to the device which is allowed either to download to the device or view it online. Note that, the availability to access internet over mobile data connection or wireless fidelity (Wi-Fi) is a necessary requirement to retrieve contents from the cloud storage.

Fig. 6 – Procedure to retrieve multimedia belongs to QR code

CONCLUSION AND RECOMMENDATIONS
One underlying reason behind the students’ success and academic performance is PCM content design and delivery-related aspects. Coping up with an advanced engineering subject matter content only with the aid of PCM in the ODL mode is a strenuous task. To fabricate this shortcoming, the conventional method of study using PCM is enhanced by developing a HLS. While it's still fairly new to the educational usage, many students will be able to score good progress as they tend to do more work on their own. To enrich the learning experience of students, the features of QR codes have harnessed and blended together with the smartphone based technological approach. The dynamic QR code has the possibility to change the function or destination that the QR Code leads to after it has been created. Thus the dynamic QR codes has been used to retrieve the stored supplementary multimedia contents. The apps developed for this technological access allows students to view multimedia embedded in the PCM in an attractive manner. Educating institutes should adapt these kind of smartphone based technologies to their methods of teaching, which will bring students better choices of learning means.

More widespread use of the PCM developed for this project will reduce the average time taken to learn the entire course content and at the same time, helps to gain subject knowledge and skills. Following the success of this initial project, other course modules such as Automobile Engineering, Control Systems Engineering, Power Electronics in the degree programme also set to adapt this technology to provide sustainable learning pathways.
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ONLINE STUDIES GROUP SUPPORT SERVICE MODEL OF DISTANCE LEARNING UNIVERSITY STUDENTS BASED ON LEARNER’S BIG DATA
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Abstract
On distance learning universities or e-learning universities, guidance interactions and learning guidance between lecturers and students are partially limited and there are few ways for lecturers to communicate with students. For those reasons, students make study groups that support self-organized off-line class by students. The study groups are organized by students according to locations, subject themes, and times. And, for KNOU, the study groups are independently organized by the students without the support from KNOU government. Although the study groups stimulates students’ study motivations and study interests, Distance learning universities are not concerned with student study groups.

In this research, we propose ‘Online Studies Group Support Service Model’ that deliver personalized offline study group information according to analysis results of the dropout students. ‘Offline Studies Group Support Service Model’ extracts characteristics and needs of students from analysis results of the dropout students. The goal of ‘Online Studies Group Support Service’ is to enable students to communicate with each other in a virtual study space among students with similar learning conditions, subjects and learning ability. For the ‘Online Studies Group Support Service’, student information, activity and grade score that includes the results of learning history from KNOU from his/her entrance, are analyzed. Learning autonomy activity information is generated and managed between students. Student big data must be collected, stored, and processed by ‘Online Studies Group Support Service model’, in order to improve the satisfaction of ‘Online Studies Group Support Service’. The ‘Online Studies Group Support Service’ provides students with online study group according to the location, learning capability level and subjects of a student. ‘Online Studies Group Support Service’ will improve students learning interests and solve limitation of online university. And ‘Online Studies Group Support Service’ makes students feel a sense of university belonging and learning stimulation.

Keywords: Learning Cloud, Student’s Big Data, online student study, e-learning system, student support system.

INTRODUCTION
Distance learning university are to use Internet lectures as a lecture medium and distance learning university students study by themselves so that they have raw chances to meet lecturers and peer students in face to face situations. And they are familiar with information and communication technology education environment. But distance learning university try to communicate with students and to deliver off-line lecture for more intimate student relation with lecturers and peer students, since face-to-face relationship between students and students strengthens students learning encourage and community relation. But there are many kinds of limits of distance learning
university, such as distance between students and lecturers, broad age spread, various learning backgrounds and aims of learning. For those kinds of reasons, off-line relationships or face-to-face relationships of distance learning university cannot easily established for students. Especially, students support environments mainly are based on on-line situations such as curriculum, on-line learning support documents, and lecture delivery methods. In this situations, korea national open university(KNOU) students make the on-line study groups or internet café with commercial portal service by the students themselves according to departments, subjects and regions. On D* online portal service, there are almost 4,000 cafés and blogs related with KNOU. Although there are limitations in reviewing the unique contents and characteristics of each cafe, it can be assumed that the members related to KNOU The on-line study group similar service of KNOU is subject bulletin board operates officially as a homepage for each subject in a department at the class level, but it is not a space for self-initiated communication between students, and operates in one direction of small community for one subject. The home page of each subject is operated in the form of a bulletin board. It is composed mainly of dissemination issues, announcements, reference materials, supplementary learning on the Internet. There are almost 600 subject bulletin boards on KNOU. But it is almost impossible for students communicate with each other.

Distance learning university students demand more intimate and suitable community for themselves. But the problems of self-constructed study group for distance learning university students are bellows. First, it is difficult for student to compare and analyze the content and activity direction of each study group by oneself, and find out what is suitable for the characteristics of the person. Second, the student’s learning condition / learning ability etc. Third, the results of study group activities do not provide feedback to students of various groups (teachers, administrators, producers, students). Since the current study group is a self-organized organization of students, it is not reflected in the quality of learning and improvement of quality of service and is not reflected even to students themselves. Fourth, the study group is not focused on courses, but rather it is operated by the regional / departmental focus. Fifth, it is not supported officially by the university at the study group that should be supported politically in the limited environment.

In this study, the study group support service model is defined in order to improve the learning of students by solving the above problem and making it a part of the learning support system, although the individual study group has many advantages.

RELATED WORKS
Previously, learning cloud based learner activity tracking system was proposed in [1]. The cloud system with multiagent was very effective to make learning presentation service and personal tracking. AR learning service with learning cloud was proposed in [2]. The AR activity with learning cloud could be efficient and accuracy with markers for AR. Intelligent tutoring system was proposed in [3]. Proposed intelligent tutoring system collects learner’s personal learning activity and academic affair and grade. With them, intelligent tutoring system decides the learning status of the student and affective results. The result is delivered to LMS and LMS makes personalized learning plan for the student.
Previous works focused at learning contents and the analysis result and learning cloud are benefit for learners and learning activity with learning contents. We focused at learner support service, since relationship between learners stimulates learners and prevent learners from dropouts.

PROPOSED ONLINE STUDIES GROUP SUPPORT SERVICE MODEL
The study group support service provides an environment in which the most similar students can communicate with each other in a virtual space by the intelligent agent equipped with the predictive model based on the information extracted automatically from the system and the big data of the additional student This is a service that improves learning ability. Although distance learning university stores and manages the information related to the bachelor's degree and the learning information, it needs to collect additional student big data necessary for extracting the learning behaviours of various student and prediction information of learning achievement. In order to do this, we utilize cloud service technology to continuously collect and analyze student big data scattered inside and outside distance learning university to create meaningful information. The meaningful information extracted through cloud service is the study group support service. KNOU Smart Cloud Running The cloud computing environment will be able to provide study group support services without being limited by data storage capacity or system specifications to handle them.

The goal of the study group support service is to enable students to improve their learning ability by learning in a virtual space among peer students with similar learning conditions and learning ability. For the study group support service, there are student information that includes the results of learning from distance learning university until the students enter and graduate and the unique information of the student, the private characteristics of the student, information about distance learning, learning autonomy activity information generated and managed between students, student big data that must be collected, stored and processed in order to improve the completeness of the service although it does not exist at present, cloud broadcasting virtualization network that can cover each information, service and KNOU Smart Learning Cloud, which exists between virtualization networks and is the core of smart learning, forms an organic relationship and provides study group support services.

1.1.1 Study Group Recommendation by Region/Learning Ability/Grades
Based on student's big data and student information existing in the Smart learning cloud, the system automatically recommends the study group that meets the personal needs and environment. This solves the problem of the student searching for the study group by themselves, because the system solves the difficult part which the student should find himself about the contents and activity direction of the study group. The service model gives students the ability to choose for the elimination of redundancy in study groups and for ease of activity. If the student chooses the type of study group that he/she wants and the student selects the items to be added as an option, the student performs the efficient study from the study matching engine for smooth activity of the study group.
1.1.2 On-line Video-Study Service
KNOU-Smart Learning Cloud has a built-in video chat system that enables learners to query and respond to images beyond time and space if they are built only for terminals for video communication. The video chat system can take advantage of external cloud services such as Google’s Hangouts for investment. By expanding to the face-to-face service of the study group service operated online, it is possible to lower the rate of self-giving in the learning process by increasing the intimacy and bond between the study group members.

1.1.3 Study SNS Service
Study SNS Service can be used as a window to create, share, and utilize agenda for common learning interests by providing SNS between study group members. The study SNS used by learners can be different. Connecting all of the study SNS to KNOU learning cloud can be costly, technical and time consuming. In the study SNS, there is a method of installing only one or two of the representative SNS companies and installing the API and automatically connecting and developing the KNOU-SNS itself by broadcasting stations themselves.

1.1.4 Study Learning Contents Sharing Service
The portal of KNOU is a pivot and coordinator on the learning contents, which would be shared by students. If the learning content modularization and recombination are completely established, the learning contents index and classification can be made for the learning contents of each group shared among the study groups. Learning contents sharing service can provide a basis for self-directed learning by providing content suitable for the environment of study group members.

1.1.5 Study Scheduling Service
Different schedules should be established for each study group in order to share the schedule among the students to promote cooperative learning. Study scheduling service provides scheduling services to prevent problems such as inadequate progress in the entire study schedule of the study group and the broadcasting system, or the missed schedule.

PROPOSED ONLINE STUDIES GROUP SUPPORT SYSTEM
The online study group support service can share digital learning contents that are produced by on/off-line. The online study group support service also provides digital learning content optimized for learners’ learning levels, learning preferences and aptitudes, and learning preferences. The online study group support service provide digital learning contents through collective intelligence tutor engine based on cloud networks and virtual space, which is an advantage of study group, in a form in which learners and lecturers can interact with learners and learners.

From the aspect of learning support system, it is possible to provide personalized learning service tailored to each learner’s characteristics, and it is possible to make learner customization and progress management so that learning plan can be established so that learner can self-directed learning. This enables the learning effect to be maximized by tracing the collaborative learning environment with learners who stay away from each other. In order to accomplish the goal of the online study group support service, the learning content adaptation engine which can reflect the learning progress and the evaluation result of the learner, the collective intelligence tutor which
analyzes the conditions of the learner based on the big data and information of learning management system (LMS). Intelligent tutoring engine based on student's learning psychology, through application program interface (API) of activity of study group, can be connected with LMS. And by a big data of students which is collected from cloud environment, the online study group recommendations are actually decided and performed.

○ Student : Students receive the study group support service and make the learning activity between the student and the service, the student and students, the student and a lecturer.

○ Learning Cloud Portal Server : This is the main contact point to provide study group support service and it provides different customized information according to the learner's user authentication.

○ Study Group Matching Engine: This is one of KNOU Agent that analyzes the learner's Big Data, academic information, and learning activity information and finds an appropriate matching target. It is the most important core of this service. Consideration should be given to the student's own decision on whether to use after matching, the student's own decision on matching conditions, data transfer according to the study group up or down, or the right of study group administrator.

○ Learning Contents Adaptation Engine: KNOU agent for maximizing learning effect by automating learning ability of learners and learning tools such as learning terminals

○ Content Management Server: Content management server that manages all the formal and informal contents produced by the broadcasting company to the learner.

○ LMS (Learning Management System): LMS is a system that each learner learns and manages actual lectures by integrating the information of the school, learning activity information, and schedule information.
- Intelligent Tutoring System: Intelligent tutoring system exists between LMS and learning data cloud and automatically provides learning data and academic schedule data automatically according to learning situation of learners.
- Learning Data Cloud: Learning data cloud is a place to manage basic data of study group support service by connecting the result of learner big data analysis with the cloud virtualization network.
- Activities and evaluation of learners and basic data: Activities and evaluation of learners and basic data consists of LOD of learning contents, information on learning activities of lecture video, information on homework and examinations, and information of student outside works.

![Fig. 2 Online Study Group Automatic Matching Service Message Flow](image)

When a learner logs in a personal portal server (PPS) and his/her learning activity data is delivered to Information Group System (IGS). IGS collects personal activity data and extracts value data for online study grouping. PPS delivers OAME request data, which is used for online automatic matching results, to Online Automatic Matching Engine (OAME). OAME extracts learning activity data from personal learning interests and learning level and delivers the learning activity data to Operation Group System (OGS). OGS receives value data and activity data and makes legacy data from them. The legacy data is sent to OAME. And study group interest contents metadata is sent to learning contents adaptation service (LCAS) that make personal rule for learning content adaptation according to study group interest metadata and delivers study group interest metadata to OAME. OAME receives OSG (online study group) activity data. Lastly, OAME receives OAME request data, OSG Activity Data, Legacy Data and decides and make online study group for the learner. Fig. 3 is the online study group matching service structure.
CONCLUSION

The online study group support service does not address how to maintain the relationship between online study group members. The online study group support only uses the probability of some factors matched with other study groups. Since the students' achievement level is changed by semester or year, it provides the study group by automatically matching at a specific time according to the level of the student and students choose one or more online study groups. The previous student self-constructed study group has several problems that the results of the study group activities are not fed back to various stakeholders (lecturers, administrators, producers, students). And systematic learning activity information is not accumulated and analysed. The main services provided to the learners are differentiated learning contents and personalized study group according to the academic achievement and preference of the group members, and they are provided with feedback on the learning results. In the feedback, there is the comparison with other students including the learning activities related to the evaluation. Student can adjust their learning through. The instructor can adjust his/her education method by feedback of the learning results of the learner and each study group, and can analyze the learning activity data of students and present the learning solutions that can give advice and help to the students who are not ready to learn. This service, which is presented as a collaborative learning model of smart learning, can be expected to improve learning ability by securing homogeneity among learners based on information selected by the learners and environments and conditions that can be systematically processed.
REFERENCES
MODELLING THE NOTIONS AND DIMENSIONS OF MOOCS PERCEIVED BY ODL FACULTY
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Abstract
This report explored enriched notions and dimensions of quality Massive Open Online Courses (QMOOCs). It was aimed at visualizing quality measures adjacent to MOOCs and understanding distinctive outlooks to approaching them. It was also of interests to envisage how, in what routines those notions and dimensions interconnected one another. Exploratory-design was employed to qualitatively establishing conceptual and operational frameworks first through reviewing process and focus-group discussion. QMOOCs were reflected by four dimensions: scientifically provable, technically feasible, economically beneficial and socio-culturally adaptable. Besides, QMOOCs involved six notions (6P: presage, process, product, practicability, prospective and power) and also affected knowledge, skills and professionalism (KSP). Quantitatively, QMOOCs, 6P and KSP were moderating, independent and dependent variables respectively. Associated data were accumulated through survey by distributing 500 questionnaires randomly to 708 Universitas Terbuka faculty and 299 were completed. Methodically, nine hypotheses were scrutinized utilizing structural-equation model (SEM) and eight were validated by the analysis. It was statistically inferred that product was alluded as the prime notion to QMOOCs followed by process, practicability, presage and power. Professionalism, knowledge and skill were also influenced by QMOOCs; prospective was excluded. Importance-performance analysis (IPA) and customer-satisfaction index (CSI) were emulated (applied) to quantify respondent opinion and relevance degree of those notions and dimensions. IPA chart revealed four prominent notions (corresponding, functional, well-defined, learner-focused) and an eminent dimension (technically feasible). Remarkably, qualitative framework was imperfectly confirmed by quantitative upshot. Further inquiry is therefore crucial searching for plausible validation how this consequence was marginally distinctive in conjunction with authenticating QMOOCs.

Keywords: MOOCs, exploratory-design, IPA-CSI, SEM

INTRODUCTION
Quality was comparatively not objective, it was commonly a measure for a specific purpose. Any discussion of quality primarily in education is therefore challenging since it was not a constant construct. Quality issue in education is now getting more complex when it comes to defining the quality of Massive Open Online Courses (MOOCs). In this context, quality measures is even much more relative. There was no absolute threshold benchmark that can be set. There was no definitive list of specific or fixed criteria that MOOCs can be precisely measured against (Hood & Littlejohn, 2016). Any discussion of quality on this outlook must therefore dynamically take into account the diversity amongst MOOCs and various frames of stakeholder reference; they are often conflicting one another.

In conventional formal education, there had tended to be consensus among parties involved as to deceiving intention of a specific course or program. Nonetheless, there often remains debate
over defined definitions and measures of quality as part of evaluation approach in higher education (Tran, 2015). MOOCs potentially interrupt many of existing conventions and assumptions of formal education, both in offline and online. Their unique features are challenging the parameters of learning and even education, rise new questions about their purposes and the roles that they can play in lifelong learning perspectives. In consequence, MOOCs quality can be viewed and measured in various different ways. The quality measures employed and nature of data accumulated in each case act to privilege a specific facet of MOOCs, such as instructional design issues, quality of media and/or learner performance. Establishing a robust understanding of quality in MOOCs should consider activities and components that make up the experience of learners; this is a crucial consideration in measuring the range of notions and dimensions of quality (Sumner, 2000).

This inquiry is in essence adopting relativist approach by mainly emphasizing the importance of the context. It implies that identification of variables (notions and dimensions) and their structure unified into the conceptual and operational frameworks, reflecting to Biggs (1996), do not necessarily provide a concrete answer to the conundrum in assessing quality. At this stage, we are not establishing yet conclusive set of measures that can be employed to measure quality absolutely despite some of the measures emerged from literature and expert judgement. It is expected that ideas introduced here might underpin related stakeholders to critically thinking on quality in the frame of MOOCs. It is also anticipated that it can emphasize areas of research that might be proposing new instruments and different ways of approaching and measuring the quality in MOOCs.

MOOCs in Universitas Terbuka ambiance was institutionally introduced and accessible to all within this several years back. As per 2016 for instance, seven programs were officially offered by the University. They were: (1) Marketing Management (Faculty of Economics), (2) Public Speaking and (3) ASEAN Studies (Faculty of Law, Social and Political Science), (4) Assorted Food Processing, (5) Distance Education and (6) Introduction to Moodle (Faculty of Mathematics and Natural Sciences) and (7) Parenting (Faculty of Education and Teacher Training). The number of hits to those programs were promising; 435,706 hits. The data showed, however, only 1,673 and 1,308 learners were participated (registered) and 182 and 137 completed (graduated) in the first and second semester of 2016 respectively while the student body was approximately 297,000 (Universitas Terbuka, 2017). This implied that the participation rate of MOOCs in Universitas Terbuka was extremely low considering total population were 250 million. Most of them were objectively necessitated self-continuous professional development through self-directed learning mode (MOOCs). What is more, Universitas Terbuka is one of few institutions in the country offering MOOCs without any restriction. Participation rate and demand for MOOCs in Indonesia context (through Universitas Terbuka tradition) should presumably be high.

Reflecting to those factual numbers, there are two prime possibilities why the participation rate and demand were considered to be enormously low. Externally, to certain extent, MOOCs are not well-adored yet by the society. Internally, the programs offered might not be in harmony with the demand yet (not market driven) in one hand and/or the quality of available program might still not meet the standard or expectation behold by learners as users on the other hands. This study is
nonetheless mainly focus on the latter case, on the quality issues. They were not yet in good quality might be owing to the notions of presage, process and/or product outlooks. All the same, the University strongly insisted to providing MOOCs to everyone nationally, regionally and even globally; since it was one of the main mission – dissemination of knowledge. Searching for reasonable reasons methodically on how and why the programs are not well-adored so far become crucially crucial.

The purpose of this exploratory inquiry is therefore to identify quality measures of MOOCs and to highlight some of tensions surrounding notions and dimensions of quality in a more detail. It is also of interests to envisage the need for new ways of thinking on and approaching agreeable QMOOCs. It draws on the literature on both by MOOCs and quality in education more generally. It was eventually expected to provide practical framework to analytically consider of quality programs on different variables (notions and dimensions); these concerns must be cautiously considered when conceptualizing plausible quality conundrums in MOOCs.

CONCEPTUAL FRAMEWORK
Conceptually, the exploratory framework of the study starts with general perspectives of MOOCs outlooks in Universitas Terbuka context. This is the basis of the University providing broader opportunities in relations to making higher education open to all, as the tagline of the University, associated with improving knowledge, skill and professionalism of every citizen worldwide behold by faculty members of the University (Figure 1).

The conceptual or exploratory framework (Figure 1) is then utilized as a tool of weighing up QMOOCs and their inferences noticed from Universitas Terbuka perspectives as the only University operating single mode of delivery through open distance learning (ODL) in the country. This would let the University to modify important aspects related to operational aspects in accommodating learners’ needs. It might focus on institutional directions to accomplish learners need and expectation so the University is able to maintain and make progress on the size and growth of QMOOCs as projected and officially stated in the formal document. In other words, this is the way on how the University searching for proper and adequate orientation to maintain its main role and function in eradicating access to quality education supplies (Universitas Terbuka, 2014).

Before introducing an operational framework, it is worth perceiving that quality MOOCs were determined by six notions, they are here called as the 6P model. The 6P model is an extension of 3P model (presage, process and product) inspired by Biggs (1993) and later elaborated further by Hood and Littlejohn (2016).

In Universitas Terbuka, especially for this study, quality measures for MOOCS were determined by six main factors, called the 6P model (an enrichment of the 3P model). Each variable is elaborated into notions-dimensions along with their attributes related to QMOOCs. Besides, QMOOCS lead to knowledge, skill and professionalism. To ease the naming, variables with related notions and dimensions are prearranged in Table 1.
Conceptual Definitions. QMOOCs were defined as manifestation of presage, process, product, practicability, prospective and power and at the same time were influencing knowledge, skill and professionalism. Moreover, presage was referred to resource and factor related to teaching and learning process, including learners, instructors, institution and platform. Process was referred to the course of actions associated with the presage variable including instructional design issues, pedagogical approach and various learning resource supports. Product was the outputs and/or outcomes of the total educational processes. Practicability was referred to the easiness of learners to accessing and using the products in terms of their operations and continuation. Prospect was defined as learners perceptions on the innovation and connectedness of the program related to the current circumstance. Power was expressed as an influential force to nurture learners as users to utilize the program and take advantage of them (Downes, 2013; Lin, Lin, & Hung, 2015; Littlejohn, Hood, Milligan & Mustain, 2016; Margaryan, Bianco, Littlejohn, 2015; Hood & Littlejohn, 2016).

Operational Definitions. In terms of their dimensions, QMOOCs should be scientifically provable, technically feasible, economically beneficial and socio-culturally adaptable (Sembiring, 2008). Additionally, factors close to platform, well-defined, methodical and natural outlooks were specified as the notions of presage. Factors on the point of pedagogy, inclusive, systematic and functional outlooks were specified as the notions of process. Factors resembling to learner-focused, well-presented, appealing and superior outlooks were specified as the notions of product. Factors reminiscent of innovative, advantageous, affable and manageable outlooks were specified as the notions of practicability. Factors indicative to novelty, corresponding, insightful and universal outlooks were specified as the notions of prospective. Factors symptomatic to encouraging, inspiring, satisfying and maintainable outlooks were specified as the notions of power. Besides, features in the sense of conceptual and operational outlooks were identified as the notions of knowledge. Features in the connotation of hard skill and soft skill outlooks were identified as the notions of skill. Features in the terms of being creative and grit outlooks were identified as the notions of professionalism.
Table 1. Variables, Dimensions and Remarks

<table>
<thead>
<tr>
<th>No</th>
<th>Variables</th>
<th>Dimensions</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Presage</td>
<td>$I_{11}$: Platform</td>
<td>I, M and D stand respectively for Independent, Moderating and Dependent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{12}$: Well-defined</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{13}$: Methodical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{14}$: Natural</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Process</td>
<td>$I_{21}$: Pedagogy</td>
<td>I$<em>{1-6}$, M and D$</em>{1-3}$ were independent, moderating and dependent variables successively</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{22}$: Inclusive</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{23}$: Systematic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{24}$: Functional</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Product</td>
<td>$I_{31}$: Learner-focused</td>
<td>Each independent variable (I) has four dimensions and four questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{32}$: Well-presented</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{33}$: Appealing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{34}$: Superior</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Practicability</td>
<td>$I_{41}$: Innovative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{42}$: Advantageous</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{43}$: Affable</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{44}$: Manageable</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Prospective</td>
<td>$I_{51}$: Novelty</td>
<td>These questions should be answered two times concurrently by the respondents.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{52}$: Corresponding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{53}$: Insightful</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{54}$: Universal</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Power</td>
<td>$I_{61}$: Encouraging</td>
<td>The first part of each question measured their opinion level and the second part measured its importance degree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{62}$: Inspiring</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{63}$: Satisfying</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_{64}$: Sustainable</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Quality MOOCs</td>
<td>$M_1$: Scientifically provable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>$M_2$: Technically feasible</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$M_3$: Economically beneficial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$M_4$: Socio-culturally adaptable</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Knowledge</td>
<td>$D_{11}$: Conceptual level</td>
<td>M was influenced by I$<em>{1-6}$. Others (D$</em>{1-3}$) are determined by M and questions on these three variables were answered one time only by respondents</td>
</tr>
<tr>
<td></td>
<td>$D_1$</td>
<td>$D_{12}$: Operational level</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Skill</td>
<td>$D_{21}$: Hard skill</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$D_2$</td>
<td>$D_{22}$: Soft skill</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Professionalism</td>
<td>$D_{31}$: Being creative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$D_3$</td>
<td>$D_{32}$: Being grit</td>
<td></td>
</tr>
</tbody>
</table>

Total questions: 63

$[(2 \times 28) + (1 \times 6) + 1]$
DESIGN, THE OPERATIONAL FRAMEWORK AND HYPOTHESES

This study utilizes mixed-methods, i.e., exploratory-design (Creswell & Clark, 2011). It is conducted under qualitative approach first and then followed by quantitative sequence. Two instruments are established; they are the list of unified questions for the processes of review, interview and/or focus-group discussion (for qualitative purpose) and questionnaires for accumulating data (for quantitative purpose). Qualitative approach was entailed to construct the conceptual framework and eventually lead to propositioning the hypotheses arrangement. Table 1 is utilized as the basis of developing required and relevant instruments as well as establishing the initial operational framework (Figure 2).

Variables engrossed are explored through questionnaire inspired by Tjiptono and Chandra (2011) and Shahsavav and Tan (2012). Questions in quantitative phase for the questionnaires (referring to I_{11}–X_{64} and M_{1}–M_{4}) were simultaneously answered two times by respondents. The first and second answers are to measure respondent opinion level and their importance degree respectively on QMOOCs. The rests (referring to D_{11}–D_{32}) were answered once to view the impact of QMOOCs related to learner knowledge, skill and professionalism. Plus, an extra closing question on the future of MOOCs with good quality measures in Universitas Terbuka context. Survey is implemented to accumulate required data from respondents (Fowler, 2014). Purposive (for qualitative purpose) and simple random (for quantitative purpose) sampling techniques are chosen to select eligible respondents respectively (Cochran, 1977). IPA-CSI are emulated and simultaneously employed to measure opinion along with their relevance degree on QMOOCs (Silva & Fernandez, 2010; Sembiring, 2016). SEM is finally used to identify plausible relations among all variables involved (Marks, Sibley & Arbaugh, 2005; Wijayanto, 2008; Hair, Black, Babin & Anderson, 2009).

Figure 2 also describes features affecting QMOOCs (M) leading to learners’ knowledge (D_{1}), skill (D_{2}) and professionalism (D_{3}). Dimensions of QMOOCs should be scientifically provable (M_{1}), technically feasible (M_{2}), economically beneficial (M_{3}) and socio-culturally adaptable (M_{4}). QMOOCs (M) was assessed by perceiving the notions and attributes of presage (I_{1}), process (I_{2}),

![Figure 2. The Operational Framework](image-url)
product (I₃), practicability (I₄), prospective (I₅) and power (I₆). The instrument (questionnaire) consisted of 2x28 questions related to the respondent opinion on QMOOCs and the level of their importance. Plus six additional questions to validate knowledge, skill and professionalism; whether or not they were affected by and relatable to QMOOCs and one last specific question on the future of MOOCs in Universitas Terbuka tradition (they are 63 questions in total). Serially, these results will afterwards be unified and compared comprehensively with earlier qualitative framework.

This approach then statistically scrutinizes nine hypotheses, H₁₋₉ (Figure 2), they are: QMOOCs is directly influenced by presage (H₁), process (H₂), product (H₃), practicability (H₄), prospective (H₅) and power (H₆). Besides, learner knowledge (H₇), skill (H₈) and professionalism (H₉) are also directly influenced by QMOOCs.

RESULTS AND DISCUSSIONS

Before conversing to the end upshots, it is valuable to represent respondent characteristics (Table 2). This will enrich perspectives on the outcomes obtained afterwards. Other elaborative analyses are further detailed in the next clarification (Table 3, Figure 3 and Figure 4).

Table 2. Respondents Characteristics

<table>
<thead>
<tr>
<th>Faculty 300 Respondents</th>
<th>Education</th>
<th>Social Science</th>
<th>Economics</th>
<th>Math</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31%</td>
<td>26%</td>
<td>21%</td>
<td>22%</td>
<td>100%</td>
</tr>
<tr>
<td>Echelon</td>
<td>One: 0%</td>
<td>Two: 1%</td>
<td>Three: 4%</td>
<td>Four: 9%</td>
<td>Non: 86%</td>
</tr>
<tr>
<td>Experience Year</td>
<td>1-5: 2%</td>
<td>6-10: 10%</td>
<td>11-15: 21%</td>
<td>16-20: 26%</td>
<td>21*: 41%</td>
</tr>
<tr>
<td>Age year</td>
<td>&lt; 29: 4%</td>
<td>30-39: 12%</td>
<td>40-49: 52%</td>
<td>50-59: 24%</td>
<td>60**: 8%</td>
</tr>
<tr>
<td>Involved in MOOCs year</td>
<td>&lt; 1 = 43%</td>
<td>1-2 = 49%</td>
<td>3-4 = 8%</td>
<td>5-6 = 0%</td>
<td>7+ = 0%</td>
</tr>
<tr>
<td>Credential</td>
<td>Professer: 0%</td>
<td>Sen. Lecturer: 8%</td>
<td>Lecturer: 89%</td>
<td>Ass. Lecturer: 3%</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Doctoral: 6%</td>
<td>Master: 92%</td>
<td>Bachelor: 2%</td>
<td>Diploma: 0%</td>
<td></td>
</tr>
</tbody>
</table>

It is worth to note that most of staff are relatively less experienced in MOOCs despite they are in fact senior in terms of working experiences and age. Besides, the vast majority of them are holding master degree and non-echelon staff; they are fully faculty members. To certain extent, they can be categorized as novice in the movement of MOOCs in Universitas Terbuka tradition.

Before describing final results on the relations power amongst notions and dimensions engaged and how they were interrelated one another, it is good revealing level of respondent opinion on QMOOCs and their relevance degree resulted from IPA-CSI chart. The analysis generates spots of opinion to the related quadrants (Q) to comprehend degree of their relevance (Figure 3). Figure
3 has four Q: Q1 (Concentrate Here), Q2 (Maintain Performance), Q3 (Low Priority) and Q4 (Possible Overkill); following Wong, Hideki and George (2011).

Q1 has two attributes that should be carefully noted by the University: I_{23} (systematic process) and I_{64} (maintainable). Q1 indicates respondent’s opinion is at a low level whereas the degree of its relevance is high. Here, the University must pay attention to this evidence and put them into the top of priority so the provision of MOOCs with high quality measures might be fulfilled and the program itself (quality MOOCs) are more likely well-adored by most learners as users for they are encouraging and advantageous.

Q2 includes 11 points should be cautiously recognized by the University: I_{52} (corresponding), I_{24} (functional), I_{22} (inclusive), I_{31} (learner-focused), I_{21} (pedagogy aspect), I_{51} (novelty), I_{34} (superior product), M_2 (technically feasible), I_{33} (appealing), I_{11} (the platform) and I_{32} (well-presented). Q2 is a symptom of respondent’s opinion and the relevance degree are both being placed at a high level. The University must take care of these 11 points so that more learners get advantages and will pursue their programs through MOOCs with intent. All attributes fall into this quadrant are the strength and pillar of QMOOCs in Universitas Terbuka environment; these are the critical points of authenticating the quality measures of MOOCs.

Q3 has 13 points should also be remarked by the University: I_{53} (insightful), I_{43} (affable), I_{61} (encouraging), M_1 (scientifically provable), I_{63} (satisfying), I_{42} (advantageous), I_{44} (manageable), I_{62} (inspiring), I_{41} (innovative), M_3 (economically beneficial), M_4 (socio-culturally adaptable), I_{14} (natural) and I_{13} (methodical). Q3 is an indication of both respondents opinion and degree of their relevance are in a low category. The University should classify them all as the next focus after concentrating on critical points especially found in Q1 and maintaining all points in Q2. Any attribute falls into this quadrant is not so important and poses no direct and quick threats with respect to assuring MOOCs with good quality measures.

Finally, Q4 has two points, they are: I_{12} (well-defined) and I_{54} (universal). Q4 indicates that these two points are considered much less important to approaching QMOOCs but most respondents considered them as high in relevance. Here, again, attention to attributes included in this quadrant might be less focused. So, the University can save costs by redirecting them to take up crucial
point in Q1 and again maintaining all fundamental aspect found in Q2 to satisfy learners need in the provision of QMOOCs.

Now let observe hypothesis analysis and loading factor outcomes from examined model (Figure 4) to witness the real interrelations amongst notions and dimensions involved as well as power of their relations one another.

Figure 4 clearly shows that one of nine hypotheses examined was statistically not validated by the analysis ($H_5 = 1.42$; prospective to QMOOCs), as the $H_{value} \leq 1.96$ for $\alpha = 0.05$. Contrariwise, the rests were all directly and positively validated by the analysis. They are: $H_1 = 2.21$ (presage to QMOOCs), $H_2 = 4.46$ (process to QMOOCs), $H_3 = 6.61$ (product to QMOOCs), $H_4 = 2.49$ (practicability to QMOOCs), $H_6 = 2.01$ (power to QMOOCs), $H_7 = 11.14$ (QMOOCs to knowledge), $H_8 = 9.69$ (QMOOCs to skill), and $H_9 = 14.26$ (QMOOCs to professionalism), as the $H_{value} \geq 1.96$ for $\alpha = 0.05$.

Having scrutinized the hypotheses and arranged notions and dimensions in appropriate quadrants, we are now in the position of relating loading factor of the tested quantitative framework to observe the power of relations under SEM approach to positively work out the end results. Figure 4 explicitly reveals five prime remarks need to be elaborated and highlighted in further details.

1. The first is related to the five main variables directly and positively influencing QMOOCs. They are orderly rank as: product (0.35), process (0.27), practicability (0.12), presage (0.10) and power (0.08). Note cautiously that the most critical aspect here is on the product of the MOOCs. Consulting to the initial 3P model, with an extension version called 6P, it remains that the most influential factor is still from the initial model that is product (Biggs, 1993). It means that MOOCs is considered to be having good quality measures positively observed from the product first.

2. The second is relatable to the rank of attributes in the five validated notions as the independent variables, namely:
   - Product ($I_{31}$): learner-focused ($I_{31} = 0.84$), superior ($I_{34} = 0.83$), well-presented ($I_{32} = 0.82$) and appealing ($I_{33} = 0.78$). It implies that learner-focused is the most important aspect in the
product of QMOOCs according to the staff as compared to the other notions and dimensions in this setting.

- **Process** ($I_2$): pedagogical notion ($I_{21} = 0.85$), functional ($I_{24} = 0.84$), systematic ($I_{23} = 0.81$) and inclusive ($X_{22} = 0.79$). Here, pedagogy is the most critical aspect behold by the staff; this is common too.

- **Practicability** ($I_4$): innovative ($I_{41} = 0.87$), affable ($I_{43} = 0.85$), manageable ($I_{44} = 0.73$) and advantageous ($I_{42} = 0.71$). Here, innovativeness is very important in terms of providing QMOOCs.

- **Presage** ($I_1$): platform ($I_{11} = 0.88$), methodical ($I_{13} = 0.84$), well-defined ($I_{12} = 0.72$) and natural ($I_{14} = 0.67$). In this part, the platform of the measures are still the most valuable one according to most respondents.

- **Power**: maintainable ($I_{64} = 0.86$), satisfying ($I_{63} = 0.78$), encouraging ($I_{61} = 0.76$) and inspiring ($I_{62} = 0.71$). QMOOCs in the frame of their power are critically related to maintaining the substance experienced by learners.

3. The third is concerning the order of MOOCs dimensions viewed from quality measures outlook. It was discovered successively as follows: technically feasible ($M_2 = 0.80$), scientifically provable ($I_1 = 0.78$), economically beneficial ($I_3 = 0.68$) and socio-culturally adaptable ($I_4 = 0.66$). It is good to see respondents placed technical issue as the prime concern with respect to providing MOOCs with good quality measures. It also implies that what is crucial for them, as novice in MOOCs movement in Universitas Terbuka tradition, is on the technical issues rather than that of scientific and economic aspect and even from social and cultural notions. In other words, they are more interested in knowing the technical issues for the future so learners have wider opportunity to have a better future after completing MOOCs.

4. The fourth is on the relation powers of QMOOCs towards the dependent variables. Figure 4 evidently confirmed that MOOCs with accepted quality measures had significant effects on: professionalism ($D_3 = 0.35$) then followed by knowledge ($D_1 = 0.31$) and skill ($D_2 = 0.23$). This implies that most respondents strongly believed that QMOOCs are able to assuring learner’s professionalism and knowledge rather than that of improving skill; this is positive as the mode of delivery utilizing media of learning and fully ICT-based.

5. The fifth is on the rank of professionalism, they orderly are: grit ($D_{32} = 0.80$) and followed by creative ($D_{31} = 0.63$). On the rank of knowledge, they are: operational ($D_{12} = 0.83$) and conceptual ($D_{11} = 0.72$). On the rank of skill, they are: hard skill ($D_{21} = 0.80$) and soft skill ($D_{22} = 0.80$). What is important here that respondents are willing to endorse MOOCs movement in Universitas Terbuka milieu as they are good for improving determination and creativity as part of professionalism in this fast growing environment. This is rightly positive related to educating the nations without time and geographical constraints anymore.

Before amalgamating the qualitative and quantitative results, it is worth considering the analysis of goodness of fit of the tested operational framework. The analysis shows that they are all in good fit category (Table 3). It implies that the quantitative result is statistically reliable to be used as a point of reference to draw inferential closing remarks to be unified with the qualitative construct that had been established beforehand.

Table 3. Goodness of Fit of the Model
Having collected and aggregated outcomes accomplished by quantitative and qualitative inquiries, three major validities need to be noticed and elaborated thoughtfully. The first is on the conceptual and operational framework (Figure 1 and Figure, plus Table 1). The second is on the IPA-CSI chart (Figure 3). The third is on the chosen methodology property.

It was quantitatively understood that professionalism was confirmed as the primary aspect and then followed by knowledge and skill as a results of MOOCs with good quality measures. This result is slightly distinctive with the qualitative inquiry previously obtained from literatures, interviews and focus-group discussion series. Besides, in terms of their attributes order, quantitative effects also showed slight dissimilarity. Nevertheless, they only varied in the attributes level and order of the dependent and independent variables. This is a good sign. It implies that the results obtained under quantitative approach is still in the same sphere with quite low contradictory effect as compared to the qualitative structure.

Quantitative outcomes here partially excluded prospective variable with its notions as compared to qualitative framework; supplementary explanation is clearly needed for this difference. From Table 2, it was detected that most respondents are novice in MOOCs movement in the University environment. It implies that most of them have fewer experiences in the movement of MOOCs as a new approach to developing human resources in Indonesia perspectives. It also implies that the vast majority of them are more sensitive searching for learning resources, MOOCs in this context, with superior quality product and practicability rather the prospect of the material in terms of their novelty and even the appropriateness. In short, this is the validation on how and why the prospective notion was statistically excluded by the analysis. The rests of quantitative outcomes are relatively consistent with the qualitative marks.

The IPA-CSI chart effects are reinforced quantitatively by SEM results. By combining these upshots, it will objectively direct the University to formulate alternative course of actions for future needs on anticipating and authenticating MOOCs with appropriate quality measures accordingly. It is fortunate that qualitative inquiry to certain extent was in line with the quantitative conclusion. It has been phenomenon that most universities are limited by tangible resources, 5-M (man, money, material, machine and method) in exploring new ways of improving the quality of any service; especially in developing and maintaining QMOCs. By considering this constraint,
according to Sembiring (2016), it is just right to re-formulate new ideas how to effectively re-direct resources such that sufficient efforts and supports are available to deal with aspects in Q₁ and maintaining critical aspects in Q₂, as also indicated by Tileng, Wiranto and Latuperissa (2013). It should be cautiously taken into account that maintainable attribute (as a notion of power, I₆₄) and systematic attribute (as a notion of process, I₂₃) are two critical notions in developing QMOOCs. These two notions were in a low level, according to most respondents, but they are really relevance.

This result will be incredibly useful to re-formulate on things that should be put as the top priority by the University to fulfil the quality measures of MOOCs in conjunction with satisfying the needs of learners. The attributes dropped into Q₁ (Concentrate Here Quadrant - systematic and maintainable notions) should be brilliantly controlled. At the same time, 11 notions dropped into Q₂ (maintaining performance) should also be repeatedly preserved as they are the pillar of QMOOCs presuming the University is going to pursue good quality measures in MOOCs. By all means, the notions from Q₁ should be moved onto Q₂. It will improve the possibility of learners getting satisfied. The more learners satisfied, the more likely they accessed and utilized the program (MOOCs). This implies that the University will be able to approaching the vision through the three missions, namely enlarging access, developing system and disseminating science and technology through open distance learning mode of delivery as it was initially projected in the Strategic Plan (Universitas Terbuka, 2017).

Looking up to the third effect, it appears that the mixed method used in this study is reliable despite the slight and minor difference on the end results still did take place. The differences in terms of the end results took place insignificantly in the hypotheses testing (but still in positive relation); not in the conceptual outlooks within the dependent variables. Despite the difference, it does not indicate they are in high contradictory intensity. It can then be inferred that the difference took place are basically to amplify our perspectives on the context supposing comparable study is arranged in the near future.

At the end, respondents were asked a closing question: what is your perception and expectation on the MOOCs movement and the possibility of their success operations through Universitas Terbuka experience? Amazingly, the answers provide a quite robust acceptance that in the future the University will be able to accomplish the initial planned in terms of providing and maintaining MOOCs movement. How come? As the answers to this question is convincing. They are: Completely Disagree = 3%, Disagree = 12%, Agree = 39%, Strongly Agree = 37% and Extremely Agree = 9%. Up to 85% of respondents believed the University is on the right path to uphold its righteous missions in providing MOOCs for all; this is truly good indication for the University.

**CONCLUDING INTERPRETATION**

The research has created both qualitative and quantitative frameworks of quality measures on MOOCs and their notions and dimensions in Universitas Terbuka milieu with respect to their links extended from a comprehensive analysis of educational perspective and staff attitudinal. The frame was validated using SEM through assessing empirical data by survey of 299 respondents (Universitas Terbuka faculty throughout the country). The study ascertains that QMOOCs leads
to professionalism and then followed by knowledge and skill characteristics. Additionally, QMOOCs is affected by product, process, practicability, presage and power. Three main variables, as introduced by Biggs (1993), are significantly influencing QMOOCs. Under IPA-CSI procedure, two notions that should be cautiously noticed in anticipating and fulfilling learners' satisfaction in using MOOCs were maintainable and systematic notions and other eleven notions at the same time should be repeatedly highlighted.

Further research however is crucial and it should explore quality notions and dimensions level beyond had been included in the tested framework searching for reasons behind the slight differences as previously disclosed. The scope of the study should also be broadened beyond faculty members from Universitas Terbuka. It would put forward more comprehensive perspectives especially on professionalism, knowledge and skill variables with reference to QMOOCs to meeting learner’s needs as open and distance learners. This in turn will obviously improve learner’s rate utilizing MOOCs through Universitas Terbuka attempts; in line with Prena, Ruby, Borugh, Wang, Scull, Ahmad & Evans (2014). In short, this will provide opportunity for the University to be more contributively in supporting the government of Indonesia to eradicate restraints access to quality higher education. If this awareness is emblematical worldwide, as indicated by Zhenghao, Alcorn, Christensen, Erikkson, Koller and Emanuel (2015), management and academic elsewhere are also well-advised to ruminate on the notions and dimensions of QMOOCs explored here. It was to prolonged continued existence of their institution in the provision of MOOCs with supreme quality and more importantly they are learner-centred and well-presented.

For the nations, through Universitas Terbuka experiences, professionalism, knowledge and skill can be conquered through the provision of MOOCs with supreme quality measures. This means that the University is on the right path to encourage its righteous mission of making higher education open to all with respect to protecting the nation through flexible quality education. The University will be in harmony to reorganize the vision of becoming the world quality institution in preparing the world quality graduates (Universitas Terbuka, 2014 & 2017; Sembiring, 2015 & 2016).

REFERENCES


PERCEPTION AND EXPERIENCES OF DISTANCE LEARNERS ON THE USE OF OPEN EDUCATIONAL RESOURCES AT NATIONAL OPEN UNIVERSITY, INDIA

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Abstract
In the open and distance learning environments, there is a visible paradigm shift towards increasing use of technology-enabled education, especially open source, social technologies, and OERs. Today’s education scenario is becoming more learner-centric and collaborative. In this context, the Open Educational Resources (OER) movement has come a long way, and holds enormous promise for increasing access to and quality of learning, particularly in the developing countries. In India, Distance Education caters to a wide range of learners with varied learning styles, preferences, with heterogeneous cultural backgrounds, economic status and geographic locations, through 15 open universities and above 200 dual mode universities, and institutes/autonomous bodies. Creation and optimal use of globally available OER and open access (OA) materials for providing easy access to quality education is one of the major requirements as well as challenges. The present paper discusses the development and use of OERs in distance education in India, and presents the findings of a survey, through a structured questionnaire, on the sampled distance learners enrolled in select programmes at sampled study centres of Indira Gandhi National Open University (IGNOU), New Delhi, India on the perception and experiences of learners towards the availability and use of open educational resources. The paper discusses the different barriers in providing electronic resources and services to the distance learners and viable suggestions for overcoming the same. The paper highlights various issues related to awareness and use of various available OERs in teaching and learning at a distance.

Keywords: Distance learners, Open education resources, Perception, IGNOU, India

INTRODUCTION
It is increasingly being felt that information technology can play a significant role in “developing skills needed in the 21st century and improving access to lifelong learning opportunities” [1]. Therefore, there is an increased emphasis on use of technology-enabled education, more so open source, social technologies, and OERs. UNESCO has also laid emphasis on the need for ensuring equitable quality education and lifelong learning opportunities for all. There exists a huge learning divide where some learners have easy access to technology and learning resources, and some learners have no access to these essential learning resources [2]. The Open Educational Resources (OER) movement has come a long way, and the use of open education resources is considered important for ensuring “equity in access by anyone regardless of location, status, or background” [2]. The traditional forms of developing and delivering instruction do not scale well to meet the growing demand. Higher education institutions face significant challenges related to providing increased access to learning resources, while containing or reducing costs [3].
Distance education is a competent mode of delivering tertiary education, in a country like India, to address the expansive demand for education. Open universities and other distance education institutions are striving to meet the educational needs of varied learners from diverse backgrounds and physical locations. Creation and optimal use of globally available OER and open access (OA) materials for providing easy access to quality education is one of the major requirements of today. In India, a number of initiatives involving open access electronic journals, repositories and digital repositories have been taken up both at the national and institutional level including National Mission on Education using Information and Communication (NMEICT), National Repository of Open Educational Resources (NROER), and SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) [4]. These initiatives with the active support from the government aim to enhance the knowledge systems and their creation by leveraging ICTs, and using available open education resources. However, there are a number of challenges to the use of OER which can be classified as technical, economic, social, policy related, and legal issues [5]. Some of the barriers related to the use of OER among distance learners, especially in developing countries, are ([4], [6]):

a) Lack of awareness about OER
b) Lack of awareness about intellectual property rights and copyright issues.
c) Lack of awareness about open licensing
d) Lack of access to computers and internet
e) Lack of skills needed to use the technology
f) Lack of skills to locate, select and use OER
g) Need for good quality localized content
h) Need for guidance and support from teacher.

The adoption of available OER among the distance learners can be facilitated by promoting digital literacies among the varied distance learners and creating awareness about the advantages of OER.

**REVIEW OF RELATED LITERATURE**

**OER for Distance Learners**

Learners are often “excluded from high-quality learning opportunities because of the three classic elements of the pedagogic situation: place, time and pace” [7]. The shift in distance education materials design from print to new technologies has been aimed at reducing the geographical, economic and demographic boundaries to facilitate and increase access to higher education. McAndrew and Farrow [8] note that OERs are generally free of direct cost to the end user and, in most cases, are openly accessible online. This makes them attractive for expanding formal education and supporting informal learning. OER can support the expansion of action learning and critical pedagogies, thus reducing the isolation of distance learners. Open source software and OER have therefore also been described as ‘open fountains of goods’ [9]. The extension of OERs to an open participatory learning infrastructure binds resources with an online environment for use by those who have access to them [10]. It is recognized that open educational resources potentially transform the institutions of learning, the practices of teaching, and the processes of learning and knowledge creation [9]. In addition to the necessary infrastructure to provide accessibility to free, quality online resources; the essential skills required for both online teaching
and learning must be explored by the universities and ODL institutions who are committed to the purpose of providing learning opportunities to all [11].

**Perception of Distance Learners towards OER**

It is very important to analyse the use of OER and educators from the perspective of learners and educators to make them beneficial to them [12]. It is also found that two different models of OER are being promoted – one provides restricted access to resources and the other provides unrestricted access to resources for self-learning, with restrictions on accreditation [13]. Most of the studies related to learner use of OER are focused on the use of open textbooks. A study was conducted on teacher and student perception of various aspects of OER, in context of an open education project involving eight community colleges in United States. It was reported that students used open textbooks available online. It was also found that the open textbooks were not only cost Saving but also that students found it better to learn with an online book [14]. In a study involving higher education institutions in UK it was found that the students did not have much awareness of OER [15]. In another research study among tertiary education students in United Kingdom [16], it was found that students felt that the use of OER improved their learning experience and also their grades. The study also highlighted that the awareness and understanding about OER was less and among the non-traditional users it was comparatively lesser. The study also highlighted the need to explore the students understanding of OER as there is a possibility that they do mix up OER with the digital resources used for educational purposes. In systemic survey involving users of three repositories, it was found that the non-formal learners were highly positive and enthusiastic towards the use of free and online resources, i.e. OER [17]. It was also reported that the surveyed learners did not seem to well understand the language and concept of OER, and also about OER repositories. Relatively few research studies have focused on the understanding, use and perception of OER among learners, especially distance learners. There is a strong need to investigate the awareness and use of OER among distance learners, particularly in Indian context. The present study attempts to examine the perception and experiences of learners towards the availability and use of open educational resources.

**OBJECTIVES OF THE STUDY**

The main objectives of the study were:

- To find out the level of awareness of OER by distance learners in National Open University, India.
- To investigate the use of OERs by the distance learners in National Open University, India.
- To investigate the perception and experience of distance learners, in National Open University, India, towards the use of OER.

**METHODOLOGY**

The study is descriptive in nature. Survey method was used for carrying out research and a questionnaire was developed by the researchers to evaluate learners’ use of OER. Purposive
sampling technique was applied. The sample of the study was selected from one of the largest Regional Centres of the Indira Gandhi National Open University in New Delhi, i.e., RC 1. It has presently 46 Learner Support Centres (LSC) comprising 17 regular study centres, 20 programme study centres, 8 special study centres and one jail centre for jail inmates to cater to academic support of learners. It had student enrolment of nearly 89000 in the year 2016. Two study centres were selected from the 17 regular study centres. A questionnaire was developed to evaluate student perceptions. The questionnaire, consisting of three parts, focused on – demographic information, awareness of OER, use of OER, and perception towards OER use. The questionnaire consisted of dichotomous, multiple choice questions. The draft of the questionnaire was sent to 4 experts (in the area of ODL and OER) for validation and the suggested modifications were made before administrating the questionnaire to the selected distance learners. The researchers collected data from the research sample by visiting study centers on weekend. The questionnaires were distributed among the 300 students (enrolled in Masters and Bachelors programmes including MA, MCA, BCA and BA programmes) attending academic counselling sessions. Total 152 usable responses were received and used for analysis. The results from the survey are presented below.

RESULTS

Respondents’ Profile

The Questionnaire was administered to 300 distance learners. Total 152 out of 300 were received, thus indicating a response rate of 50%. The results presented in Table 1 revealed that Out of the 152 respondents, 52.6% were female and 47.4% were male. Majority of the respondents were enrolled in Bachelor’s programme (65.1%) followed by Master’s programme (34.9%). Moreover, majority of the respondents (80.9%) were below 25 years of age followed by 16.4% in the 25-35 years age group and 2.6% in the 36-45 years age group. An attempt was also made to analyse the working status of the distance learners. While 78.9% of the respondents were unemployed, 24% were employed and 5.3% were self-employed.

<table>
<thead>
<tr>
<th>Respondents’ Profile</th>
<th>N</th>
<th>N %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>72</td>
<td>47.4%</td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>52.6%</td>
</tr>
<tr>
<td>Programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>99</td>
<td>65.1%</td>
</tr>
<tr>
<td>Master’s</td>
<td>53</td>
<td>34.9%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below 25 years</td>
<td>123</td>
<td>80.9%</td>
</tr>
<tr>
<td>25-35 years</td>
<td>25</td>
<td>16.4%</td>
</tr>
<tr>
<td>36-45 years</td>
<td>4</td>
<td>2.6%</td>
</tr>
<tr>
<td>Over 46 years</td>
<td>0</td>
<td>.0%</td>
</tr>
<tr>
<td>Learner Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>24</td>
<td>15.8%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>120</td>
<td>78.9%</td>
</tr>
</tbody>
</table>
Use of Internet for Study Purposes

The respondents were asked if they used internet for study purposes and for accessing educational materials. The results revealed that majority of the respondents (78.3%) used internet for educational purposes.

Awareness of OER

Awareness of OER is a prerequisite to their effective use by the distance learners. An attempt was made to assess the level of awareness of OER. The respondents were first asked if they were aware of OERs. 55.3% of the respondents (n=84) indicated that they were somewhat aware of OER. The results also revealed that 26.3% (n=40) of respondents indicated that they knew very well about OER.

<table>
<thead>
<tr>
<th>Table 2: Awareness of OER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>I know very well</td>
</tr>
<tr>
<td>I know somewhat</td>
</tr>
<tr>
<td>I do not know</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Use of OER

The respondents were asked if they had used OER. A large percentage of respondents (62.5%, n=95) indicated that they had used OER. The respondents were further asked about the OER websites they had accessed. The findings showed that OpenLearn (27.6%) followed by NROER (National Repository of Open Educational Resources) at 11.2% were the most used OER repositories (Fig. 1). The low usage of other OER websites and repositories indicates the low level of awareness among the distance learners.
Fig. 1: Use of OER by the Distance Learners

Types of OER used

The respondents were asked about the types OER they had used. The findings revealed that textual materials (50.7%) followed by videos (42.1%), tutorials (31.6%) and e-books (28.3%) were the most used types of OER.

Fig. 2: Types of OER used by the Distance Learners

Perception and Experience of OER Use

An attempt was made to analyse the perception and experience of distance learners towards OER use. The findings showed that the respondents indicated an increased interest in the subject (61.2%), followed by enhanced understanding of the subject (58.6%) and introduction to new...
ways of learning (55.3%). This was followed by 53.3% of the respondents indicating help with learning the practical skills associated with the topic.

Table 3: Perception and Experience of OER Use

<table>
<thead>
<tr>
<th>Items</th>
<th>Yes</th>
<th>N</th>
<th>N %</th>
<th>Not Sure</th>
<th>N</th>
<th>N %</th>
<th>No</th>
<th>N</th>
<th>N %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased my interest in the subject.</td>
<td>93</td>
<td>61.2%</td>
<td></td>
<td>51</td>
<td>33.6%</td>
<td></td>
<td>8</td>
<td>5.3%</td>
<td></td>
</tr>
<tr>
<td>Enhanced my understanding of the subject.</td>
<td>89</td>
<td>58.6%</td>
<td></td>
<td>51</td>
<td>33.6%</td>
<td></td>
<td>12</td>
<td>7.9%</td>
<td></td>
</tr>
<tr>
<td>Increased my confidence and made me more self-reliant.</td>
<td>80</td>
<td>52.6%</td>
<td></td>
<td>65</td>
<td>42.8%</td>
<td></td>
<td>7</td>
<td>4.6%</td>
<td></td>
</tr>
<tr>
<td>Improved my grades/ marks.</td>
<td>78</td>
<td>51.3%</td>
<td></td>
<td>52</td>
<td>34.2%</td>
<td></td>
<td>22</td>
<td>14.5%</td>
<td></td>
</tr>
<tr>
<td>Introduced me to new ways of learning.</td>
<td>84</td>
<td>55.3%</td>
<td></td>
<td>55</td>
<td>36.2%</td>
<td></td>
<td>13</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>Increased my collaboration and interaction with my peers.</td>
<td>56</td>
<td>36.8%</td>
<td></td>
<td>72</td>
<td>47.4%</td>
<td></td>
<td>24</td>
<td>15.8%</td>
<td></td>
</tr>
<tr>
<td>Helped in learning the practical skills associated with the topic.</td>
<td>81</td>
<td>53.3%</td>
<td></td>
<td>57</td>
<td>37.5%</td>
<td></td>
<td>14</td>
<td>9.2%</td>
<td></td>
</tr>
<tr>
<td>Raised my interest in a wide range of subjects.</td>
<td>74</td>
<td>48.7%</td>
<td></td>
<td>67</td>
<td>44.1%</td>
<td></td>
<td>11</td>
<td>7.2%</td>
<td></td>
</tr>
</tbody>
</table>

Perception of usefulness of OER

The respondents were asked if they thought the OER can be useful for distance learners. Out of the total 152 respondents, 104 (68.4%) replied in affirmative, however, 28.9% (n=44) were not sure about the usefulness of OER.

Table 4: Perception of Usefulness of OER

<table>
<thead>
<tr>
<th>Perception of Usefulness of OER</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>4</td>
<td>2.6%</td>
</tr>
<tr>
<td>Not Sure</td>
<td>44</td>
<td>28.9%</td>
</tr>
<tr>
<td>Yes</td>
<td>104</td>
<td>68.4%</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

DISCUSSION AND CONCLUSIONS

In today’s world technology has become a significant mediator for distance education [18]. OER have emerged as innovative intervention to support knowledge development in a cost-effective manner. It has become extremely important to propitiate ways for encouraging optimal use of existing open education resources in education. The present study highlights that the awareness of OER among distance learners in Indian scenario is minimal. The findings of the study suggest that the use of OER among the distance learners is also less, owing to levels of awareness.
Textual materials and videos were found to be the most used types of OER. Though majority of study used internet to access educational materials, they were not using OER. Further, the study establishes that the learners believed that OER can be useful for distance learners. However, serious efforts are required to spread awareness about the various available OER and promote related use among the distance learners. Easy accessibility to high quality educational resources is immensely significant for expansion of educational opportunities. There is a strong need for changes in the instructional content that is provided to the student, the manner in which it is delivered and also in the entire teaching-learning process to facilitate new-age learning. The present study stresses the need for better institutional, pedagogical and instructional support for the learners to empower them to access, select and use the available high quality digital resources. Institutions, educators and other stakeholders should take substantial steps to integrate OER in the teaching-learning process so that they are increasingly used by the learners especially distance learners.

REFERENCES


EDUCATIONAL PROGRAMS THROUGH TECHNOLOGIES USE BY OPEN AND DISTANCE LEARNING SYSTEM AT COASTAL REGIONS, OPEN DISTANCE LEARNING UNIT OF JEMBER, EAST JAVA PROVIENCE, INDONESIA
(CASE STUDY AT OPEN DISTANCE LEARNING UNIT OF JEMBER, INDONESIA)
Joko Isdianto
joismap@gmail.com

Abstract
Technology always helps so many people in the world whatever their fields and wherever they want to do. One of the mainly benefits of the technology are increasing the teaching and learning capacities of the Open and Distance Learning System at The Coastal Region, such as Open and Distance Educational Program at Jember regency. Technologies here are the main support for the educational development in the most coastal regions in Indonesia. Many people use the advanced technologies, such as internet, as the main wares of the educational development. They promote the using of internet in many schools in Indonesia, specially in coastal regions, such as coastal regions in Java Island, such as Jember, Banyuwangi, Situbondo and Probolinggo Regency. Today, most of the students in such coastal regions always have fun in their study with internet as the advanced technology. Technologies have enchanced teaching and learning distance method in Indonesia, Specially in coastal region. Many Students in this coastal area have used advanced technologies, such as computer in the classroom, new website, interactive key board, Blog and wikis, in this case, Web 2.0 that implemented in the class, so many students can have much more dialogues, digest dialogues, ideas and brainstorming. Beside, such as a wireless microphone, a mobile and digital game, also to be the other alternatives maintenance of the advanced technologies in enchanced teaching and learning system. Distance educational system by using advanced technologies make the goal of international education system become more achievable and more accessible to all students at Coastal Region. Here, Technologies have more contributions to the enchanced teaching and learning system, like what display in this site: http://www.slideshare.net/NASuprawoto/penggunaan-internet-dalam-pembelajaran-matematika-di-sd.

We can analyze ODL use at other coastal area beside Jember, such as Probolinggo, Situbondo and Banyuwangi, from the datas that has been collected at Open Distance Learning Unit office of Jember. Because Probolinggo, Situbondo and Banyuwangi are conquered by ODL Unit office of Jember, East Java, Indonesia. So, the centre of ODL System at east coastal area of east Java are stated at Jember Regency. So, the centre of ODL System at east coastal area of east Java are stated at Jember Regency. The method we use for this research is a Triangulasi Method with population and sample are taken at listed students of Jember ODL Unit Office, are covering Situbondo, Probolinggo, and Banyuwangi

Here, Online tutorials are the most favourable mechanisms for providing education through Open and Distance Learning System all over the world. Online tutorial always give the students so many things and choices for learning, beginning from the materials of studies, the choices of books shopping, various literatures at online library, various kind of friends for communicating between one student to another. So, Technologies and Online Learning Strategies can provide education through Open and Distance Learning System at Coastal Regions in Indonesia.

Key Words : Educational Programs, Technologies Use, Open and Distance Learning System
INTRODUCTION

Recently, day by day The Technologies always helps so many people in the world whatever their fields and wherever they want to do. One of the mainly benefits of the technology are increasing the teaching and learning capacities of the Open and Distance Learning System at The Coastal Region, such as open distance educational programme at Jember regency. Here, Technologies are the main support for the educational development in the most coastal regions in Indonesia. Many people use the advanced technologies, such as internet, as the main wares of the educational development. They promote the using of internet in many schools in Indonesia, specially in coastal regions, such as coastal regions in Java Island, such as open and distance educational program at Jember, Banyuwangi, Situbondo and Probolinggo Regency. Today, most of the students in such coastal regions always have fun in their study with internet as the advanced technology. Technologies have enchanced teaching and learning distance method in Indonesia, Specially in coastal region.

They promote the using of internet in many schools in Indonesia, specially in coastal regions, such as coastal regions in Jember, Banyuwangi, Situbondo and Probolinggo. I Observed at Jember regency, Banyuwangi, Situbondo and Probolinggo regency, East Java, Indonesia, they are located at East of capital city of Jakarta Provience, Indonesia, about 2 hours travelling by aircraft / plane to the east coastal area of east Java Provience. We can analyze ODL use at other coastal area beside Jember, such as Probolinggo, Situbondo and Banyuwangi, from the datas that has been collected at Open Distance Learning Unit office of Jember. Because Probolinggo, Situbondo and Banyuwangi are conquered by ODL Unit office of Jember, East Java, Indonesia. So, the centre of ODL System at east coastal area of east Java are stated at Jember Regency.

Mainly Discuss

Today, Specially at East Java, Most of the Open University’s Students always uses the internet materials facilities. The Most Students of Post Graduate at Jember ODL Unit uses the online tutorial as their studies materials. Here, the Datas about the Graduation Numbers of Post Graduate Students at Jember ODL Unit since 2015-2016 that using online tutorial materials:
From data above, at Jember ODL Unit Office (on study scale 2015-2016), we can know that The large numbers of Post Graduate Students at Jember ODL unit could finish their study “on time” (in 2 years) increasing to be 82 Students from 30 students at the beginning for 2 years. Even though, they study with ODL System by Indonesia Open Distance Learning University Website use. 24,29% students number of Post Graduate comes from Probolinggo town (coastal area) and 22, 27% comes from Situbondo Town (coastal area). All of the students of Post Graduate at Jember ODL Unit Office always give good responses for their interactive activities at online material, such as discussion forum, assignments, face to face class between tutor and students, dialogue, seminar, public face to face video conference’s meeting. The Next, we can know about datas of Online Tutorial use at Jember ODL Unit Office, here we are:

<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magister Pendidikan Matematika</td>
<td>33</td>
<td>46%</td>
</tr>
<tr>
<td>Magister Ilmu Kelautan</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>Magister Pendidikan Dasar</td>
<td>25</td>
<td>35%</td>
</tr>
<tr>
<td>Magister Administrasi Publik</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Magister Perikanan</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>Magister Manajemen Keuangan</td>
<td>2</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Sources:** Jember ODL Office 2015-2016
Data of Online Tutorial Using at Jember ODL UNIT OFFICE
POST GRADUATE PROGRAMS 2015-2016

NUMBER OF POST GRADUATE (S-2) STUDENTS ACCORDING SEATTLE AREA AT JEMBER OPEN DISTANCE AND LEARNING (In Students)

Sources: Jember ODL Office 2015-2016

<table>
<thead>
<tr>
<th>No</th>
<th>Location of Study</th>
<th>Number of Students</th>
<th>Percentage of Using ODL (%)</th>
<th>Final Result of ODL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jember</td>
<td>13</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Banyuwangi</td>
<td>14</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Situbondo</td>
<td>22</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Probolinggo</td>
<td>24</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Lumajang</td>
<td>4</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Bondowoso</td>
<td>5</td>
<td>100</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>Final Total</td>
<td>82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Jember ODL Office 2015-2016

From the datas above we can know that all Post Graduate Programme Students always use the online tutorial facilities and Indonesia open university website (100%). Even, They all can finish their thesis till the end. Eventhough, they learned with ODL. They are all from Coastal Areas at East Java, Indonesia. Coastal Area at the east of east Java are conquered by ODL Unit office of
Jember regency or Jember regency are the centre of the east coastal area at the east Java, Indonesia. The method we use for this research is a Triangulasi Method with population and sample are taken at listed students of Jember ODL Unit Office, are covering Situbondo, Probolinggo, and Banyuwangi.

Today, most of the students are in such coastal areas always have fun in their study with internet as the advanced technology. Technologies have enchaned teaching and learning system in Indonesia, Specially in coastal region. Many Students has used advanced technology, such as computer in the classroom, new website, interactive key board, Blog and wikis, in this case, Web 2.0 that implemented in the class, so the students can have much more dialogues, digest dialogues, ideas and brainstorming. Beside that kinds, a wireless microphone, mobile and digital game, also to be the other alternatives of the advanced technologies in an enchanced teaching and learning system. Distance educational system by using advanced technologies make the goal of international education system become much more achievable and more accessible to all students. Here, Technology has more contributions to the enchanced teaching and learning system, like what display in this site: http://www.slideshare.net/NASuprawoto/penggunaan-internet-dalam-pembelajaran-matematika-di-sd

Datas at Jember Regency ODL Unit Office about Online materials shows:

### Data of Online Tutorial Materials using at Jember ODL UNIT East Java, Indonesia POST GRADUATE PROGRAMS 2015-2016

<table>
<thead>
<tr>
<th>No</th>
<th>Location of Study</th>
<th>Number of Students</th>
<th>Online Materials</th>
<th>Final Result ODL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jember</td>
<td>13</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities, Indonesia open university website</td>
<td>Thesis</td>
</tr>
<tr>
<td>2</td>
<td>Banyuwangi</td>
<td>14</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities, Indonesia open university website</td>
<td>Thesis</td>
</tr>
<tr>
<td>3</td>
<td>Situbondo</td>
<td>22</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities, Facilities Indonesia open university website</td>
<td>Thesis</td>
</tr>
<tr>
<td>4</td>
<td>Probolinggo</td>
<td>24</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities, Indonesia open university website, Modul , Compact Disk, Internet Facilities</td>
<td>Thesis</td>
</tr>
<tr>
<td>5</td>
<td>Lumajang</td>
<td>4</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities</td>
<td>On Process Thesis</td>
</tr>
<tr>
<td>No</td>
<td>Location</td>
<td>Facilities, Indonesia open university website</td>
<td>Modul (Printed Learning Materials), Compact Disk, Internet Facilities Indonesia open university website</td>
<td>Thesis</td>
</tr>
<tr>
<td>----</td>
<td>------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>6</td>
<td>Bondowoso</td>
<td>5</td>
<td>Final Total 82</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Jember ODL Unit Office 2016

From Datas above, we can know about the online software and online materials that always be used by Post Graduate Programme Students at Jember ODL Unit, Indonesia, easier and simpler for use. So, The Students like to use the website of Indonesia Open University, eventhough they are all seatled at Coastal area at East Java, Indonesia, such as **Jember** and **Banyuwangi**, (Those towns are far away from Surabaya, 1 hour fly by Aircraft), and **Situbondo** are Eastest area at East Java, Indonesia

Here, we always give the samples, such as an ODL Materials for Hubungan Pusat-Daerah Materials (Centre-Region Government relationship Lecture). We give the samples of materials :
<table>
<thead>
<tr>
<th>Tanggal</th>
<th>Acara</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Juli - 30 Juli</td>
<td>Diskusi 2, Bacaan, Diskusi 3, Referensi Digital Hubungan Pusat-Daerah Forum</td>
</tr>
<tr>
<td>31 Juli - 6 Agustus</td>
<td>Inisiasi 3, Bacaan, Tugas 1, Referensi Digital Hubungan Pusat-Daerah Forum</td>
</tr>
<tr>
<td>7 Agustus - 13 Agustus</td>
<td>Inisiasi 5, Bacaan, Tugas 2, Referensi Digital Hubungan Pusat-Daerah Forum</td>
</tr>
<tr>
<td>14 Agustus - 20 Agustus</td>
<td>Inisiasi 6, Diskusi 4, Referensi Digital Hubungan Pusat-Daerah Forum</td>
</tr>
<tr>
<td>21 Agustus - 27 Agustus</td>
<td>Inisiasi 7, Bacaan, Tugas 3, Berita Penting...!!! Forum, Referensi Digital Hubungan Pusat-Daerah Forum</td>
</tr>
<tr>
<td>28 Agustus - 3 September</td>
<td></td>
</tr>
</tbody>
</table>

Aktivitas sejak Jumat, 12 Juli 2013, 13:38 laporan lengkap aktifitas terbaru... Tidak ada yang baru sejak Anda terakhir login.
<table>
<thead>
<tr>
<th>Nama Depan</th>
<th>Nama Akhir</th>
<th>Kota</th>
<th>Urut</th>
<th>PILIH</th>
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Here, Online tutorial always be the most favourable mechanism for providing education through Open and Distance Learning System all over the world, even at coastal Areas, like Jember regency. Online tutorial performance always give the students so many things and choices for learning, beginning from the materials of studies, the choices of books shopping, various literatures at online library, various kind of friends for communicating between one student to another.

https://universitasterbukaindonesia.academia.edu/JokoIsdianto/Analytics?start=2016-05-14T09:29:56+07:00&finish=2016-0713T09:29:56+07:00#/activity/countries?_k=iemb8f.

CONCLUSION AND SUGGESTION

The problem solving for overcoming the signal trouble condition at coastal areas for connecting to the ODL Website at Coastal Areas are using advanced mobile technologies such as modem, Blue Tooth, or Wi fi.

So, Technologies and Online Learning Strategies can provide education through Open and Distance Learning System at Coastal Regions in Indonesia. All The ways to grow the mechanism up till the system running as well as we wish are by controlling every month, such as monitoring activities as the tool of system controller. Beside, asking for reports of the activities every month from every field in the office. The continuing monitoring system as the tool of control will be effective when the sustainable action after monitoring are held. Integrated System with online system make easy use for up grade the mechanism for ODL system using. Communication, learning system, and integrated informations system can be integrated to be as one website on the up graded website of Open Distance Learning System at all over Indonesia area.

All of the facilities of ODL Learning use are making the mindset of Students growing up. All of The mechanisms can support the students activities. Students have much more attention for their study in each field. They like online when broaden their mind as students of ODL Unit. The main focus of the ODL system are based on students's skill and orientations of technologies occupy mindset as to be one and integrated. Integrated System are built by the main focus of the Technologies and Skill system with all rebuilt mindset of students. Here, All we could get the materials from website of ODL Unit and Centre, without exception, nothing is run out and accessible easy to click on the web. Each student on the web always be on their tasks and summary of discussions, in the field what they have been occupy, such as government department, teaching program department, etc. Nobody could know each other while they take online activities on ODL Website cause they get in special “room” of online discussion except they get in touch each other on the discussion forum of online.
The others have complete schedule on their web for each semester while others prepare the activities of tutorial, registration and Final Examinations as the nicely work and learn together with much more spirit and advanced orientation.

Number of student in an online tutorial class are restricted only 40-60 persons per class because for giving much more attention from lecturer to students in one class.

Focus for the research is about how to serve so many students, even million number students with all facilities in it. To serve them with all facilities, even computer and technology facilities are the main choice for upgrading model of serving at Open Distance University. There are so many facilities they can choose to use, namely: website ODL, Online Tutorial, Registration Online system and all facilities that using computerized tools.

All programs that ODL provide are about how to use online system as the main direction of serving and study.

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THE ROLE OF TECHNOLOGY ADVANCEMENT IN PROVIDING VALUE ADDED FOR LECTURERS: KNOWLEDGE MANAGEMENT BASED PRACTICE

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Abstract

This paper examines a modeling on the role of technology advancement to be able to motivate lecturers to manage their knowledge, so they can provide value added to increase their performance. The study model is hoped to be able to identify how far lecturers in universities can utilizes information technology (IT) development to gain acquisition knowledge through environmental scanning, experimentation and individual learning. In order for knowledge to be able to provide multiplier effects, a lecturer should be able to optimize three things: knowledge creation, knowledge utilizing and knowledge sharing. This study promotes an important issue that the dynamics evolution of information makes the use of technology support not an option but necessity in managing knowledge. Our evidence comprises 125 lecturers in Universitas Terbuka and utilizes Structural Equation Model (SEM) as an analysis tool. Our finding indicates that technology advancement can directly affect understanding of knowledge management that gives value added to lecturers. Limitation of this research is sample constraint. More accurate results could be obtained if future research is more concentrate on respondents from various institutions to be able to make a more accurate comparison. The originality of this paper is to give a new insight on how skill/knowledge owned by lecturers in ICT can trigger their knowledge management.  

Keyword: Knowledge management, Technology advancement, Value added, Educational Institution.

INTRODUCTION

Currently, the world of higher education has become very intellectually dominated by knowledge based that can provide opportunities to offer quality education. Higher education institutions should be able to utilize knowledge and technology optimally to improve value added that gives impact on positive performance of the institution as the part of creating competitive advantage. Winning competition becomes an important thing to survive, as stated by Nawas and Anjali (2014) that “higher education should be like center point of science, arts, technology and research, continuous learning and lifelong learning”. This opinion is in line with Zack’s (1999) who states “today’s world of knowledge has been highlighted by both academic and organizations and they are realizing that remain competitive they must explicitly manage their intellectual resources and capabilities”. The point is how higher education institutions can manage knowledge, so as to provide big benefits for stakeholders (Lopez & Angel, 2009; Omona & Theo, 2010; Dhamdhere, 2015).

Knowledge management can be used as one of success strategies of higher educational institutions, as stated by Allamel and Saba (2010) that knowledge management can provide value added for the organization by applying knowledge on education service offered. The need that
knowledge should be managed well and correctly is very important. Knowledge management is a structured activity to develop the capacity of the organization to obtain, create, share, and utilize both tacit knowledge and explicit knowledge to survive. (Bergeron, 2003; Rao, 2005; McShane, 2008). Knowledge management can be used as a method to improve the potential of human resources and knowledge improvement. Knowledge management by McShane (2008) is defined as a process of “structured activity to develop the capacity of the organization to utilize, acquire, create and share and use knowledge in order to survive and succeed”. The point is that knowledge must be used, developed, and shared to be beneficial for the sustainability of an institution.

Human resources namely teaching staff in higher educational institutions is required to gain broad knowledge (acquisition knowledge) by collecting information and ideas sourced from the environment (environmental scanning), experimentation and individual learning. In order for knowledge to be able to provide multiplier effect, knowledge creation related to a process of how knowledge is created by individual in an organization needs to be developed and realizes as a part of knowledge network in an organization. Not only being developed, knowledge needs to be implemented in human resources behavior directly through system and structure of organization, service improvement, and freedom in applying knowledge (knowledge utilization). Next, knowledge is through a process of sharing knowledge and together creating new knowledge (knowledge sharing). Distribution of knowledge can be performed through formal training, rapid and flowing communication process, and distribution of information through border-cross organizations.

Information and Communication Technology (ICT) plays an important role in knowledge management. Lopez and Angel (2009) proposed that “the amount of information and knowledge in a modern organization that needs to be captured, stored and shared, the geographic distribution of sources and consumers, and the dynamics evolution of information make the use of technology support not an option, but necessity”. Development of ICT has improved the productivity of knowledge invention (facilitating the process of knowledge management) as well as speeding up the implementation process that allows organization to institutionalize and distribute knowledge derived from individuals in accordance with the needs and development. The point is, ICT is supposed to support knowledge management of an institution.

It cannot be denied that the survival of higher institutions in the midst of increasing demand of stakeholders is to generate quality graduates. Therefore, it is necessary that access knowledge actively to utilize ICT in conducting a number of activities including improving reading culture, book review activity, seminar, dialogue, discussion in daily interaction, development and creation of knowledge through researches and community service must be continuously supported and improved. As stated by Loh Benyamin et.al (2003), development and transmission of knowledge is a central role and responsibility of higher institutions. Therefore, the mastery of ICT by teaching staff can be a capital so that knowledge management can be optimized to provide meaningful value added. According to McShane (2008), knowledge management as a structured activity to improve capacity to obtain, share and utilize knowledge in order to maintain and survive should be the driving force for the implementation of Tri Dharma Peguruan Tinggi (Three Pillars of Higher Education comprising Education, Research and Community), because the successful higher institution is the university that is able and consistently generating new knowledge, spreading and implementing it in technology/products so it can be said that the mastery of ICT provides great support for optimum process and management.
The object of research selected includes teaching staff of Universitas Terbuka (UT). UT with its vision in 2021 to become a high quality open university in generating state university products, as well in organizing, developing and disseminating information of PTJJ (open universities), contributing in distributing knowledge. UT is required to compete with other universities. UT’s journey to offer quality long-distance education is still being refined among others trying to meet demands of society to learn new fields of science. This situation is responded by encouraging the development of new study programs that become market needs. During 32 years of opening education service, UT has developed 32 study programs of bachelor’s degree and associate’s degree, as well as 4 study programs of master’s Degree, and so far there are 4 study programs with A accreditation, others get B accreditation. This situation shows that performance of study programs in UT is not optimal among others is due to low number of teaching staff with doctoral degree. Based on data on UT Website, the amount of lecturers of UT per July 1, 2016 is 754 lecturers with a minimum education background of master’s degree. The large number of teaching staff is potential human resources that can actively support the dissemination of science through researches, community services and publication. As stated by Rowley (2000) that “basically universities are organizations that are characterized by creating knowledge, dissemination and learning organization.” Similar opinion stated by Loh Benyamin et al. (2003) that “development and transmission of knowledge is the central role and responsibility of universities”.

The quality of bachelor’s degree study programs reflects university performance as a whole. Currently, performance of teaching staff in study programs of UT is not optimal. This is indicated by the limitation of teaching staff of UT who are able to compete academically at both national and international levels. Although UT has fully facilitated every fields, including: ICT infrastructure, library and funding to participate in national/international seminar, the performance of teaching staff to participate in national level such obtaining research grant of Dikti (Directorate General of Higher Education) or from other government institutions is still limited. The number of teaching staff of UT proposed to Dikti and obtained funding was still limited. This is similar in Abdimas (community service), limited number of proposals that can win competition on national level. For both national and international level seminar, the number of teaching staff attending national seminars in 2012 was 59 lecturers from the quota of 100 people. In 2015, similar situation occurred but showed an increase where 82 teaching staff participation from the quota of 100 people. The number of international seminar participants shows an increase of 18 lecturers in 2012 to 25 lecturers (exceeding the quota of 20 lecturers/ year) (PSDM-UT). However, links to be able to generate scientific articles published in both national and international accredited journals are still limited.

Although facilitation provided by UT particularly in ICT is good enough, lack of discussions on the development of science, limited seminar/book reviews whose speakers are from academician, the lack of willingness to share experience and knowledge by utilizing ICT resulting in limited use of knowledge and even hinder the process of forming new knowledge. The lack of motivation of teaching staff to produce quality researches and publication resulted in the inhibition of development and creation of new knowledge that of course contrary with the role of universities. These conditions led to the assumption that knowledge management on study programs of UT has not been optimal. According to Mc Shane (2008), knowledge management as a structured activity to improve the capacity to obtain, share and utilize knowledge to be able to
maintain and survive should become the driving force of the implementation of _Tri Dharma Perguruan Tinggi_, because a successful university is the one that is able and consistently producing new knowledge, spreading and implementing the knowledge in new technology/products.

The various weaknesses that have been described before certainly are not something that can be underestimated because they will impact on the continuity of UT, hence the best solutions must be found in the future to make UT condition become better. Based on the description, it can be concluded that the mastery of ICT provides great support so that the process and management can run optimally. The aim of the study is therefore to assess how far teaching staff in UT can utilize ICT to be able to encourage the process and understanding knowledge management that can give good added value both individually and institutionally. The conceptual framework is illustrated in Figure 1 and the variable to the correlated dimensions/attributes are shown in table 1.

![Conceptual Model](chart.png)

### Table 1. Variable and Dimension

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The following hypotheses were developed ($H_1$–$H_3$) based on the previous studies by Nonaka, 1994; Donald, 1998; Wood et al; 2001; Velden, 2002; Bergeron, 2003; Hovland, 2003; Mc Shane, 2008; Collin & Halveran, 2009; Indradjit, 2006 dan Albretch, 2011, Okfalisa & Yessi. 2014; Yusnia, Budiarti, 2015.

**Hypotheses:**
1. ICT Advancement affects the process of knowledge management (acquisition, utilizing, creation and sharing).
2. The process of knowledge management (acquisition, utilizing, creation and sharing) affects the understanding of knowledge management.
3. Understanding of knowledge management affects value added/performance of teaching staff.

**RESEARCH METHODOLOGY**

The hypothesis of this study was tested using the Structural Equation Method (SEM-LISREL) method. The target population in this study is all teaching staff in Central UT and in UT’s Regional Offices. The population is amounted to 183 teaching staff of Central UT and UPBJJ-UT. By operating formulation of Yamano (Sanusi, 2011, Aaker, 2011 ), 125 samples were obtained. Sampling was conducted using probability sampling with multistage random sampling, where the first step is performed by stratified random sampling with proportional allocation for every study program, then respondents from each study program were selected with simple random sampling, taking samples from each study program to meet the number determined in accordance with the profile of teaching staff of the study program. The determination of minimum sample size with SEM-LISREL is 100-200 samples (Hair,2013; Vinzi, 2010).

**RESULT AND ARGUMENTS**

The number of samples participated in this study was 125 respondents (teaching staff). Majority respondents were taken from Faculty of Economy (39%) and Faculty of Social and Political Science (11%), followed by Faculty of Mathematical and Natural Sciences (20%) and Faculty of Teacher Training and Education (11%) and Based on gender, 54 % (68 respondents) is male and 46% ( 57 respondents) is female. In regarding with the ages, there was 61% between 50-60 years, 17% between 40-49 years followed by 22% between 30-39 years. Mostly respondents (61%) have work experience more than 25 years,and the rest (39%) have work experience between 10-24 year.

After considering the profile of the respondents, we are now in position to show the hypothesis result and the loading factors analysis with the explanation (See Figure 2). The first upshot figure clearly shows that all hypotheses examined were validated and positively substantiated by the analyses. ICT advancement affects aspects of knowledge management namely: utilizing knowledge, acquisition knowledge, sharing knowledge and creation knowledge. From these aspects, only knowledge sharing that does not affect understanding of knowledge ($H_{2b}$), while three aspects of knowledge management (utilizing, acquisition and creation) influence
strongly on understanding of knowledge management. Moreover, understanding of knowledge management that gives strong influence toward performance (value added) of teaching staff.

Figure 2: Results of Hypothesis and Loading Factors (Source: Author)

The second effect was related to the resulting loading factors of the model. Overall, all indicators can be said to have good reliability (> 0.70). This study succeeds in proving that ICT advancement has a strong influence on the process of knowledge management particularly on knowledge acquisition (0.66) and creating knowledge (0.61). This finding indicates that the availability of ICT infrastructures as key components is proven to be able to facilitate the process of knowledge management. It means, the availability of advanced ICT by UT is proven to be effective to encourage teaching staff to acquire and create knowledge. ICT is able to facilitate acquisition knowledge by providing discussion forum, material facility to download material, facility to work on worksheets. In addition, ICT support will encourage knowledge creation by building network as well as utilizing knowledge to be more potential where teaching staff can utilize acquired
knowledge to be implemented in the improvement of teaching and learning process. This finding also proves that ICT advancement owned by teaching staff affect significantly in utilizing and sharing knowledge so as to facilitate teaching staff to exchange knowledge by building effecting team work and communication so that the utilization of knowledge can run optimally to be implemented in improving teaching and learning process. To sum up, the findings of this study indicate the capability of teaching staff to utilize ICT as a source of knowledge provides opportunities, namely the ease in content enrichment supported with cheaper storage cost, also supporting a big change on the role of teaching staff that encourages the formation of student center learning. This study supports the result study/ thought of experts (Indrajit, 2006).

Significant finding in this study is that the process of knowledge management (acquisition, utilizing, and creation) affects the understanding of knowledge management. It means, ICT development has improved the productivity of knowledge discovery from teaching staff of UT as well as accelerating its implementation process that allows the inquiry, utilization, and creation with knowledge owned by every teaching staff of UT in accordance with the need and development. Therefore, knowledge management is more of a methodology applied in business practice. ICT is important for the success of every knowledge management system because it allows the provision of infrastructures to build knowledge.

The process of acquisition knowledge performed by teaching staff based on ICT understanding proven to affect understanding of knowledge management shows that teaching staff of UT have utilized ICT to increase knowledge through several things, including: 1) feedback, observation and experience as parts of individual learning, 2) conduction environmental scanning, related to acceptance of information from both external and internal environment so that strategy of decision making is more effective, 3) experimentation. In addition, the process of utilizing knowledge conducted by teaching staff in this study is proven to influence the understanding of knowledge management, meaning that the teaching staff has been able to apply knowledge they have to take part in international seminar forum, research competition, an improving learning quality. The process of creation by teaching staff in this study also proves to influence the understanding of knowledge management for teaching staff as an organizational process related to how knowledge is created by individual in an institution and realized as a part of knowledge network.

In this study, it is found that the process of knowledge sharing conducted by teaching staff through collaboration and building network with fellow lecturers in researches, scientific works, publication and scientific quality is not yet optimal. It means the flow of communication, the implementation of training and team work in the institution (faculty or study program) has not been maximal so there is a gap that knowledge sharing has not run well.

This study proves that understanding of knowledge management influenced by the process of knowledge management supported by the ICT capability of teaching staff in UT strongly affects (0.67) the performance (value added). Meaning, the success of UT in investing on ICT infrastructures can be said to successfully facilitate the formation of process and implementation of knowledge management (utilizing, acquisition, creation and sharing) that impacts on the increasing performance. Value added acquired by teaching staff of UT improves knowledge competence, teaching quality, building network and collaboration as well as generating publication on reputed journals.
CONCLUSION

Evidence depicts that the ICT capability of teaching staff in UT can encourage the process of knowledge management particularly in knowledge acquisition and creating knowledge, so as a whole can strengthen the understanding of knowledge management. Positive impact of the ability in implementing knowledge management is the increasing performance of teaching staff, particularly in terms of science and teaching quality.

Future researches need to further identify the effect of knowledge sharing towards understanding of knowledge management that in this study is not proven to have a significant effect. Variables and indicators need to be studied further to measure knowledge sharing more precisely, particularly related to the activity of teaching staff in UT besides team work, communication and experimentation. Further research has to consider sample constraint and more concentrate on respondents from various institutions to be able to make a more accurate comparison.

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THE IMPORTANCE OF REINFORCING COMMUNITY ENGAGEMENT FOR CREATING E-LEARNING EXPERIENCE

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Abstract
The paper explores a study on the importance to encourage community engagement by optimizing the learning process to build an engagement-platform that can create e-learning experience. The research model uses the constructs of community engagement (cognitive, emotional and behavioral) that can be used to measure the interaction between participants (students, tutors, course managers) that is hoped to be able to build a collaboration to allow knowledge and information sharing that poses positive impacts on learning outcome. This research uses antecedent factors (learner characteristic and environmental) from the construct of learning experience (Functionality, Psychological and content) and the constructs of learning outcome as output factors. Statistical analysis formulated hypotheses uses Partial Least Square method from 150 respondents that lead to the findings that community engagement can encourage the increasing learning experience resulted in a positive impact towards learning outcome. The important finding of modeling test is that Environmental factors (interaction, multimedia instruction, and system) are able to facilitate the establishment of community engagement effectively. Limitation of this research is sample constraint. More accurate results could be obtained if future research is more concentrate on how to create engagement by involving all participants more intensely. The originality of this paper is to provide new insight so that the learning process can act as a means of collaboration so that it becomes more interesting, more communicative and sharing knowledge/information can run optimally.

Keywords: Community Engagement, Learning Experience, Learning Outcome, E-learning.

INTRODUCTION
Rapid development in internet-based technology or innovation results in the emergence of various approaches on learning represented on various modes of e-learning. This condition triggers alteration on conventional method (face to face delivery) that allows learners to interact or get connected in the learning process through various web technologies. E-learning is a learning process that utilizes and uses Information and Communication Technology (ICT) as a tool that is available at any time and any place so as to overcome the place and time constraints (Meyer et al. 2007, Verhoef et al, 2009; Teixeira et al, 2016)

For almost 2 decades since e-Learning has been offered, many educational institutions have started to take advantage of e-learning in order for more optimized teaching and learning process. However, in addition to positive advantage perceived by learning, E-learning still faces a great challenge in the future, particularly in increasing learning outcome. According to Van Gelderen et al., (2005), Learning outcome can be measured using three dimensions including goal achievement, satisfaction and skill development. Ho (2009) states that learning Outcomes are goals that describe how a student will be different because of a learning experience. More specifically, learning outcomes are the knowledge, skills, attitudes, and habits of mind that students take with them from a learning experience. Learning outcome also becomes the consequence of learning quality that can affect to satisfaction. Several experts (Saleh et al, 2012;
Liaw, 2007; Somers, 2003) stated satisfaction as a content feeling that can provide big opportunities for participants (students, tutors, community) that they can share their experience and knowledge during learning process.

To generate optimum learning outcome, creating learning experience becomes an important factor that should be considered. It seems like quality development is the best approach in improving learning experience. As proposed by Conole (2014), there are several approaches that can be used to increase learning process and good practice dissemination on e-learning including: focussing on learning, learning as social practice, focussing to increase collaboration between educators, participants and course managers. The important point is to improve the effectiveness of e-learning, aspect of learning experience plays an important role in order to support the achievement of pedagogy aspect. Technology development that has become an important part in learning indicates the rise of beyond expectation from participants to get learning experience influenced by several aspects including: collaboration, interaction, social community, peer engagement and building network (Xiaomi et al, 2014; Mircea, 2015 and Piller, 2011).

Learning process occurred through e-learning can be optimized by establishing engagement with various parties involved, that enables intensive sharing knowledge. The concept of community engagement can become a solution to problem to be able to create optimum learning experience. In marketing context, community engagement is known as consumer engagement. According to several experts (Brodies et al; 2013; Peterson, 2006; Hollebeek, 2011, Kotler & Keller, 2010; Leibtag, 2013), consumer engagement is participation intensity between individuals and organization offers as well as its connectivity with community formed. A problem still faced in e-learning is that it is hard to build a platform that can optimized community that can be used to establish learning experience, without sacrificing pedagogy aspect as the heart of the learning.

The use of community engagement to encourage to the formation of learning experience in e-learning is an important phenomenon to study, so that it can be an input in building community-based E-learning platform. Thus, interaction aspect between various parties involved in community in e-learning can be optimized. This study suggests creation model of learning experience through community engagement to generate effective learning outcome. The study gap (Gamage and Fernando, 2015a; Conole, 2015) stated that on the importance of considering community engagement aspect includes:1) institutions that offer e-learning do not pay attention to the collaboration that can make facilitate knowledge sharing between fellow participants, 2) the importance of interactivity as an important part for the success of learning outcome. According to a number of studies, it can be concluded that provision e-learning needs to focus on collaborative perspective to support the creation of a strong learning experience. This Collaborative network enables interaction and engagement from e-learning participants from different environments in terms of: location, heterogeneity, culture and social. The existing phenomenon is that how to involve all parties (students, tutors, course manager, participants) to interact one another effectively. The modelling of this study will be implemented in Online Tutorial (Tuton) of Universitas Terbuka (UT/Open University), that it is expected to provide solution to the improvement of service quality of Online Tutorial of UT as well as provide advantages to participants because learning process becomes more communicative, interactive, and allows knowledge/information sharing.
Online Tutorial of UT as one of e-learning modes is a learning program offered by UT for students to experience a unique learning experience by utilizing information technology (internet). The success of online tutorial is strongly influenced by the ability to deliver learning process effectively. Improving learning experience in online tutorial should become the major concern that certainly needs to consider two major aspects including characteristics of participants (technological capability) and environment (interaction and system quality). For UT whose online tutorial reaches students with major differences, student and environment characteristics should acquire particular attention so that the creation of learning experience can be provided optimally. Learning experience in online tutorial can be measured by three aspects namely functionality, psychological and content.

The selection of research object on Online Tutorial of UT is based on a number of research gaps that indicate service quality problem of online Tutorial of UT that is not yet optimal. Results of several studies (Ginta, 2016; Devi, 2016; Fatia et al, 2012, Dewatisari, et al, 2010, Budiwati, 2007) show various obstacles faced by students in following Tutorial including: 1) access difficulty due to insufficient internet availability in some areas; 2) low motivation; 3) time allocation; 4) ability to use ICT or internet; 5) Tutors who are less responsive and 6) ineffective discussion forum. These constraints result in participation rate tutorial online that is yet optimal, meaning for every class per course available for students only 30-35% occupied.

The aim of the study is therefore to assess how far learning experience in the e-learning can boost the acceleration of learning outcome through reinforcing community engagement. The conceptual framework is illustrated and the variables related to the correlated dimensions/attributes are shown in Figure 1.

Following hypotheses were developed (H1 – H4), based on the previous study by Ho, 2009; Van Gelderen et al, 2005; Kim et al, 2013; Lee et al, 2014; Brodie et al, 2013; chiu et al, 2015;

Hypothesis 1: Learner’s Characteristic and Environment Factors influence learning experience partially

Hypothesis 2: Learning Experiences influences Learning Outcome

Hypothesis 3: Community engagement influences learning outcome through learning experience
RESEARCH METHODOLOGY
The hypothesis of this study was tested using the SEM-PLS (Partial Least Square) method. In this study, target population is participants of online tutorial of UT. Sampling in this study was conducted using convenience random sampling method (Sekaran, 2009). Determination of research sample size is based on the recommendation by Hair et al., (2014). Sample size was determined based on the maximum number of arrows pointing at construct (Hair et al., 2013), thus in this study applies 5 constructs. With the significance level of 5%, minimum number of sample is 80 respondents. The distribution is based on proportional allocation that is proportional distribution according to courses taken by participants.

RESULT AND ARGUMENTS
The number of samples participated in this study was 150 respondents (participants of Online Tutorial of UT). Majority respondents were taken from Faculty of Economy (40%) and Faculty of Social and Political Science (30%), followed by Faculty of Teacher Training and Education (15%) and Faculty of Mathematical and Natural Sciences (15%). Based on gender, 54% (80 respondents) is male and 46% (70 respondents) is female. Respondents consist of students of class 2013.1 to 2017.1. Courses taken in online tutorial vary, not only related to core courses, but also non-core courses such as basic courses (English, Religion, and Indonesian).

After considering the profile of respondent, we are now in position to show the hypothesis results and the loading factors analysis with the explanation (See Figure 2 and Table 1)
**Figure 2: Result of Hypothesis and Loading Factors**

(Source: Author)

**Table 1: Summary of Hypothesis Testing Result**

<table>
<thead>
<tr>
<th>Path Coefficient</th>
<th>Path Coefficient</th>
<th>R Square</th>
<th>t</th>
<th>t-table</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner’s Characteristic learning experience</td>
<td>0.14</td>
<td>0.016</td>
<td>3.29</td>
<td>1.96</td>
<td>Significant</td>
</tr>
<tr>
<td>Environmental Factors learning experience</td>
<td>0.68</td>
<td>0.456</td>
<td>19.64</td>
<td>1.96</td>
<td>Significant</td>
</tr>
<tr>
<td>Learning Experiences Learning Outcome</td>
<td>0.39</td>
<td>0.151</td>
<td>6.99</td>
<td>1.96</td>
<td>Significant</td>
</tr>
<tr>
<td>Community engagement Learning Experiences Learning Outcome</td>
<td>0.36</td>
<td>0.129</td>
<td>6.93</td>
<td>1.96</td>
<td>Significant</td>
</tr>
</tbody>
</table>

(Source: Author)
The first upshot from figure 2, clearly shows that all hypotheses examined were validated and positively substantiated by the analyses. These learning experience was influenced by learner’s characteristic ($H_{1a}$) and environmental factors ($H_{1b}$). Learning experience affected learning outcome ($H_2$). Moreover community engagement proved as moderator to reinforce learning experience that gives a significant affect toward learning outcome ($H_3$).

The second effect was related to the resulting loading factors of the model. Overall, all indicators can be said to have good reliability ($> 0.70$). Evidently, the statistically strongest factors include environmental factors toward learning experience. Learning experience was mostly influenced by environmental factors (0.68) followed by learners’ characteristics (0.14). This study also proves that community engagement can encourage a positive learning experience towards learning outcome.

Referring to the dimensions in learning outcome, respondents believed that the effect perceived during online tutorial is very massive not only from content but also in increasing competence that can access e-learning, namely in terms of information technology skill, the ease of access and can be involved in online-mode learning experience. This valid on the condition that tutorial online can create a good learning experience for participants. Learning experience perceived by online tutorial participant are: up to date content, interaction with tutor, learning process that runs optimally and assisted to overcome difficulties in understanding teaching materials.

This study can prove that learning experience was mostly influenced by environmental factor than learner characteristic. Environment factor in this term relates to interaction aspect (flexible user interface), the ease of accessibility and user friendly. Learning experience is associated to various interactions, programs, learning, and others where learning process is implemented well in face to face and long distance. The advancement of technology and information causes the creation of learning experience to become an important part that many experts pay attention to, particularly regarding how, when, and where learning occurs. Digital technology encourages a variety of changes in learning methods, where dependency level of students towards teachers becomes less, because they can interact directly through email, chat and other media. Similarly, access to learning sources becomes more open with internet development. The bottom line, students today learn differently with the past because the role of technology that allows access to gain knowledge through various media that can be done easily. The findings of this study indicate that learner’s characteristic (ICT skill, independence) is not important because participants of online tutorial have prepared themselves to participate optimally.

In terms of community engagement, it can be stated that learning experience can be established by strengthening community on online tutorial that eventually will pose positive effect on learning outcome. This finding can provide field evidence on the importance of creating learning experience on online tutorial is by optimizing community engagement represented through three aspects including cognitive, emotional and behavioural, that allows optimal interaction between participants in online tutorial, which are students, other participants, tutors and course managers. The establishment of this interaction is expected to build collaboration to increase sharing knowledge and information between participants. This finding is relevant with research findings of several experts (Gamage and Fernando, 2015a; Conole, 2015) that provision of e-learning needs to pay attention to collaborative perspective to be able to support the creation
of a learning experience. This collaborative network allows interaction and engagement of e-learning participants sited in different location in terms of: location, heterogeneity, culture and social. The creation of learning experience in online tutorial through the optimization of community engagement can have a positive impact on learning outcome. Satisfaction of online tutorial participants will increase more because they perceive a positive learning outcome. In addition, goal achievement and skill development will be achieved as parts of learning outcome.

To sum up, this result indicates that creating learning experience on online tutorial can be performed by optimizing community engagement that is represented through three aspects namely cognitive, emotional and behavioural, that allows optimal interaction between participants in online tutorial including students, other participants, tutors, and course managers. The establishment of this interaction is expected to build collaboration to increase sharing knowledge and information between participants. The effort to increase learning experience in online tutorial by optimizing community engagement is expected to give positive impact on learning outcome. Satisfaction of online tutorial participants will increase because they perceive a positive learning outcome. In addition, goal achievement and skill development will be achieved as parts of learning outcome.

CONCLUSION

Evidence depicts that that community engagement can encourage the increasing learning experience resulted in a positive impact towards learning outcome in online tutorial. The important finding of modelling test is that environmental factors (interaction, multimedia instruction, and system) are able to facilitate the establishment of community engagement effectively. This finding indicate that engagement is a process that can encourage the member of community to do a number of things, including advocating, sharing, socialising, and co-developing which impact on satisfaction, connection and trust. The interesting fact found on the field is that learning experience of online tutorial participants is affected more by environmental factors. This can be input for the development of online tutorial of UT and tutors to optimally facilitate to provide easy access to allow interface and create user friendly system.

Therefore, follow up should be made after gaining deep insight on strategy and design of community engagement on online tutorial to run optimally that allows maximum sharing, collaboration and participation, by creating platform that can accommodate the needs of tutorial online participants. To make platform of tutorial online, management, technical and operational implementations still need to be considered. In brief, community engagement can be used as a means to make learning more interesting, challenging and can generate a strong knowledge accumulation.

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DEVELOPMENT OF A HYBRID LEARNING SYSTEM TO ENHANCE ODL; PRINTED COURSE MATERIAL AMELIORATION VIA SMARTPHONES

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Abstract

The printed course material (PCM) content design and delivery-related aspects, is an attribute of students’ inclusive and equitable quality education in typical Open and Distance Learning (ODL) Institutions. A poor PCM content design in ODL institutions presents a major setback in endeavours to provide outstanding academic outputs. A web-based survey was conducted among a particular group of students of The Open University of Sri Lanka (OUSL) who have registered for the undergraduate course ‘Machine Vision’. The survey identified that the majority of students face abstruse problems which require more explanations in some chapters/sub-sections when referring PCM. This finding suggested that the ODL institutions should adopt a technological approach in the design and implementation of measures aimed at facilitating sustainable learning pathways. The smartphone based technology is used to address this requirement. The project, Printed Course Material Amelioration via Smartphones (PCMAS), is considered as a revolutionary advancement to the conventional method of study using PCM. The entire PCM was analysed and Quick Response (QR) code labels were printed near the contents which require more explanations. To view supplementary multimedia contents, these QR codes required to be scanned via a QR code reader application with the aid of a smartphone. The code redirects to a video tutorial, an e-book, a website, lecture note prepared by the course expertise or any other relevant material that is stored in the cloud storage by accessing the internet at a glance and fosters learning attitude of students sensing that the - ‘Lecturer is close at hand’.

Keywords: Printed Course Material, Open Distance Learning, Lecturer is close at hand, QR codes, Hybrid Learning System

INTRODUCTION

In the modern knowledge-based globalised society, the ODL is becoming increasingly significant. An efficient course delivery plays a major role for the success of ODL. When the lecturer and the students are separated by physical distance, the PCM, audio, video, and internet, often in concert with face-to-face communication, is used to bridge the instructional gap [1]. For the enhancement in the field of ODL education, it should focus on PCM content design and efficient teaching methods amalgamating modern technology with the aim of delivering teaching often on individual basis, to students who are not physically present in a traditional educational setting such as classroom [2].

The OUSL adopts a multimedia system for teaching with a strong emphasis on distance study. The study system supports the students through PCM as of pre-packaged texts and images, audio-visual aids, discussions, day schools, laboratory/field work, industry visits and web-based learning. Continuous assessments and final examinations are also integral parts of the study system. However, PCM is the central element in the study package. Improving reading skills is therefore essential to be successful as an
OUSL student. One of the major stumbling block for the enhancement in this system is that there is very limited number of students-lecturer interaction [3]. The rapid developments in technologies which relate with modern lives can be used to change this perspective that empower rich interactive distance learning.

Smartphones and similar smart mobile-digital devices, such as phablets and tablets, can be extremely useful didactic components that support for the improvement of teaching methods in both distance and conventional face-to-face education systems. Among these digital devices, using a smartphone could be very much convenient in the ODL education system and it is the core component behind the focus of this paper. They may, moreover, be used as an instrument conducive to educational and personal interaction, fostering relationships between students and the lecturers. With the advancements of smartphone technologies, smartphone applications (generally known as mobile apps) opens up as a window for sharing knowledge, information, resources, and experiences, as well as providing communication opportunities with student peers, tutors, and the institution.

This paper presents about the development of a hybrid learning system (HLS) in the field of ODL. The HLS refer to method of study where there is an analytically planned mix of both conventional study notes and online learning resources. In other words, HLS combine the best of both styles of resources by carefully selecting and feeding it to the students in an attractive manner via QR codes, which fosters the students’ learning attitude [4].

The Data collection technologies are considered for the project PCMAS. Once, Barcode is the primary data representation. A barcode consists of series of vertical bars of varying widths in one-dimension (1D), in which each of the digits zero through nine, are represented by different pattern of bars that can be read by a laser scanner. Later, barcodes evolved into rectangles, dots, hexagons, symbols and other geometric flat patterns in two-dimension (2D). This innovative creation is known as QR code or 2D barcode [5]. A QR code can hold a larger amount of data in a smaller space when compared with 1D barcodes and it can encode various types of data such as text, uniform resource locators (URLs), messages, e-mails or a virtual business card. The information contained in QR code can be scanned and read by a camera-equipped Smartphone with a QR code scanner application software. In addition, an advanced error-correction method and its’ characteristics allow the QR Code to be read more reliably than other codes. As a result, an average person can now decode or read a QR code, without special equipment such as conventional barcode reader device.

Such technologies and HLS based active learning methods results in better academic performance. The development of this HLS enables the students in OUSL to acquire an inclusive and equitable quality education by providing sustainable learning pathways. That is because HLS reduces the requirement of face-to-face interaction with instructor, where the system is accessible to anyone and from anywhere, which is perhaps the biggest advantage of all.

**PROBLEM STATEMENT**

The distance learning methodology adopted by the OUSL may initially appear as a challenging task for many students. Regular lectures, a feature of face-to-face teaching at a conventional university, is minimal at the OUSL. Instead, students learn through carefully prepared PCM together with other forms of support that facilitate learning.
A study on the development of PCM states, “Open and distance learning materials are based on the principles of learning theories to create desirable conditions that will facilitate effective self learning, i.e. knowing the objective, follow the content step by step, involving the students actively in learning” [6].

Given the penetration, it was identified from findings that the majority of students who follow some undergraduate course modules (the expression, ‘course’ in OUSL terminology refers to the fundamental entity in the dissemination process of knowledge. In other words, a course is equivalent to a subject [7],) such as ‘Machine Vision’ conducted under Bachelor of Technology Honours (B.Tech. Hons.) in Mechatronics Engineering Degree Programme offered by The OUSL require an additional effort to understand some chapters/sub-sections and to complete other integral components of study system. A suggestion given by a student who participated to the survey justifies the findings.

The statement pertaining to the suggestion is as, “The book is not enough to do assignments and mini project. We didn't familiar with this subject before. Therefore, need more information and clarification. I think that it will great help if you can provide any material or link to go through about that.”

As similar to this suggestion, the summery of the web-based survey results indicated that the main reason behind these difficulties is due to the course content that introduce some unfamiliar engineering terms and theories that make the students bewilder (refer Fig. 2). To enhance and relocate the learning experience of the students by providing subject knowledge of the course, a modification to the conventional method of study using PCM to suit self-study and independent learning is required, without disturbing the limitations of ODL perspective. Increasing the number of face-to-face sessions to teach students what they require is one such kind of perspective that is not in agreement with the concept of ODL. The summary and suggestions based on the issues regarding ‘Machine Vision’ course module paved the way towards the implementation of this project, PCMAS.

![Fig. 2 - Ability in understanding PCM content and the reason](image)

**METHODOLOGY**

Three main purposes of research are to describe, explain, and validate findings. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations [8]. The nature of study is descriptive, involving collections of quantitative information in numerical form. The studies are aimed at discovering inferences or causal relationships; further methodology consists of following aspects:
Target group and sample
As the study was delimited to the course module being taught, the students who registered for the undergraduate course module, ‘Machine Vision’ conducted under The B.Tech. Hons. in Mechatronics Engineering Degree Programme offered by The OUSL were considered as the population of this study. Since this course is a higher level module (For undergraduate category, there are 6 levels. The ‘Machine Vision’ course module is at level 5), the average number of students who get registered in an academic year for this course would be around 70-80. The majority of target group were the students who completed the course entirely in recent past and the students who completed partly (those who got eligibility to sit for final examination. But, not faced the final examination) than the presently registered students. A total of 120 random students were selected for the study and the questionnaire was sent to their e-mail. Out of the 120 population, the responses of 72 students were acquired as the sample for this study.

Research Design
Using google forms, a comprehensive questionnaire was prepared and used to collect data from the students. This study used the quantitative research design. The primary response data were analysed automatically by google forms tools. Further, the most important results are expressed in detail using charts, diagrams, figures and numbers and percentages in the analysis part.

Study Objectives
This study mainly focused on investigating the chapters/sub-sections, which are included in the ‘Machine Vision’ PCM that require additional supportive information for deeper clarification of course contents. In addition, the availability of facilities for internet access and the accessibility of smartphone technology for learning purposes by students who registered for the course ‘Machine Vision’ are also investigated in the research.

Research Findings
The findings were determined through ten questions. Three out of Ten questions were mainly focused for this research and are discussed further in upcoming sub-sections. The Fig. 1 QR code contains a screenshot image of the entire web-based questionnaire response summary and is readily available to take a look as a supplementary information. The procedure required to retrieve information from the QR code is discussed in section 4.

Fig. 1 - QR code for questionnaire results summary

Ability in understanding PCM content and the reason
In selected sample, 38.9% of students managed to understand the contents of PCM and 50% of students managed it with an effort. There were 11.1% of students face difficulties in understanding the contents of PCM. In this case, the sum of 50% and 11.1% of students who needs help in understanding the contents of PCM were selected as a sample. This sample is also sub-categorised into three. Among these three, the
majority of 64% students claims that the difficulty was due to unfamiliar engineering phrases. This analysis is represented using Fig. 2.

**The requirement of students for more explanation and corresponding chapter selection**

In the selected sample, 75% of students thinks that they need more explanations in some sections/sub-sections when referring PCM. While the rest 25% of students thinks that they do not need more explanations (refer Fig. 3 pie chart). In this case, the 75% of students (48 students) who demands more explanation were selected as a sample. The Fig. 3 bar chart indicates the frequency of students who demand more explanation and corresponding chapters.

![Fig. 3 - The requirement of students for more explanation and corresponding chapter selection](image)

**Availability of devices for Internet access**

In the selected sample, 68 out of 72 students (which is more than 94% of sample) owns at least a personal computer (PC) for the internet access and 42 students (which is more than 58% of sample) owns a smartphone. While only about of 6% of sample do not have any personal devices. In this case, the 58% of students who owns a smartphone were selected as a sample.

![Fig. 4 - Availability of devices for Internet access](image)
IMPLEMENTATION AND DISCUSSION

Integrating QR codes in PCM

The conventional method of integrating multimedia, which combines texts, audios and visual content such as charts, pictures, animations and videos into a PCM, is to provide a uniform resource locator (URL) which the student required to type into a web browser. With lengthy and complex URLs, this method becomes a tedious and inefficient task [9].

i.e. The following URL, acquired from Google Drive represents the QR code shown in Fig. 1.

https://drive.google.com/file/d/0B5SIKapzmXoqVmxXdURQS1FsVXM/view

Typing this URL in a web browser or Scanning the QR code shown in Fig. 1 using the smartphone directs to the same result. However, the time taken to process is very lesser and simpler in the case of QR codes. In this regard, the URLs were replaced by QR codes in an adequate manner for the project PCMAS. There are three steps involving in the integration of QR codes to the PCM and are discussed separately in the following sub-sections.

Obtaining URL from cloud storage

According to the findings based on the survey, the required supplementary multimedia contents has been designed or collected from available, reliable sources and then stored in the Google Drive cloud storage. Each of these stored multimedia files procure a unique URL. The URL can be obtained from the homescreen interface for Google Drive by clicking on the option Get shareable link.

The supplementary contents such as a video tutorial, a high quality image, an animation, an e-book, lecture note prepared by the course expertise or any other relevant material were stored in the specific Google Drive cloud storage with 15GB of space in Drive for free. This free storage plan can be upgrade to a premium plan for the expansion of storage requirements for up to 10TB by paying a monthly/annual rental. Using separate Google Drive cloud storage as the multimedia content database ensures that the multimedia contents that represents the QR codes in the PCM will not be loss in future due to third party decisions.

Generating QR codes

QR codes can be generated either using a smartphone application or an online free QR code generator such as QR Code Generator – create QR codes for free (Logo, T-Shirt, vCard, EPS) [10], QR Code Generator - Create QR codes here [11], The QR Code Generator [12]. In addition to these QR code generators, using a search engine, one can find thousands of online QR code generators. Out of these online available free QR code generators, The QR Code Generator available at the URL in reference [12] was used as the primary QR code generator tool for the project, PCMAS.

This specific QR code generator supports at generating both Static and Dynamic types of QR codes [13]. The Static QR code is a typical one in which the QR code image varies according to the content included. While, the Dynamic type QR codes enables the user to change the content of Dynamic Codes while the QR Code Image remains the same. The dynamic QR code contains a URL to a lookup service that directs to a predetermined place or performs a certain function. This method ensures that, even after the QR code is printed to the hardcopy of PCM, the contents in the QR code can be changed. That enables the future improvements or modifications in the supplementary notes to be done easily.
Placing QR codes in PCM
The generated QR codes were saved in Encapsulated PostScript (EPS) vector graphics file format for better clarity when compared to the other image file formats. The soft copy of the typical ‘Machine Vision’ PCM is republished after including QR codes as required. The QR code captions were included below the figure. The QR code contained new PCM has been published and replaced with the conventional PCM of the students who are currently registered for the course module. A datasheet describing how to handle this PCM is also supplied along with the PCM.
Anyone with these specific QR codes, and aware of the procedure to scan the QR code using a QR code reader app has the accessibility to view/download the relevant contents over the internet. The supplementary multimedia contents do not have any restrictions on 3rd party. It is open to anyone who needs it.

Search/Installation of software application
The majority of smartphone vendors uses Android as their mobile operating system (OS) other than Apple Inc. which uses iOS as their mobile OS. Also there are many other OS available in the market which are used by consumers. However, thousands of QR code reader smartphone compatible applications are readily available for download at their stores. i.e. Android has Google Play Store, iOS has App Store, Windows mobile has Windows Store and similarly there are many of them. Most of these basic QR code reader apps are free. So that, finding a QR code reader is not a difficult task for whom use a smartphone. The students who are confused when selecting a QR code reader app, the QR code scanner application shown in Fig. 5 is preferable. Searching in relevant store with app name will easily direct towards downloading the app to the users’ device.

Fig. 5 – App details for Android (left) and for iOS (right)

Procedure for handling software application
After installing an appropriate QR code reader app to the smartphone, just with three steps, a student can retrieve multimedia from the cloud storage. The following steps describes the procedure and are graphically represented using Fig. 6.

Step 4 - Scan QR code using a camera-equipped smartphone and an appropriate QR code reader app to encode the information provided by the QR code.

Step 5 - Once the app of the device scans and encodes the information, it displays the gathered information and requests next level input such as to copy the information in QR code or open the URL link given in QR code.

Step 6 - The contents stored in Google Drive relevant to the URL is retrieved over internet to the device which is allowed either to download to the device or view it online.
CONCLUSION AND RECOMMENDATIONS

One underlying reason behind the students’ success and academic performance is PCM content design and delivery-related aspects. Coping up with an advanced engineering subject matter content only with the aid of PCM in the ODL mode is a strenuous task. To fabricate this shortcoming, the conventional method of study using PCM is enhanced by developing a HLS. While it's still fairly new to the educational usage, many students will be able to score good progress as they tend to do more work on their own. To enrich the learning experience of students, the features of QR codes have harnessed and blended together with the smartphone based technological approach. The dynamic QR code has the possibility to change the function or destination that the QR Code leads to after it has been created. Thus the dynamic QR codes has been used to retrieve the stored supplementary multimedia contents. The apps developed for this technological access allows students to view multimedia embedded in the PCM in an attractive manner. Educating institutes should adapt these kind of smartphone based technologies to their methods of teaching, which will bring students better choices of learning means.

More widespread use of the PCM developed for this project will reduce the average time taken to learn the entire course content and at the same time, helps to gain subject knowledge and skills.

Following the success of this initial project, other course modules such as Automobile Engineering, Control Systems Engineering, Power Electronics in the degree programme also set to adapt this technology to provide sustainable learning pathways.
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LEARNING CORPORATE SOCIAL RESPONSIBILITY THROUGH BLENDED APPROACH FOR A SUSTAINABLE TOMORROW

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Abstract
The European Union defines CSR (Corporate Social Responsibility) as a concept whereby companies integrate social and environmental concerns in their business operations. CSR policies exist across countries and it is promoted actively because investors, customers, and public expect companies to act sustainable and responsible. This paper contextualises need for developing an ODL programme on CSR, in India, a developing country, where the landmark Company’s Act 2013 mandates spending 2% of a company’s net profits on CSR. This places an immediate necessity on learning CSR for promoting corporate citizenship. A review of existing ODL institutions reveals that no such programme of study exists in CSR so far. The broad objective of the study was to understand CSR trends and practices for developing relevant academic trusts. Ten case studies of companies that fell in the eligibility of CSR were conducted, and both primary and secondary data were used. Areas of inclusive growth were covered, education being common to all, followed by livelihoods, environment, health care and rural development. The companies followed sustainable development initiatives basis SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact, generating indicators in economic, environmental and social performance. The findings suggest building a CSR curriculum for ODL through a blended approach, by incorporating CSR policies, practices and requisite skills, to strategically conduct CSR for sustainable business and equitable society.

Keywords: CSR, sustainable, ODL, blended approach, inclusive growth

INTRODUCTION
Today’s learners have become well versed with Information Communication and Technology (ICT) tools and can be seen browsing and surfing the internet, communicating by means of email, can listen to lectures delivered by a professor sitting in another university, attend virtual seminars and participate in video-conferencing. The coming of online education has not only changed the landscape of distance education, but has globally impacted teaching and learning in higher education as a whole. Hence online education is no longer a trend, but is mainstream. In recent times, the benefits of using blended learning have been identified for enhancing students’ learning experiences [1]. This has necessitated the learning of certain subjects through blended approach of learning, for greater efficacy.

The Evolution of ODL: A brief overview
Educationists since long have been concerned with the qualitative nature of Open and Distance Learning (ODL) as compared to that of conventional education. The Open University (UK) established in 1969, the University of Phoenix founded in Arizona in 1976, and subsequently the Indira Gandhi National Open University established in Delhi, and the China Central Radio and TV University in Beijing are well established open universities based on their high enrolment numbers, dates of establishment and employee rolls. While the conventional educational system has undergone architectural changes in the past years, the open and distance learning mode has
also been undergoing a transformative phase. The ODL system in India has witnessed a journey of transformation, right since the establishment of the School of Correspondence Courses in University of Delhi, followed by establishment of the B.R. Ambedkar Open University in Hyderabad, and later the expansion of ODL through establishment of the Indira Gandhi National Open University (IGNOU), 14 State Open Universities and over 220 Directorates of Distance Education that come under the aegis of conventional universities. Today there is scope for use of web-based technologies in teaching-learning process giving rise to blended learning environments. Also seen globally today is the entry of dot.com companies, besides traditional universities, that are competing to develop distance education programmes that take advantage of new and improved methods of delivery.

**CSR in the emerging global landscape**

India a developing country has seen changes in the educational system on one hand and is striving to meet the complexities of today’s business world and the challenges of a global society, on the other hand. This includes the challenges of achieving inclusive growth, that are to be addressed towards health, regional and gender disparities, and education and poverty, that attempt to reach the marginalized particularly in the rural areas, tribal areas, and the remotest parts of the country. In the present times, Corporate Social Responsibility (CSR) is emerging as a capacity building strategy for sustainable livelihoods all across India and the world. India has been rated among the top ten Asian countries that is paying increasing importance to CSR [2] The idea of CSR is not a new one and has been seen evolving over the last few decades, to gradually reach today’s understanding. Governments that are able to leverage CSR strategies of global businesses can contribute to enhancing the business competitiveness of their country [3]. Till recently majority of studies on CSR, have been embedded in the economic and organizational contexts of Europe and the US [4]. Few studies have explored the multiple theoretical concepts of CSR in India [5] [6] [7] [8]. But so far studies very few studies have viewed CSR mostly through the levels of integration within the business sector in developing countries.

**THE STUDY**

**Significance of the study**

Very few universities and institutions are teaching CSR as a programme of study across varsities in India, and in some foreign universities this subject is being taught through various disciplines. The present study was undertaken, as in the Indian context no study has been conducted to understand learning of CSR through blended approach because the subject is new and still emerging. At the same time the changing educational scenario of today’s world presents blended learning as a new form of learning that is assuming significance in teaching-learning situations. Virtually all courses in higher education are beginning to incorporate information and communication technologies to some degree. With the help of technologies new opportunities get created for students to interact with their peers, faculty, and content. Based on the global needs of understanding CSR principles and practices, the present study is timely as it will bring out the necessary CSR contexts, specifically designed for those who are engaged in CSR and are used to technology – the executives and managers handling CSR foundations of corporates, development practitioners, administrative staff of companies, staff of non-profit-organisations, and above all students who are interested to learn CSR.
Objectives
The present study highlighted the following main objectives: (i) To gain a conceptual understanding of Corporate Social Responsibility, trends and practices; (ii) To build relevant academic thrusts for learning CSR, by understanding present CSR practices of companies; and (iii) To suggest a blended approach of learning CSR in the present contexts through blended approach of learning, for greater efficacy.

Methodology
The aim of this paper is to set the intellectual context of CSR and to establish a blended approach to learning CSR. This paper is based on qualitative research design consisting of primary and secondary sources of data collection. Case studies of ten Indian companies who have successfully implemented CSR initiatives and followed the sustainable development initiatives basis SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact, generating indicators in economic, environmental and social performance, were conducted. The ten companies were randomly selected from the list of top 217 companies of the annual Indian sustainability report produced by the Indian Institute Management Udaipur, the Economic Times and Futurescape in 2016 [9]. CSR employees of the selected companies were contacted for the same. Secondary sources of data included reports, studies, online articles, papers from journals and books.

FINDINGS AND DISCUSSIONS
The evolution, role and relevance of CSR
Earlier writings reveal that CSR was referred to as social responsibility (SR). The concept evolved through its main phases of development during the 1950–1960s which represented the period when CSR was introduced in the academic arena and in corporate philanthropy. In the 1970s the concept of CSR saw a rapid growth, and in the 1980s the stakeholder theory and business ethics gained prominence. In the 1990s CSR was seen to be practised by corporate organisations, and from the year 2000 much empirical work investigating the determinants of CSR, its embodiment in corporate strategy, and the consequences of its effective implementation, has been undertaken. The reason why companies, in the present times of the 21st century, must look beyond profits is because of the economic, social, political and environmental crises being faced by the world population. The corporations in this regard have a role to play since they contribute to the economic and social well being of humanity and in turn influence the political and social trends [10].

Corporate Social Responsibility (CSR) refers to contributions undertaken by a company to contribute to a better society through its business activities and social investment. UNICEF defines CSR as ‘referring to a company’s responsibility when it comes to the impact of its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere’ [11]. The European Union has defined CSR thus: ‘CSR is a concept whereby companies or corporations integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis’ [12]. A number of companies across the world have started promoting their CSR strategies in an active manner because the investors, customers and the public expect them to act sustainable as well as responsible. In other words CSR is the ethical behaviour of a company towards society. Known
popularly as the process where there is continuous commitment by a business to behave ethically and contribute to economic and social development, CSR improves the quality of life of the workforce and their families, as well as of the local community and society at large. Increasingly, companies also want to promote their businesses through CSR [2]. In India the Tata Group, Microsoft, Reliance Industries Ltd., Aditya Birla Group, Infosys, Jindal Steel, Indian Oil Corporation, Bharat petroleum, SBI, ICICI Bank, Biocon, NASSCOM, HDFC, Mahindra Group, Maruti Suzuki, Siemens, Larsen and Toubro, Steel Authority of India Ltd., Coca-Cola, and many more companies are making notable contributions in CSR. [13].

CSR in India under the Companies Act 2013
The landmark Companies Act 2013, of India, requires firms to mandatorily spend 2% of net profit in the last three years on CSR projects. The act mandates not just CSR, but also provides a framework within which listed companies will have to operate. In this act, there is an element of flexibility for the companies to select their preferred CSR engagements that are in agreement with the overall CSR policy of the company. It is necessary that a company with a net worth of INR 500 crores or greater has to constitute a CSR committee, of the Board of Directors who will create a CSR policy of the company. Schedule 7 of the Companies Act lists out activities, which a qualified company can take up in discharging its CSR. This schedule includes eradicating extreme hunger and poverty, promotion of education, promotion of gender equality, empowering women, maternal health, contribution to the Prime Minister’s Relief Fund or any other central or state government fund for socio-economic development, environmental sustainability, and employment-enhancing vocational skills [14]. With the passage of the Companies Act 2013, India became the first country in the world to legitimise CSR. Indian companies spent INR 9,309 crores on CSR projects in 2015-16, which was INR 163 crores more than the amount required by the law [15].

The significance of GRI and UNGC
The companies that were covered in the study were either signatories of the Global Reporting Initiative (GRI) or the United Nations Global Compact (UNGC). The GRI is a multi-stakeholder effort for creating a common framework on voluntary reporting of economic, social and environmental impact of the activities by an organisation. With an aim to provide a more comprehensive guidance on reporting details related to various organizational impacts, especially areas such as human rights and local community, the GRI released it as G3.1 guidelines. These have been replaced by G4 guidelines. The GRI has been stressing on the need for a standardized approach to corporate sustainability reporting. As per G4, disclosures on governance, anti-corruption, ethics and integrity, supply chain, and GHG emissions should be updated. Sustainability reporting enables organisations to set goals, measure performance, and manage change in order to make their operations sustainable [16]. The United Nations Global Compact (UNGC) is the world’s largest corporate sustainability initiative. It was launched in 1999, by the then UN Secretary General, Kofi Annan. It is a coalition of large businesses, environmental and human rights groups, and trade unions who are brought together to share a dialogue on CSR. The UNGC mobilises and supports companies to: (i) do business responsibly by aligning their strategies and operations with ten principles on human rights, labour, environment, and anti-
corruption; and (ii) take strategic decisions to advance broader societal goals, such as the UN Sustainable Development Goals (SGDs) with an emphasis on collaboration and innovation [17].

Findings from case studies
The case studies revealed the areas of CSR that were practiced by the companies (Table 1.)

Table 1. CSR activities of Companies which followed GRI and UNGC

<table>
<thead>
<tr>
<th>S.No</th>
<th>Company Name</th>
<th>Sector</th>
<th>CSR activities / projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Infosys Technologies India</td>
<td>Computers</td>
<td>Healthcare, education for the under-privileged, destitute care, rural development and livelihood projects including hygiene, sanitation, training in computers, vocational training and entrepreneurship</td>
</tr>
<tr>
<td>2.</td>
<td>TATAs Automotive</td>
<td>Automotive</td>
<td>Primary education, healthcare, skills training, computers and entrepreneurship, women’s empowerment, livelihoods, strengthening services for differently abled</td>
</tr>
<tr>
<td>3.</td>
<td>Ambuja Cements</td>
<td>Construction</td>
<td>Water resource management, disaster relief, agro-based livelihood, healthcare, women’s empowerment, education, infrastructure, energy conservation and wildlife protection</td>
</tr>
<tr>
<td>4.</td>
<td>JSW Steel</td>
<td>Metal products</td>
<td>Improving living conditions through medical services for children, women and elderly; improving learning ambience and infrastructures of schools in rural India; women’s socio-economic development; community water management and water conservation; preserving national heritage and; promoting sports excellence</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. Reddy’s Laboratories</td>
<td>Healthcare products</td>
<td>Improving managerial capacities of health workers; empowering youth with better skills in ICTs and for employability; quality education in government schools; increasing access and monitoring dropouts; effective agricultural extension services; rural women’s economic empowerment; nutrition for rural children</td>
</tr>
<tr>
<td>6.</td>
<td>ITC</td>
<td>General Industrials</td>
<td>E-choupal (village electronic kiosks), social and farm forestry, watershed development, women’s empowerment, social enterprises, livestock development and primary education.</td>
</tr>
<tr>
<td>7.</td>
<td>GAIL India Ltd.</td>
<td>Oil and Gas products</td>
<td>Improving accessibility to higher education of underprivileged children; promoting grassroots level athletics for Olympics; protecting historical</td>
</tr>
</tbody>
</table>
monuments; donating for homeless and underprivileged.

<table>
<thead>
<tr>
<th></th>
<th>ONGC Corporation</th>
<th>Oil and Gas products</th>
<th>Education and vocational courses, healthcare, women’s empowerment, promoting sports, promoting artisans, protecting heritage sites, water management, environmental protection and ecological conservation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>HPCL Ltd.</td>
<td>Oil and Gas products</td>
<td>Child care, education through computer awareness skilling programmes, mid-day meals for government schools, skill development and community development, and medical care in rural areas.</td>
</tr>
<tr>
<td>9.</td>
<td>NDMC Ltd.</td>
<td>Industrial Metals and Mining</td>
<td>Education, health and hygiene, integrated village development, drinking water supply, infrastructure, environment and skill development.</td>
</tr>
</tbody>
</table>

The Tatas: A case study
The Tata Group comprises of a hundred companies operating across six continents. The Tata Sustainability Group of the Tatas, is a group that is driven by a vision to guide and provide leadership to the Tata group of companies in incorporating sustainability in their business strategies. Within the Tata group, the Tata Steel, Tata Consultancy Services and Tata Motors feature among the top 800 companies in the Global Dow Jones Sustainability Index 2016, as leaders in sustainable business practices. The Tata Group’s CSR activities are rooted in the knowledge that businesses have a duty to enable all living beings to get a fair share of the planet’s resources. Their ten core principles of CSR are: beyond compliance, impactful, linked to business, relevant to national and local contexts, sustainable development principles, participative and bottom-up, focussed on the disadvantaged, strategic and built to last, partnerships, and opportunities for volunteering. The Tata’s are committed to integrating social, environmental and ethical principles into their core business, thereby enhancing long-term stakeholder value and touching the lives of nearly a quarter of the world’s population. The CSR programmes of the Tatas are contextualised to be relevant for the local, national and global world, while keeping the disadvantaged communities in focus. Included in their social activities are primary education, information technologies, healthcare, skills training and entrepreneurship, women’s empowerment, livelihoods, strengthening services for differently-abled. Their CSR activities are based on globally-agreed sustainable development principles and implemented through partnership with governments, NGOs and other relevant stakeholders. The Tatas are a signatory to the United Nations Global Compact since 2002, and are committed to foster better CSR in the areas of human rights, labour, environment and anti-corruption.

It was found that ever since the Companies Act 2013, the companies have gained a deeper focus on Sustainability, CSR, Governance and Disclosure. A shift was seen in the focus towards sustainability and social responsibility in creating long term competitive advantages and management of risks, from a focus on compliance, market access and acquiring of customers. The findings however revealed that there is still a huge scope for improvement in biodiversity and participation in global agreements, although there were improvements in governance. Most of the
companies covered in the present study had disclosures, but needed improvement. Of all the companies that were covered in sustainability and CSR in 2014-15, very few companies participated in industry-specific sustainability initiatives on an average, only 60% companies had sustainability reports, and only 25% of the companies had GRI based sustainability reports [9]. This reveals that disclosures were not adequate, as sustainability reporting was adequate. Out of the ten companies in the present study, a majority (seven companies) had increased focus on sustainability with increased efforts on waste management, management of water and energy resources, reduction of emissions, and climate change. Disclosure on emissions needed more focus as only few companies disclosed information on Green House Gas (GHG) emissions and participated in Carbon Disclosure Project. There was focus on sustainable products and services, and more emphasis on renewable energy programmes for reducing emissions from the activities and operations of the companies. These were mostly in line with the government programmes. The CSR experts revealed that they were working towards increasing the footprints as they were small. They also stated that there was a major sustainability gap in endeavouring towards sustainability efforts. This is because the companies were more focussed on immediate operations related to their programmes and compliance, rather than focussing on strategies towards sustainability on a long term basis. However the brighter side revealed that because of the Companies Act 2013, the companies had started working towards improving compliance on the basis of their company’s CSR committee recommendations and requirements, and on spending and reporting accountabilities. The companies were engaging in the delivery of government programmes aimed at national development such as ‘Swachh Bharat Abhiyan' (Clean India Campaign) with a focus on construction of toilets in rural areas and cleanliness; solar energy; women’s economic and social empowerment programmes; programmes for farmers; programmes for health and nutrition of children, adolescents and women; Digital India mission; and other such programmes.

The study reveals that there is a need for companies to enhance focus on communities, create a synchronization of their CSR committees and teams with various other corporates and the government, while joining hands with NGOs to ensure greater impact through collective effort. It has been seen earlier that companies which are not managing CSR strategies properly resulted in degraded public opinion and loss of reputation. Top CSR icons like the Infosys and Tatas have set benchmarks for other companies not just in India but across the world in the way social responsibility and corporate governance are handled. Such companies reap benefits of having good corporate citizenship, increased revenues and top of the mind brand recall, because of their being model corporate citizens. The CSR employees indicated that there is an urgent requirement for developing a curriculum in CSR through the ODL mode. The companies focused their activities on communities primarily located around their operational areas, and were committed to reduce social and economic inequalities through providing better opportunities in health, education, skill development and employment. They were reaching out to stakeholders, the community and society who are directly and indirectly involved in their business operations.

**Need to articulate CSR**

The findings in the study reveal a need to make a case where a curriculum has to fit in to strengthen an understanding of CSR. This has to be done by highlighting that no company can survive without making profits, and the key is to understand the way in which profits (or efficiency)
are created. The benchmarking here is to become good corporate citizens. The objective therefore is to build a strong understanding of CSR as a management and development concept, and a process that integrates social and environmental concerns into business strategies and operations. The objective of building a curriculum in CSR is also to - nurture talent, train future workforce, incubate ideas right from college levels and identify future leaders who are directly or indirectly involved in their business operations.

**A win-win situation for all stakeholders to learn CSR through Blended Approach**

In most parts of the world including India, the infusion of information and communications technology in higher education is taking place as already mentioned earlier in the study. This draws attention to the approach of blended learning. It can be best seen as an approach to catch the learners young and watch them grow, through blended learning of CSR [18]. Keeping in view of the growing need to understand and learn CSR, the course designed should highlight the core concepts, practices, strategies and principles of sustainability and CSR. The modules can be prepared as per the institutes’ requirements in the following areas (Table 2.):

**Table 2. Contents of the Course Module in CSR**

| History and definitions of CSR |
| Concepts on Corporate Governance, Volunteerism and Sustainability |
| Sustainable development initiatives based on SDGs, sustainability reporting guidelines by Global Reporting Initiative, UN Global Compact |
| Laws pertaining to CSR in countries (if any), the Companies Act 2013 (India) |
| Building CSR strategies and social entrepreneurship for CSR |
| Accounting for measuring impact and sustainability |
| Presenting CSR reports |
| Practical examples in CSR (Walmart, Infosys, Cadbury and others) |
| Sustainability ranking and awards |
| Applying definitions in practice |

The course, that can be applicable in all ODL institutes and universities, aims to address the needs of current professionals in: corporate administration, those involved in the CSR foundations of companies, the NGOs, International Organisations, various Government bodies, individuals who wish to make CSR practice applicable in their companies / institutes, and above all learners who are interested to engage in CSR in the future. The suitability and efficacy of online learning and virtual learning environments (VLEs) have been documented [19].

By the end of the course the participants should be able to fulfill the following learning objectives: (i) to understand and define CSR, sustainability and good governance, (ii) to become familiar with CSR skills and strengthen them by gaining knowledge of best practices, (iii) to learn development practices for leveraging CSR, and (iii) to become familiar with measuring social impacts and sustainability.
Using a Blended Approach to learning CSR
The approach to blended learning uses a combination of face-to-face and online delivery methods, with the aim of each complementing the other. Such an approach should, therefore, influence students’ perceptions of the learning environment and, subsequently, their study approach and learning outcomes. Here most of the learners would be CSR executives, development practitioners and other learners who are familiar with technology. Participants can be introduced to a range of effective learning methods and online technologies can be used to learn the concepts. It is preferable that such learning is student-centred. For example, an initial workshop can be delivered for designing and developing learning activities that will engage students and make effective use of blended approach. Taking from there the following variations in blended approach to learning, found suitable to learn CSR in various situations, be they face to face or virtual, to cater to learner’s convenience and availability to learn, are suggested in Fig. 1:

Fig. 1 Blended learning programme applicable to CSR
Source: https://time2learn.wikispaces.com

The content of the programme includes CSR policies, practices and requisite skills, to strategically conduct CSR for sustainable business and equitable society. Hence to practically navigate through the subject, reputed companies like Microsoft, Infosys, Tatas, Birlas, JSW, Larsen and Tubro, and others that engage in progressive CSR can get into online collaboration with such
institutes. Such kind of industry-academia collaboration will help translate CSR concepts into tangible action and also skills such as mediation, coaching, organisational development and stakeholder dialogue in CSR. It would prove beneficial if corporates can provide funds to ODL universities for technology usage in such education. The corporates can combine their CSR activities with brand building and can also fund needy students. Many corporates are instituting leadership awards in business schools that are targeted at women leaders, future leaders and potential leaders so that the leadership skills can be honed right from the time the students start their education. This is the case with many business schools in the west where leading companies often give out leadership awards to those whom they consider potential leaders [18]. This will encourage them to enroll in CSR programmes. Experiences and coaching can be disseminated online by CSR professionals of such companies. Environmental experts can also be engaged for online discourses on sustainability, climate change, green energy initiatives, GHGs etc. Learners are better facilitated, as they are already in a work based environment or in technology supported environments with good internet connection and e-mail access. Students can even present webinars. As shown in Fig.1. a comprehensive understanding of various blended learning programmes applicable to CSR has been depicted. The students can meet exclusively in a face to face (F2F) classroom and teacher / instructor uses technology such as e-mail or web conferencing for online lectures. Or it could be a F2F classroom learning along with simulated technology enabled sessions in the class, using F2F technologies. Similarly, based on the academic institutes resources and learner’s / stakeholder’s requirements, it could be an all online classroom where the students and instructor meet online and the instructor makes use of technology within the online class such as social networking and electronic bulletin boards, or uses a more advanced technology such as videoconferencing in the online classes [20]. A network of students from all across the world or a country, can from a network and can collaborate on best CSR practices on for example, education or health and respond in real time and to enrich the learning experiences acquired from the CSR academic programme, and share these learning experiences with others living outside the town, state or country. Tutors can respond to participants’ requests and questions on a regular basis through email or on discussion forums. Course material, documented bibliography and a glossary of terms can be uploaded in electronic formats on the Institute’s platform. This will help in ensuring participants’ motivation, and the course can apply follow-up mechanisms to monitor the working time and completion of assignment work. Different e-learning tools such as theoretical inputs, on-line discussions, free and guided chat sessions, exercises, games, and case studies will be useful [21] [22]. Activities such as course-end quiz to test learners’ understanding and online assignment submissions would reinforce students understanding and help in grading them.

CONCLUSION
The present study has highlighted the importance of CSR and how it can be operationalised in the changing diversity of corporate governance and meeting of SDGs, for a sustainable world. The subject warrants immediate and urgent concern in academic institutions of higher learning. A technology based blended learning approach is the need of the hour as this can potentially encourage a shift from teacher-centric and content-driven courses to student-centric courses that are enquiry-based. Such a programme will be able to effectively meet a greater diversity of
students’ needs, enhance flexibility, motivate them, engage them, and enhance learners’ capacity and their organisations to better address social responsibility and promote efficient corporate citizenship in a globalised world.

REFERENCES


FACTORS AFFECTING THE GPA OF AGRIBUSINESS STUDENTS, IN UNIVERSITAS TERBUKA INDONESIA

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Abstract

The purpose of this study is to analyze the factors that affect the GPA of students who get Bidikmisi scholarship by using the Semester Package System (SPS) Plus service. SPS Plus is a package system of courses in study program where all courses taken in curriculum structure are arranged and offered on a package basis for each semester.

In general, UT students are not required to attend Face-to-Face (FtF) tutorial provided by UT, but for Bidikmisi scholars which use SPS Plus Services, they are required to attend FtF tutorial for all courses in the package. By following FtF tutorial, students are expected to get a high GPA, this is because they are new graduates from high school and the level of independence in terms of learning is still not so good.

GPA is influenced by two factors, namely individual factors and social factors. Individual factors consist of maturity/growth, intelligence, practice, motivation, and personality. While social factors can be seen from the condition of family, teachers and how to teach, the tools used for learning, environment, opportunities and social motivation.

The population of this research is 697 students of Bidikmisi scholarship program in Faculty of Mathematical and Sciences with SPS Plus service, and the sample used is 300 students of Agribusiness study program. The data were analyzed by using factor analysis, and the result in general GPA do not have correlation with internal and external factors, but GBA have correlation with internal and external factors in a group of GPA 2.50-2.75 and GPA 3.5 or more.

Keywords: GPA, Face-to-face tutorial, Semester Package System

INTRODUCTION

One of the indicators of the success of a student in the study can be seen from the cumulative achievement grade point average (GPA) that they obtained. The student is said to be successful if they can get a high GPA score because with a high GPA they have and can fulfill one of the requirements required to get a job when they graduate or make it easier for them to continue their studies.

The high requirement of GPA is also one of the targets of the Universitas Terbuka (UT) in carrying out its learning process (UT 2010-20121 UT Strategic & Operational Planning, 2010). Because it is well known by the public that UT students or students who learn by using a distance-learning system that the average GPA that they obtained is lower than the student's GPA that is studying at university with a face-to-face learning system.

One of UT’s efforts to improve students’ GPA is by providing Semester Package Service (SPS) to their students.

SPS

SPS is a program offering system where all courses in curriculum structure are arranged and offered on a package basis for every semester. SPS Service aims to guide students in choosing subjects and to take the study period to complete or pass on time, specifically 4 years and is
expected to get higher GPA because all or part of the subject in the package must be tutored except those who use no-FTF SPS Service.
The SPS service is divided into four, (1) SPS Plus, (2) SPS Full, (3) SPS Semi, and (4) Non-FTF SPS (Katalog UT, 2015). Students that are using SPS service must form one group (class) in the same study program, except Non-FTF SPS. Because SPS Plus, Full, and Semi provide FTF services to students so that students’ quota is required in order to hold one tutorial class. The three SPS models are usually given to students who receive scholarships. SPS Plus is awarded to a newly graduated student who receives UT scholarship that is recruited from Senior High School that year and a year before, and must meet the requirements of having good academic performance but economically constrained. Those selected through the selection must meet the minimum number in one class of 20-30 people for getting FTF service for all the courses contained in the package. In addition, they also get training that is held at least once in each semester.

GPA
Many factors can affect the achievement of GPA, including internal factors and external factors.  
1. Internal factors are factors that come from oneself that involves several aspects, among others: (1) physical aspects, for example is the condition of organ health, (2) psychological aspects, such as emotion, intellectualness, and motivation, and (3) Social Aspect, which is related to the socializing ability of students with the environment.  
2. External factors, related to the variation and degree of difficulty of the material that is being studied, place of learning, climate, surrounding atmosphere, community learning culture and so forth (Purwanto, M.N,1984; Yusuf.S and Sugandhi, NM. 2011, Santrock, J.W. 2008)  
Some of the problems that often arise in the implementation of distance learning, is that new students can not directly adjust to the distance learning model that must be self-regulating in terms learning and managing time so that many UT students fail to complete their studies timely. By taking samples of Agribusiness study program students who receive Bidikmisi scholarships, this article will discuss how much of influence of internal factors (health, family conditions, and the ability of students to adapt to distance learning in UT) and external factors (how to learn, place of FTF, academic environment , and motivation to learn) that can affect the earning of GPA. The function of this research is to see what factors that is most influential in the process of GPA earning on students who get scholarship using SPS Plus service that take the Agribusiness study, By knowing the most influential factor to the GPA, UT can improve the service so that the GPA can increase in accordance to what has been already targeted by UT.

FRAMEWORK
The population of this research is 697 students from Faculty of Mathematical and Science who got Bidikmisi scholarship with SPS Plus service. Whereas, the sample is taken from 300 students Prodi Agribusiness. Data were obtained by using questionnaires and interviews. The Data is processed from 147 questionnaires that are sent back and going through validation, then the data of valid respondents to use (N) is 140. The data are analyzed using factor analysis which is a technical system to look for factors that can explain relationship or correlation between various independent indicators that are observed to see what factors are most correlating to the earning of students' GPA grades using SPS Plus services.
RESULT

Student Profile of Agribusiness Major

Out of 140 respondents, their profiles are as follows in Picture 1. Respondents consist of students of Agribusiness study program which received Bidikmisi scholarship, using SPS Plus service and consist of 36% men and 64% women. The financial conditions, in general, are in accordance with what is required by Bidikmisi scholarship, average (57%) and poor (42%). They came from senior high school graduates (60%), and less than 30% are vocational school graduates, the rest are school graduates in addition to these two. Most of them came from Social Sciences (40%), while the Exact Sciences was only 35%, and the rest came from other majors. The year of their first registration is in 2013 (58%), and 26% by 2015, while only 12% enrolled in 2015.

![Figure 1. Agribusiness Study Program Student Profiles](image)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Minimum</th>
<th>Frequency</th>
<th>Maximum</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCH</td>
<td>103.4</td>
<td>30.04</td>
<td>-0.685</td>
<td>-0.633</td>
<td>14</td>
<td>1</td>
<td>134</td>
<td>30</td>
</tr>
<tr>
<td>GPA</td>
<td>3.05</td>
<td>0.55</td>
<td>-0.063</td>
<td>-1.092</td>
<td>1.91</td>
<td>1</td>
<td>3.98</td>
<td>1</td>
</tr>
</tbody>
</table>

SCH: Semester Credit Hours

From the data above, we can see the average picture and the minimal credits taken by students:
1. The average number of SCH is 103 with differences in the range of each other is about 30 credits.
2. Students who take the least credits which are 14 credits (only one student) and the most are 134 credits (30 students).
3. This can be explained because the respondents taken are the first registered students in 2013, 2014, and 2015. So they are in the 7th, 5th, and 3rd semesters at the time of data retrieval.

While the picture of student's GPA (respondent): can be seen as follows.
1. The average GPA of 3.05 with range difference of one with another (standard deviation) is about 0.55
2. The lowest GPA is 1.91 (one student) and the highest GPA is 3.98 (one student).

The histogram of the GPA and the number of credits taken by the student can be shown as in Figure 2. In Figure 2.(a) the distribution of SCH frequencies pursued indicates that there are three groups of total credits taken by students:
(1). There are 24 people (17.1%) who have taken <60 credits,
(2). 48 people (34.3%) who have taken about 60-110 credits, and
(3). 68 people (48.6%) have taken> 110 credits

![Figure 2. Histogram of Number of credits taken and GPA](image)

While in Figure 2.(b) it is seen that the frequency distribution of GPA grades, shows a uniform distribution between the GPA grades from low to high. If the GPA grades are grouped into several strata then the compositions are as follows:
Table 2. Composition of GPA by GPA Group

<table>
<thead>
<tr>
<th>GPA Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1), &lt; 2,5</td>
<td>29</td>
<td>20.7</td>
</tr>
<tr>
<td>(2). 2,5 - &lt;2,75</td>
<td>18</td>
<td>12.9</td>
</tr>
<tr>
<td>(3). 2,75 - &lt;3,00</td>
<td>18</td>
<td>12.9</td>
</tr>
<tr>
<td>(4). 3,00 - &lt;3,50</td>
<td>37</td>
<td>26.4</td>
</tr>
<tr>
<td>(5). 3,5 – 4,00</td>
<td>38</td>
<td>27.1</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Distribution of GPA in various credits groups is presented in Figure 3 through the Boxplot diagram with the following results.

1. In group 1 (less than 60 credits), the GPA variations are small and generally being at GPA grades > 2.75. There are still four numbers of respondents who have a lower GPA than the group (<2.5).
2. In group 2 (60-110 credits), the earning of GPA starts to vary from 2.0 to above 3.5, with median 3.0.
3. In group 3 (more than 110 credits), the variation of GPA decreases with GPA grades mostly between 2.5 – 3.5 with median about 3.0.

Figure 3. GPA Boxplot in groups of credits taken
(Credit Group: (1) <60 Credit, (2) 60-110 Credit, (3) >110 Credit)
Response to the statement items (Q1 to Q5) on aspects of the selection service resulted in two factors, namely the willingness factor and the scholarship factor. The student's desire factor materialized when he became UT student and chose his own course of study. The scholarship factor materialized or fulfilled when he chose the study program.
Implementation of Face-to-face Tutorial

Note

- FTF is conducted for every subject in each semester
- I always attend FTF for every subject
- The location of the tutorial is near to my place of staying

The Tutorial Location is easily accessible

The Tutorial Location is very comfortable for conducting class

The facilities of tutorial room are comprehensive and very helping in conducting FTF

Response to the statement items on the FTF service aspect also resulted in two factors, namely the factor of participation in the FTF and the convenience factor of the location and the FTF facility.

Participation factors are apparent in FTF services provided for all courses, but there is an indication that student participation in FTF is constrained by location (correlation -0.15).

The convenience factor is more emphasized on whether the location of the FTF is reachable and the distance from where the students live.
The response to the seven points (Q12-Q18) statement on the tutor's service aspects resulted in one factor, meaning all statements reflect the role of the tutor in implementing the FTF.

In another word, seven points of the tutor service aspect resulted in a one-factor score. In this case, the higher the tutorial score indicates the better the role of the tutor in implementing FTF. This can be seen in Figure 5.

![Path Diagram of tutor service aspect](attachment://path_diagram.png)

Chi-Square=23.47, df=14, P-value=0.05310, RMSEA=0.070

Figure 5. Path Diagram of tutor service aspect

Note:

Q12 Tutor always comes on time

Q13 In general, Tutor helps me understand all the course material

Q14 In general, Tutor motivates me to be more active in learning

Q16 In general, the practice of the tutorial is very pleasing

Q17 All tutors do the tutorial well

Q18 without a tutor, I will not get >2.5 for my GPA; Tutor, Tutor service
Q15 In general, FTF Tasks that I follow are given feedback

Training

The response to the three points (Q19-Q21) statement on the training aspect resulted in one factor, meaning all statements reflect that training is indeed required by the student. In another word, the three aspects of training produce one factor. (see Figure 6).

![Path diagram of Additional Training Service](image)

**Figure 6. Path diagram of Additional Training Service**

**Note:**

- **Q19** I get additional training (motivation, entrepreneurship, etc.) every semester
- **Q20** the training provided is in accordance with my subject/major
- **Q21** the training provided adds to my motivation in learning

Number of credits in the package

The response to the three items (Q22-Q25) statement on the training aspect resulted in one factor, that is the number of credits in the package. The higher the score, the higher the credits load in the packet. This can be seen in Figure 7.
Figure 7. Path diagram of the study load factor (number of credits in the package)

Note:

Q22 the number of credits in the package for each semester is sufficient

Q23 I reduce the number of credits on the first and second semester packages, and adding those credits in the second year and so on

Impact of SPS Plus Service Factors

Table 3. Statistics description of service factors.

<table>
<thead>
<tr>
<th>No.</th>
<th>Independent Variables (Service factors)</th>
<th>Standardized Coefficients</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig. (p. value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Desire</td>
<td>-.174</td>
<td>.076</td>
<td>-1.245</td>
<td>.215</td>
</tr>
<tr>
<td>2</td>
<td>Scholarship</td>
<td>-.034</td>
<td>.075</td>
<td>-1.243</td>
<td>.215</td>
</tr>
<tr>
<td>3</td>
<td>FTF Participation</td>
<td>.128</td>
<td>.047</td>
<td>1.500</td>
<td>.136</td>
</tr>
<tr>
<td>4</td>
<td>Convenience of FTF</td>
<td>.118</td>
<td>.048</td>
<td>1.329</td>
<td>.186</td>
</tr>
<tr>
<td>5</td>
<td>Tutor</td>
<td>.084</td>
<td>.052</td>
<td>.886</td>
<td>.377</td>
</tr>
<tr>
<td>6</td>
<td>Additional Training</td>
<td>.165</td>
<td>.052</td>
<td>1.734</td>
<td>.085**</td>
</tr>
<tr>
<td>7</td>
<td>Number of Credits in package</td>
<td>-.175</td>
<td>.047</td>
<td>-2.035</td>
<td>.044*</td>
</tr>
</tbody>
</table>
Note:
Independent Variables: GPA; R² = 0.114; F = 2,438 (p. 0.022). Running by IBM-SPSS ver. 20.
*) Significant on alpha 5%, **) Significant on alpha 10%.

Descriptive statistical analysis of the seven service factors in SPS Plus resulted in several important points as follows.

1. GPA is not influenced by conditions of desire, scholarship, FTF participation, the convenience of FTF facilities, and the role of tutor. This means that the implementation of FTF and Tutor services are running well.
2. GPA is affected (supplemented) by additional training factors (regression coefficient 0.165, p 0.085).
3. GPA is affected (inhibited) by the number of credits in the package (regression coefficient - 0.175, p 0.044).

Table 4. Statistical regression of the influence of service factors on GPA for Group GPA 2.5-2.75 and GPA of 3.5 or more.

<table>
<thead>
<tr>
<th>No.</th>
<th>Variables (a)</th>
<th>GPA: 2.5 - 2.75 (b)</th>
<th>GPA 3.5 or more (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Standardized Coefficients</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
<td>Desire</td>
<td>.956</td>
<td>.007</td>
</tr>
<tr>
<td>2</td>
<td>Scholarship</td>
<td>1.031</td>
<td>.008</td>
</tr>
<tr>
<td>3</td>
<td>FTF Participation</td>
<td>-.519</td>
<td>.051</td>
</tr>
<tr>
<td>4</td>
<td>Convenience of FTF</td>
<td>-.261</td>
<td>.181</td>
</tr>
<tr>
<td>5</td>
<td>Tutor</td>
<td>-.116</td>
<td>.628</td>
</tr>
<tr>
<td>6</td>
<td>Additional Training</td>
<td>.590</td>
<td>.042</td>
</tr>
<tr>
<td>7</td>
<td>Number of Credit in package</td>
<td>.102</td>
<td>.600</td>
</tr>
</tbody>
</table>

Note: (a) Independent Variables: GPA; (b) R² = 0.715; F = 3.575 (p. 0.034); (c) R² = 0.205; F = 1.102; p. 0.387.

The statistical descriptive analysis shows that GPA is not influenced by the condition of factors desire, scholarship, FTF participation, the convenience of FTF facilities, and the role of tutor, but the regression analysis of group with GPA 2.5-2.75 and GPA of 3.5 or more, show differently as follows:

On the GPA: 2.5 - 2.75:
1. GPA is influenced by desire (p 0.007), scholarships (p 0.008), FTF participation (p 0.05), and additional training (0.042), at the level of significance of alpha 5%.
2. Determination model with seven other variables simultaneously significant, R² = 0.715, p. 0.034.

On the GPA 3.5 or more:
1. GPA is only influenced by the scholarship factor (p 0.040), at the level of significance of alpha 5%.
2. Determination model with seven other variables (factor) simultaneously not significant, 
   \( R^2 = 0.205, \ p. \ 0.387. \)

1.1 Effect of SPS Plus student characteristics on GPA

1. In general, there are internal factors that affect the GPA of Agribusiness study program 
   students who use SPS Plus service as can be seen in Table 5, and the result can be 
   concluded that the GPA is affected by Residential (p.0,000)), Condition of residence, p. 
   0.019), social condition, p.0.028), and school origin, p.0.075 
2. If we see it based on its GPA group, then: 
   a. In the GPA group of 2.5-2.75, the student's GPA is affected by the residence (p.0.026)), 
      the condition of residence, the financial condition of the family, the origin of the school, 
      and the number of credits taken. 
   b. In the GPA group of 3.5 or more, the student's GPA is affected by the family financial 
      condition, (p.0,002), social condition, (p.0,039), and the number of credits taken.
1. The correlation of internal factors to GPA of a student from Agribusiness study program using SPS Plus service are:
   a. GPA is not influenced by the condition of factors by Residential (p=0.000), Condition of residence (p=0.019), Social condition, p(0.028), and Original school, (p=0.075)
   b. In the GPA group of 2.5-2.75, the student's GPA is affected by the residence (p=0.026), the condition of residence, the financial condition of the family, the origin of the school, and the number of credits taken.
   c. In the GPA group of 3.5 or more, the student's GPA is affected by the family financial condition, (p=0.002), social condition, (p=0.039), and the number of credits taken.

4. CONCLUSION
2. The correlation of external factors to GPA are:

a. GPA is not influenced by the condition of factors desire, scholarship, FTF participation, the convenience of FTF facilities, and the role of tutor.

b. On the GPA: 2.5 - 2.75:
   GPA is influenced by desire (p 0.007), scholarships (p 0.008), FTF participation (p 0.05), and additional training (0.042), at the level of significance of alpha 5%.

c. On the GPA 3.5 or more:
   GPA is only influenced by the scholarship factor (p 0.040 and alpha 0.05).

REFERENCES
THE USE OF MULTIMEDIA TO FACILITATE UNDERSTANDING LEARNING MATERIALS IN LIBRARY AND INFORMATION SCIENCE

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Tri Darmayanti (yanti@ecampus.ut.ac.id)

ABSTRACT

The majority of library and information science education, especially in Indonesia distance education institution are still using instructional media in print. With information technology evolving very rapidly and can transfer media learning materials in multimedia format, the online learning greatly benefited. Some courses in the library and information science education required to practice, because the learning material requires frequent exercise or practice. Multimedia can integrate images, sounds and movies, it is interesting to give examples and practice material. This paper discusses about instructional materials of library and information science easier to understand by using multimedia. Universitas Terbuka (UT), as a distance education institution in Indonesia, in particular courses of library and information science has developed as a complement or enrichment multimedia teaching materials in print, as an example of the preservation of material in the form of paper material moving animation known as dry lab. It also developed in the form of a video slide with bibliographic descriptions material preparation stages and in the form of a slide on the preparation of the subject code, the two ministers is a phase in cataloging in library. All the multimedia were displayed in the online tutorials. Using a survey method for students taking courses online tutorials on the organization of information and the final project program, the results show that according to the UT student library is very useful not only in the face of trials but are helpful in doing daily work as a librarian. Thus, the use of multimedia as a learning medium distance learning particularly useful.

Key words : library and information science, multimedia learning, distance education, e-learning

INTRODUCTION

Library science education in Indonesia since 1952 to the present, use face to face learning system. Level Diploma up to S2 (Magister) beside used face to face learning system also the majority use the print media. Development of technology and information so fast, also developed a multimedia. Multimedia is very popular as a tool in learning, because multimedia can combine images, sounds, film or moving picture. Thus multimedia can be used as a tool to explain material more easily.

Now the study program of library science in Indonesia has developed into 54 courses from 43 public and private universities, diploma and undergraduate level. One of the universities that opened the library and information program is Universitas Terbuka (UT), diploma level, and than since 2013 opens graduate level. Library and information studies programs at other universities use face-to-face systems and use printed materials, and not many have used the media as a tool.

Characteristics of subjects or learning materials on library science education, requires practice. Because the library graduates will become professionals in the field of library and
information. Practices that should be done such as cataloging or classification. So that to show the distance students required a media that can explain or provide examples of the process of cataloging to determine the class number. With multimedia is very helpful in developing the process.

The development of information and communication technology and the internet is so fast, very helpful in distance education. Because learning materials not only from the print media, but also can be added to the media nonprinting or called as multimedia. With multimedia it's easy to express or explain material that requires real examples. Such as how to use tables or use certain tools will be more easily understood in the form of multimedia. Learning materials on the library and information courses are much needed practice, so multi media is very helpful to make the material to be more clearly understood by students.

Learning materials printed in UT is known as printed materials and equipped with materials nonprinting in Indonesia call “bahan ajar noncetak (BANC)”. BANC has developed a library program is dry lab, audio and video slide. Actually, the material in the form of multimedia or Open Educational Resources (OER) of the library are found on youtube but in English language, while the Indonesian language is still rare.

The goal is to present that instructional media or multimedia learning is very helpful and can be more Understand the material being taught.

**Learning Media**

Media is the mediator of resources to the recipient of the information (Sanjaya, 2012: 57), means the media can be used as a tool as an intermediary message. While the media as a tool of learning everything, the environment and all forms of activity as are conditioned to increase knowledge, change attitudes or inculcate skills of each person who uses. Thereby media Learning is something that is a medium or intermediary to deliver a message, or communicate something. That mean to convey a message or teaching materials.

According to Sanjaya (2012: 75) a medium used in the learning has several principles, among others:

1. to facilitate learning in an effort to understand the subject matter
2. media used must be appropriate and directed to achieve goals
3. media in accordance with the learning material
4. media should be in accordance with their interests, needs and conditions of the students
5. media should pay attention to the effectiveness and efficiency
6. media used must be in accordance with the ability of teachers who operate

While the primary function of a medium of learning is as a teaching aid that also affect climate, conditions and learning environment organized and created by teachers. And then the benefits of learning media as follows:

1. lessons become more standardized
2. learning more attractive
3. learning becomes more interactive
4. shorter learning time
5. the quality of learning outcomes can be improved, if the integration of words and pictures to communicate the elements of knowledge
6. learning can be given when and where desired
7. the positive nature of the subject matter and the learning process can be improved
8. the teacher's role may change towards a more positive

The above has been explained about the function and benefits of learning media. While this type of learning media has not been disclosed. According to Syahrul that the types of instructional media can be classified into four groups:
   a. visual media is a media that only relies on the sense of sight
   b. media audio is a media that only rely on voice capabilities, such as: radio, cassette recorder, phonograph record
   c. Audio-visual media is a media that has elements of sound and image elements
   d. media motion is a medium that can display moving elements of sound and images like cassette voice and video movies

MULTIMEDIA

Multimedia is the combined use of several media, as sound and full-motion video in computer applications (Dictionary.com Unabridged). From British Dictionary definitions for multimedia the combined use of media such as television, slides, etc, esp in education. Multimedia in technology any collection of data including text, graphics, images, audio and video, or any system for processing or interacting with such data. Often also includes concepts from hypertext.

Mayer says (2007: 2) that multimedia as a presentation of material using both words and pictures. By words, men that the material is presented in verbal form, such as using printed or spoken text. By pictures, mean that the material is presented in pictoral form, such using statistic graphics, including illustrations, graphs, photos, or maps, or using dynamic graphics, including animation or video.

According Mayer that (2007: 78), at least in the case of scientific explanations, adding illustrations to text or adding animation to narration can help students to better understand the presented explanation. We refer to this result as a multimedia effect: presenting an explanation with word and pictures results in better learning than does presenting words alone.

Multimedia is a concept and new technologies in information technology, in which information in the form of text, images, sound, animation, and video together in a computer to be stored, processed and presented both linear and interactive (http://betterteachers.weebly.com/).

MULTIMEDIA LEARNING

Istiyanto in his writings on the internet media suggested that multimedia learning can be defined as multimedia applications used in the learning process, in other words, to deliver the message (knowledge, skills and attitudes) and can stimulate the mind, feelings, concerns and willingness to learn so as intentional process learning happens, aim and control. Multimedia learning has benefits that learning process more interesting, more interactive, the amount of teaching time can be reduced, the quality of learning can be improved, and the learning process can be done anytime and anywhere, as well as students' attitudes can be improved.

Thus the multimedia advantages of learning are as follows (Istiyanto):
1. Enlarge the fittings were very small and not visible to the eye
2. Minimize the very large objects, which is not possible in the school,
3. Presenting objects or events are complex, complicated and take place sooner or later,
4. Presenting distant objects or events,
5. Presenting dangerous objects or events,
6. Increase the attractiveness and attentive student.

Multimedia sources make communication and learning easier for people all over the world, but it can be expensive to create and difficult to configure. For most people, multimedia is easy to understand and convenient to use, and making presentations is simpler because a single multimedia source can be used to convey a message or concept in different ways to an audience (https://www.reference.com/technology/advantages-disadvantages-multimedia).

Halim wrote in his paper that in order to teach online courses effectively, instructors should employ multimedia that is instructional and focused on students’ performance, rather than merely entertaining. When instructors add multimedia components in their online courses, they should consider the instructional necessity of the media elements, the accessibility to end-user, and technical limitations of the delivery of multimedia content via the online course. A large multimedia file can be easily downloaded and viewed on campus networked computer, but it may take a long time to download and view on a student’s computer with a dial-up modem connection. Moreover, if instructors add multimedia elements that require special plug-ins or software to view the multimedia elements on their online courses, they should consider two things. First, the confusion and annoyance of downloading and installing plug-ins may affect the perceptions of students regarding online course. Second, it is not a good idea to create content in an unpopular file format.

The opinion of Mayer (2007) there are two major kinds of goals of learning that is remembering and understanding. Remembering is the ability to reproduce or recognize the presented material and is assessed by retention test. The major issue in retention test involves quality of learning, that is how much was remembered. Understanding occurs when learners construct a coherent mental representation from the presented material in novel situations and is assessed by transfer test. The major in transfer test involves the quality of learning, that is how well can some one use what he or she has learned.

When viewed from the benefits of multimedia learning as a tool in the learning process, so multimedia learning can be applied to all levels of education.

**METHOD**

The method used was survey. By uploading material in the form of video, powerpoint soundless video and powerpoint. Three multimedia materials in the online tutorial of Information Organization and Final Project TAP PUST4500 Course. The population for both courses is about 950 students, which commented amounted to 304 students. From the comments are then classified and the results as described in the discussion.
RESULT
Multimedia instructional media form and is useful as a tool in the implementation of learning. The benefits are felt by students on the material using multimedia as tools that support learning, especially for materials that require an image description.

The material on library science study program requires a more detailed explanation. These explanations when expressed multimedia will be more easily understood and remembered. Some of the material in library sciences that require a more detailed explanation include: cataloging, classification number determination, information retrieval, and non-book materials.

The above materials can be explained and the use of training when applied to the face to face learning system. As for the distance learning system as adopted by the UT, the material is still based on the print media. Facilitate the development of ICT for distance education providers, as they may develop enrichment materials using multimedia. so that materials that require further clarification be made to clarify the material enrichment of the material provided.

In the virtual world (Internet and You tube) had a lot of material enrichment of the library, but the majority speak in English. And the author had tried to provide enrichment materials in the form of video with the topic “cataloging” the language of English language support. The material given to students of the library in 2014, which is included in the online tutorial. Comments given students accessing such material is student was pleased with the addition of multimedia material form, but do not understand because in English. The majority of library FISIP-UT students feel weak in English, so that the enrichment materials that speak English do not understand. Then the students give suggestions to make the same thing in Indonesian.

In 2015, the author created a library enrichment material entitled “Bibliographic Description” and the year 2016 created under the title “Heading of Main Entries” (Tajuk Entri Utama), both topics are library cataloging activities. Second Material in the form of PowerPoint video, and posted on the online tutorial. Online tutorials are a learning aid tool for distance education students, such as UT students. Choice of PowerPoint format as it can combine between image, text and sound. So students are expected to more easily understand the material and useful for the provision of work.

Comments or responses of students to the three materials on cataloging that have been posted, as follows:
1. Video cataloging in English, student comments is a bit difficult to understand especially in terms of language, majority students comments please translate in bahasa Indonesia.
2. The enrichment material presented, according to student comments is easy to understand, very helpful, and adds to the knowledge, as shown in the table below.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to Understand</td>
<td>233</td>
<td>76,7</td>
</tr>
<tr>
<td>Very Helpful</td>
<td>265</td>
<td>87</td>
</tr>
<tr>
<td>Adding Knowledge</td>
<td>200</td>
<td>65,8</td>
</tr>
</tbody>
</table>

Table 1 Comments on Material

From the table above the student comments on multimedia material presented is very helpful 87%, easy to understand as much as 76,7% and can increase knowledge 65,8%.
So that students feel helpful in understanding the material not only to prepare for the exam as well as the provision of work.

3. Display, student comments on the display of multimedia material interesting, nice and clear. For more details as in the following table.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nice and Clear</td>
<td>150</td>
<td>49,3</td>
</tr>
<tr>
<td>Interesting</td>
<td>180</td>
<td>59,2</td>
</tr>
</tbody>
</table>

Table 2 Comments on Display

The table above can be seen clearly that the display of multimedia uploaded attracted 57% students, who commented good and clear 43%. With the data the student is interested in the form of PowerPoint. Because it is very easy to understand and study the material.

4. Critics and suggestions, in addition to providing comments about the material, students also provide criticism and suggestions for the refinement of media-based enrichment materials as follows.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>With audio</td>
<td>100</td>
<td>32,9</td>
</tr>
<tr>
<td>Too fast</td>
<td>90</td>
<td>29,6</td>
</tr>
<tr>
<td>Clearer example</td>
<td>150</td>
<td>49,3</td>
</tr>
</tbody>
</table>

The table above is a criticism or input from students that the media needs to be equipped with audio so it will be more interesting and easy to understand as much as 32%. Also 41% of students stated need to be equipped with a tangible example especially on the heading entry. 27% of students stated the playback duration was too fast for the powerpoint video because they had not understood it had changed the topic.

The comments and criticisms described above can be analyzed that enrichment materials in the form of multimedia are more easily understood, very useful and helpful in facing exams and preparations for work. Criticisms that can be used to improve the shape and look like giving a more applicable or precise example. In addition, students expect other material that is also created in multimedia. So that students' comments are similar to expert statements, that Multimedia can facilitate as a medium of learning and make it easy to understand difficult material and need to be practiced

CONCLUSION
The conclusions of the above description are as follows:
1. multimedia is very helpful in understanding learning materials, especially materials that require practice. such as the practice of creating bibliographic descriptions, with the
material in the form of multimedia students feel the ease in understanding and applying to the world of work.

2. multimedia clarifies a process. this can be seen in cataloging even in English. by looking at the ways and examples of the students are helped in making a catalog on the unit work

3. multimedia as a model of a learning tool that can facilitate learning

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OPTIMIZING THE CURRICULUM SYSTEM OF OPEN EDUCATION TO MEET THE SOCIAL NEEDS OF INTERNET PLUS ERA

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Abstract

The core idea of the Open University is to construct a lifelong education system, “China Central Radio & TV University (CRTVU)’s Personnel Training Mode Reform & Open Educational Pilot Project” has been conducted for a decade years, and had formed a relatively fixed operation pattern. The curriculum system of open education is originated from traditional education in nature. In the era of Internet Plus, it is necessary to review and tease out current curriculum system of open education to adapt to the new social development needs to optimize the curriculum system and reflect the flexibility, inclusiveness and practicability of the open Universities, introduce credit certification management mechanism by analyzing and learning from the curriculum system of “ability first” of vocational education, and submit proposals suitable for the curriculum system construction of China’s open Universities.

Keywords: open education, curriculum system, requirements, optimization

Characteristics and status analysis of curriculum system of open education

Characteristics of curriculum system of open education

Distance open education has originated from traditional education, and its training objectives and curriculum development models are not particularly independent of traditional education. Therefore, distance open education has been greatly influenced by traditional education, and its curriculum system and curriculum structure are usually based on curriculum system and curriculum structure of traditional education, while appropriate adjustments are made to meet the needs of students’ self-learning combined with the environment of distance open education.

Therefore, the outstanding features of the curriculum system are that the academic characteristics are evident and occupational orientation is not clear. From the system point of view, the curriculum system is complete, focusing on the theory; from the effect, the emphasis on the ability curriculum is relatively weak.

With the introduction of vocational education into curriculum development model of traditional education in recent years, the curriculum development model of corresponding distance open education also tends to pay attention to vocational education. From the autumn of 2009, CRTVU carried out “transformation plan for double certificates of higher vocational education”, introduced dual-certificate curriculum closely related to professional certificate, combining the students’ ability training with career planning, which was welcomed by students, and strengthened the vocational ability development of students. Some courses related to vocational certificate were opened, but vocational certificates were not issued, thus the plan was cancelled in spring of 2017.

Status analysis of curriculum system of open education

Analysis of composition of curriculum system

The curriculum system of open education implements modularity management including general elementary courses, professional basic courses, specialized courses, general education courses, professional development courses and comprehensive practice courses. The credit system management is implemented. Each module has the required credits, for example, the graduation credit of undergraduate program is 71. The credits required for compulsory courses of different majors of the Open University of China range from 45 to 50 credits, about 63%-70% or so. Removing 8 credits required by the
comprehensive practice, the rest of the courses are elective, students may apply for graduation when credit requirements for major courses.

Elective courses are divided into unified and non-unified courses. The unified courses are offered by the Open University of China, and non-unified courses are offered by open universities of all provinces. General elementary courses, professional basic courses, specialized courses are basically compulsory courses, and general education courses and professional development courses are elective for schools and students. It seems that a lot of courses are available for students to select, but according to graduation requirement, only a few options for schools and students, accounting for less than 20%.

Analysis of curriculum management model

“Five unifies” are implemented by national open universities for unified compulsory courses, namely, unified course name, unified teaching syllabus, unified teaching materials, national unified examination and unified scoring standards. The five unifies play a vital role in implementing uniform teaching standards throughout the country and ensuring the quality of teaching. However, with the diversity of student needs, this approach is facing great challenges.

Taking teaching materials as an example, as teaching materials are mostly compiled by teachers of regular institutions of higher learning, which are academic and systematic. But the basic quality and learning requirements for students across the country are not the same, the teaching must be “extensive and comprehensive” if based on teaching materials and syllabus. Teachers focus on the examination content in the face-to-face teaching in order to improve the pass rate due to unified content of the examination and method, therefore, there are limitations of classroom teaching and basically no knowledge extension. If things go on like this, the classroom teaching effect is affected. On the one hand, students are less interested in face-to-face teaching, on the other hand, teachers feel unmotivated to improve professional knowledge and capacity. It is not very difficult to achieve the purpose of teaching benefits teachers as well as students. Besides, the unification of the examination time has brought a lot of pressure to the examination management of national RTVU system, as long as a test center goes wrong, all centers throughout the country are affected, resulting in high management costs and great work pressure.

Analysis of strengths and weakness of open education curriculum system from social needs

Analysis of major selection and social needs from admission conditions

A research group carried out a survey of major enrollment of Inner Mongolia Radio and TV University. The undergraduate majors with great number of enroll students in 2015 and 2016 spring and fall semesters were: administrative management, law, accounting, civil engineering, nursing, and finance; junior college majors with great number of enroll students were: administrative management, law, accounting, business management, and architectural construction and management. In 2015, the number of undergraduate admissions was 12,498, the number of undergraduates majoring in administrative management was 2,957, accounting for 23.7% of the total number. The number of undergraduates in law was 2,714, accounting for 21.7% of the total number. In 2016, the enrollment of undergraduates of RTV universities in the whole region was 10,999, the number of undergraduates majoring in administrative management was 2,957, accounting for 25.9%, and the number of law students was 2,714, accounting for 24% of the total number; in 2015, the enrollment of junior college students of RTV universities in the whole region was 15,725, the number of students majoring in administrative management was 4,611, accounting for 29.3%, and the number of law students was 3,629, accounting for 23.1%; in 2016, the total enrollment of students in the whole region was 14,327, the number of students majoring in administrative management was 4,664, accounting for 32.6%, and the number of law students was 3,705, accounting for 23.6%. The top five majors of enrollment accounted for 60% of total enrollment of colleges and universities the same year respectively.
The research group interviewed with principals and teachers of these majors. The teachers believe that the current curriculum is basically reasonable, but there are some problems, and they give advice and suggestions for the current curriculum system:

**Administrative management.** The title of the major does not match with the content listed. A large part of the administrative management is about military administration. These courses are of no relevance to the general administrative management major. It is recommended to separately classify these courses as administrative management (or military administration). In addition, there are not many courses on personnel management in the “Administrative Management (Personnel Affairs System)”, and it is not very targeted.

**Law.** The curriculum of law undergraduate courses puts too much emphasis on civil and commercial law, and less on criminal law and administrative law. The practicality of the content should be further strengthened. There is no complete instruction on the practical teaching of the courses, and students are lack of practical teaching ability. Degree education and non-degree education are not connected currently. Considerations should be taken into account from following aspects: 1, national unified judicial examination; 2, qualification examination for legal workers; 3, civil service examination (basic legal knowledge) training. The curriculum system should be reformed to increase the content of practical teaching courses, integrate related courses to avoid content repetition, focus on knowledge development, and offer courses such as “Legal Language”.

**Accounting.** should appropriately increase the courses associated with vocational certificate to improve the practicality. “Vocational Skills Training” was offered before 2017, the course does not reflect the characteristics of accounting major. Courses should be offered in accordance with the requirements of accounting certificate, assistant accountant and intermediate accountant certificates. “Intermediate Financial Accounting (I) and (II)” are compulsory courses, which are not entirely suitable for RTVU students. “Junior Accounting Practices”, “Intermediate Accounting Practices” and other accounting qualification courses can be added into elective courses. The undergraduate curriculum and junior college curriculum are not reasonable offered with repeatable courses, for example, “Human Resources Management” and “Marketing” course are offered both for undergraduate and junior college students, which should be offered just for junior college students.

**Research and analysis of current learning needs**

The research group conducted a questionnaire survey in Inner Mongolia Radio and TV University. Students and teachers from RTVUs were randomly selected as samples. A total of 300 student questionnaires were issued and 288 questionnaires were collected. 90 teacher questionnaires were issued and 86 valid questionnaires were collected.

**Analysis of learning needs**

102 students are from junior colleges and 186 students are undergraduates. Most of junior college students and a small part of undergraduates intend to pursue further study, and 34% of students are uncertain. Majors with great number of students in the research are administrative management, law, accounting, finance, computer and nursing, which are basically the same with the proportion of enrollment.
In the survey of major courses, students are affirmative to the courses currently offered, but a majority of students think that it is necessary to further reform and adjust courses. The main purpose of the adjustment is to reduce the theoretical courses and increase the practical courses.

Analysis of major courses design of teaches

At present, there are two main learning ways for open education students: face-to-face teaching and online teaching. Based on survey of teachers, the class attendance of face-to-face teaching is not ideal. 61.6% teachers think that class attendance is at average, 27.9% teachers think that class attendance is not high or very low. The online teaching survey also shows that the degree of participation in online teaching
is also very low, 46% teachers believe that students’ participation in online teaching is at average, 35% teachers believe that the degree of participation is not high or even low.

In the survey of whether number of courses needed to be adjusted, most teachers consider it is necessary, and the direction of adjustment is to reduce theoretical courses and increase practical class courses. Teachers make some comments or suggestions for major system construction, which are summarized as reform of comprehensive practice links, reform of assessment methods and adding humanity courses.

Supply-side reform of curriculum system of open universities to meet the social needs of “Internet + education” era

The Ministry of Education issued the Suggestions on Running Open Universities in January 2016, put forward the main goals of open university construction: the open university system should be initially completed with Chinese characteristics by 2020, modern information technology applications become more mature, quality education resources are more abundant, learning conditions are more advanced, the learning system is more flexible, and the school-running system is constantly improving to meet the needs
of diversified learning, to provide important support for learning society and human resources development. In the Internet Plus era, the goal of open university construction conforms to the trend of times, and the optimization and reform of curriculum system should be oriented to these goals and social demand to carry out supply-side reform.

**Optimizing curriculum system of distance open universities by drawing on the experience of vocational universities**

At present, China’s higher vocational education is also constantly reforming, and the basic characteristic of curriculum system focuses on ability and training and employment. The higher vocational education implemented principles of "employment-oriented", "vocational ability first" and "combination of working with learning" in the development and construction of curriculum system, and work closely with industry enterprises in running schools. Personnel training model reform is focused on the practicality, openness and professionalism of teaching process, and experiment, practical training and internship are the three key links. Curriculum provision is more linked related with production. [6] Vocational education is clearly positioned, focusing on practice and tracking closely with labor market demand.

Distance open education emphasizes the differences from traditional face-to-face education in separation of time as well as educational environment and teaching methods, but in terms of educational objectives and curriculum provision, it has no essential differences with traditional face-to-face education, but only appropriate adjustment of the context of distance education. Therefore, the curriculum of distance open education is characterized by strong academic characteristics, and not career-oriented. Curriculum development basically follows the curriculum development model of traditional education, which put less emphasis on the ability curriculum. Although the curriculum system in recent years has introduced vocational elements, the results are not satisfactory.

Learning from curriculum system of higher vocational education, as a part of students are on-the-job adults, and a part of students are senior high school graduates, different student groups have different demands, so the curriculum system development implements classified and hierarchical management, providing students with multiple choices. It combine quality promotion, competency goals with career training, determines different training objectives according to different majors, gives considerations to employment needs and professional quality, determines the goal for major training, and clarifies the objectives of each hierarchy and each course to increase the school hours and innovate the methods of practice curriculum. In the Internet + education era, the practice courses of open education should highlight their own characteristics centering on simulated tests and practical training, which is cost saving and easy to self-study.

**Credit certification management mechanism is introduced to connect degree and non-degree education.**

*Suggestions of the Ministry of Education on Running Open Universities* provide that “school credit bank” should be established to transfer various results of learners into credits for storage and provide the basis for learners to apply for relevant academic certificates, degree certificates, diplomas, and qualification certificates, etc. The reform orientation of the curriculum system of open universities should reflect the characteristics of openness, inclusion and flexibility. Vocational certificate or career-oriented courses may be added into the curriculum system as elective courses. For example, civil service examination courses can be offered for administrative management major, the judicial examination related courses can be offered for law major, and accountant examination related courses for accounting major. With the course as a unit, combined with non-degree education course training, students may obtain credits after passing examination, which can be stored into the credit bank and authenticated when required.
Enlarging provincial schools’ right of self-management of partial course arrangement to meet local needs

At present, the major rules of national open universities are provided by the Open University of China. The provincial schools have the right to choose part of the elective courses based on the established rules. However, there is a few of options. Due to the different degree of economic development across the country, the social needs are different, and uniform approach is not good for the cultivation of application-oriented talents who can serve for local economic and social development. It is recommended that the Open University of China should make 20-30% space for course selections for each major to the provincial schools, and the provincial schools may determine the relevant course selection according to local actual situation.

Speeding up web-based course assessment reform

National unified paper-and pencil-based exams have played an important role in the national RTVU system, with the arrival of the Internet + education era, the traditional assessment methods are increasingly lagging behind and maladaptive, resulting in bigger security risks and higher management costs. Suggestions of the Ministry of Education on Running Open Universities said, “Completion of actual projects and solving practical problems should be explored as an evaluation mode and online and pre-registered examinations should be popularized.” Web-based follow-up examination is an inevitable requirement of open universities, which reduces the risk of examination, and also save the cost of the examination, more importantly, it meets the diverse needs of students, and is a win-win strategy in line with the philosophy of schooling of open universities.

In summary, the construction of open universities emphasizes to adapt to the new needs of economic and social development, to utilize modern information technology to develop new results, and to explore school-running patterns with Chinese characteristics and reflecting the characteristics of the times. Curriculum system construction is a basic project to cultivate reliable and valuable talents contributing to local economic and social development, only with solid foundation and clear objectives.

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MODEL DEVELOPMENT OF INDEPENDENT EXERCISES FOR DISTANCE LEARNING IN MOBILE PLATFORM USING ANDROID OPERATING SYSTEM

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Abstract
Independent Exercise is one of the Support Services for distance education students in Universitas Terbuka (UT). The students can download this learning application from the UT’s website. It is a mean for students to learn independently offline. Nevertheless, some students cannot reach it because of the limitations of computer devices and internet access. In fact, they have already equipped by themselves with the sophisticated mobile phone technology. This research was trying to develop an independent exercise model in mobile platform using Android operating system. The result was an Android application which then tested to the students. The test showed that students feel of the ease and benefits of using this application.

Keywords: independent exercise, android, model development

INTRODUCTION

Background
Higher distance education (HDE) requires students to study independently. Universitas Terbuka (UT) as an educational institution using HDE system provides various Learning Support Services for student learning process. According to Zuhairi et al. (2007) the provision of learning support systems is crucial in making students successful in distance learning. One of the student learning support services is Independence Exercises (IE). IE provided at the UT Website (http://www.elearning.ut.ac.id/lm) using the SCORM program (Sharable Content Object Reference Model). To access the IE, students can download the courses as required. Students can use self-directed exercises that have been downloaded on their personal computers (PCs) offline. IE is generally a matter of multiple choice form of the course. This program can provide simple interaction automatically when students answer the questions given. Rahardjo et.al (2016) found that low level of access to computers was the major factor for the lack of internet usage. While the weakness of the web-based IE is that the student must be in front of the PC, download it in the required course, then use it to practice answering questions in front of the PC. With this condition only 15% of students can access and work on IE.

The Indonesia Internet Service Provider Association (APJII) has report that there are 71.19 million internet users in Indonesia by the end of 2013. Based on survey result, APJII estimates that it is hard for Indonesia to achieve an alignment with the target of Millennium Development Growth (MDGs) which has also been agreed by the International Telecom Union (ITU), that in 2015 half population on earth must connected to the internet (Marius P & Pinontoan F, 2013).

Research conducted by Sigit et al. (2013) which uses short message system (SMS) in cellular phone as an independent learning tool which one of them is IE. The results showed that students who are in big cities and have literate internet media refuse the use of SMS, while students who live far from urban limited internet computer facilities feel helped by learning through this SMS. Empowering students is a must for educational institutions, therefore researchers are motivated to develop a self-learning model based on mobile learning. By learning through Mobile Learning
students are expected to learn anytime and wherever students have the opportunity to learn because the material to practice almost every time with him.

LITERATURE REVIEW
Higher Distance Education
Distance learning system has the characteristic of the absence of a face-to-face lecture system between faculty and students. Due to the absence of face-to-face meetings between the students and their teachers, one of the means to bridge the distance between them is the use of various media in the learning process. There are six characteristics in the distance learning system (Keegan, 1986), namely: (1) Separation of teachers and students; (2) The influence of an educational organization that distinguishes it from personal study; (3) The use of technical media; (4) Provision of two-way communication; (5) Possible meetings once in a while and (6) Participation in the form of educational industrialization.
The use of media in distance education is a pillar for the establishment of this type of education process. Media in distance education can serve as a means of communication between students and teachers, as a means of student learning media is the most powerful support to meet the needs of student learning process, and as a means for students to obtain basic information that is very important for students. Therefore, the use of Android-based equipment is one of the important alternatives of the media that exist among the students because the coverage of equipment is quite good.
IE is one of the learning support services in the form of questions along with feedback as a means of student practice doing semester exam. IE does not contribute to the final grade of the course. IE is only available online which is accessible to students on http://elearning.ut.ac.id/Im (Catalog UT, 2016).

Implementation of Mobile Learning
Mobile Learning is a new way of learning that uses mobile devices including handheld computers, mobile phones and smartphones that make learning all work (portable), spontaneous, personal and interesting. Mobile Learning relates to the mobility of learners, in the sense that learners should be able to engage in educational activities without the constraint of having to do so in strictly constrained physical locations (Kukulska-Hulme and Traxler, 2005). To some extent, learning outside the classroom or in the most necessary locations is the motivation to perform at every opportunity.
Woodil, G (2011) found that learners and tutors using mobile technology in their learning process include the following activities:

• Learners communicate with peers, tutors, and assessors.
• Learners who collect tasks in the form of video recordings, audio, and photo evidence for their portfolio.
• Tutors and assessors assess portfolio evidence and provide feedback.
• Learners gain access to learning content through a virtual learning environment or the internet.
• Additional resources and teaching materials provided via video.
Prototype of Independence Exercises Mobile Based Learning

The Android mobile operating system is an open source mobile platform Running on the Linux kernel Knapp, MM. And Lloyd, JK. (2010). Android applications in this study using online applications provided by MIT Android App Inventor 2, which is supported by Notepad text processing and image processing Inkscape 0.91. The use of the Android App Inventor 2 app makes it easy for programmers to code the program and not even an advanced programmer. This LM SKOM4316 Android app generally consists of Android app and Text file that contains the problem of SKOM4316 and its key. The strutur textfile consists of: row1 stem no1, option a, option b, option, c option d, kunic no1 followed by the second row which is about no 2 with no such as problem no 1, and so on until the last number of LM.

The LM Android SKOM4321 application consists of 3 screens: Screen1 is a brief explanation of LM and its course, Screen2 contains LM issues randomly displayed so that students do not memorize LM numbers but rather memorize topics, in each student answer gets responses from apps, and Screen 3 Is a general report form of competence achieved by students and predictions raw score obtained.

METHODOLOGY
Type of Research

This study is a research and development that produce a model. The acceptance rate of the model were measured by using the online survey method to see the trend of student acceptance of Independence Exercise Applications based on Mobile Learning.

Research Instrument and Testing

The instrument of this research is Independence Exercises Android application consisting of two courses namely Communication Innovation SKOM4316 and Public Opinion SKOM4321, and questionnaire of opinion about user acceptance of the application. The poll instrument uses a list of questions that adapt from a question on the Technology Acceptance Model (TAM) from David (1989). Questionnaires include questions on: (1) Student assessment of ease of use in activities using Android-based LM. (2) Students’ assessment of the benefits in activities using Android-based LM. The experiment of this research is applied to the students of Communication Studies Program from three UPBJJ areas namely UPBJJ-UT Malang, Surakarta and Bogor.

Research Procedures

This research generally consists of 6 main stages: (1) Application design, (2) Application creation, (3) Application extraction, (4) Application revision, (5) Distribution process, and (6) Polls of potential application users.

RESULTS

Results of Developing Model

General Model Designing

This Android IE app model refers to a mix of IE designs currently used by UT and some additional designs to enrich the app features. Its design consists of the following features:
• The number of questions is 45 questions in accordance with UT standard and the distribution of modular questions in UT’s textbooks.
• The Model provides instructions for use on the opening screen. The adequate instructions will facilitate the users in doing this IE.
• The model has a choice of time to work 5 minutes, 20 minutes and 60 minutes. The working time selection in a session of exercise can be adjusted to the needs and time they have.
• Problems are randomly displayed on screen 2. With this randomization, the users will get different questions every exercise session. Thereby reducing the chance of user to memorize answer but more to understand the problem itself.
• The model provides feedbacks to strengthen student learning process. The feedback view is presented under questions and answers. Thus the user will be able to observe the questions, answers, and feedback at once in one screen.
• On screen 3, the Exercise Result Report appears and the conversion of the value obtained. Users will be given comments on the competencies achieved in one exercise session that students have been working on.

**App Inventor Model Designing**

Android applications in this study uses online Android applications provided by the Massachusetts Institute of Technology (MIT) App Inventor 2. This online software is the second generation that implements free or unpaid software. It does not look like the previous Android developer software program that’s complicated and requires a lot of memory space and needs to learn for quite a while as a budding programmer. With App Inventor 2 software, a beginner can easily understand the structure and writing of programs in the development of an Android app. The use of the Android App Inventor 2 app makes it easy for programmers to code the program and not even an advanced programmer.

In the application development in this research, researchers use the supporting files to facilitate the use of this android application in the future, as well as facilitate the review of its IE materials. Support files in this application include text files that utilize Notepad or Microsoft Excel text processing. The researchers’ graphic files utilize opensource image processing software Inkscape 0.91.

This LM SKOM4316 (Communication Innovation Courses) Android app generally consists of Android app and text file that contains the problem of SKOM4316 and its key. The text structure consists of: row1 stem no.1, option a, option b, option, c option d, key no.1 followed by the second row containing problem 2 with arrangement like problem no 1, and so on until the last number of exercises.

The LM SKOM4316 application consists of 3 screens: Screen1 is a brief explanation of LM and its course, Screen2 contains LM issues randomly displayed so that students do not memorize IE numbers but rather memorize topics. In each answer students will get response from application, and Screen 3 is a general report form of competence achieved by students and predictions scores obtained.

**Structure Design of Application**

Design structure of the application consist of three screens, Opening Screen, problem or exercises Screen, and Evaluation. The opening screen consists of a preliminary explanation of
the application and the courses presented. Views include explanations, Course overviews, and instructions on using the app. In this display provided a choice of practice time i.e. 5 minutes, 20 minutes and 60 minutes. In the application done a randomization of 45 questions to be displayed in the next screen. The Problem or Exercise Screen consists of the Course Title, the exercise question and the four answer questions. After answering the question by clicking one of the buttons A, B, C, or D, it will be shown feedback about the answer questions that have been selected. Also displayed is also a timer that runs so that users can adjust the speed of answering the given problem. Every time a student answers questions will be given feedback. The third screen is evaluation or report screen. The evaluation screen consists of the value obtained by users and comments about the application of user mastery or competence to the problem being done (See Figure 1).

![Figure 1. Structure of Application](image)

**Developing the Model**

Application development is done online with the website address http://ai2.appinventor.mit.edu/. Android app developers must register and use a gmail account. Although done through online, nevertheless the results of the application output is stored on the local computer. Display website Android Application Development with APP Inventor 2 can be seen in Figure 2. Android Application Developer MIT App Inventor 2 features consist of four main features: Pallete, Viewer, Components, and Properties. Pallete is located on the left side of the user, while Viewer
is in the center of the computer screen, and the last two features are displayed on the right side of the screen.

In the Viewer section can display two designs, graphic layout and text from the tablet screen or Android mobile phone designed, as well as program design written by the application developer. The design of this program is in the form of functional blocks, where each action performed by the user of the tablet is written. For example, the user presses or touches the button then the buttons of the program buttons act on certain commands in accordance with what is desired by the application developer.

![Figure 2. Students Distribution According to Their Regional Center](image)

**Opening Screen Design**

Figure 3 shows an example of the Opening Screen display design and its block design view. In Designer Display consists of Title Text, general information about IE on SKOM4316 subjects, Destination Keys, Buttons, Course Summary Buttons. In addition, the option button time to do the exercises are 5 minutes, 20 minutes and 60 minutes Button. After the time selection button is pressed will be followed by the emergence of the Start Button. This means the user is ready to work on the exercises with the time limit they choose.

**Support Screen Design**

Support screen functions as additional information for users of this application. This support screen contains Application Instructions, Goals from app, and Course summary. All three features are controlled by the buttons on the Welcome screen. For example, if the Learning Objectives, or the Instruction or Summary Buttons are touched, it will display the appearance as desired by the user. On each display is provided Back Button that guides the users to return to the previous
screen, the opening screen. In Appendix it can be seen the Designer Display and Block from the display screen of this IE.

**Problem and Answer Screen Design**

Once the user feels ready to practice by determining the time option, then the user can touch the Start Button. By pressing the Start Button, the user will be presented with the next screen which is the Problem Display Screen.

The next display is a screen design that displays the questions and four answer choices. This display design comes with instructions on working on questions and timers. After the user selects the answer by touching the A, B, C, or D keys, the user can touch the Check button on the bottom screen to lock the answer and to get feedback from the application. In addition to knowing the correct answer the user will also get feedback in the form of how many modules and learning activities where the problem is in the subject matter course on this IE.

The programming block does a randomization of the IE taken from the attached text file. This block also retains the answer key along with the feedback, so that the user's reply will be stored and matched with the recorded and calculated key which is then displayed in the next process.

![Figure 3. Left: Designer Screen, Right: Block Screen both in APP INVENTOR2](image)

**Evaluation Screen Design**

The design on the Evaluation Screen section focuses on the user's answer and score 1 each time the user answers correctly. Problem will be recorded module number and number of learning activities. All module numbers and learning activities and conditions of true or incorrect user responses are displayed so that the user will obtain a thorough overview or map of the module's material satisfaction. By knowing this map, users can determine the next step in their learning process. Evaluation Screen Design on the Android-based application can be seen in Appendix.
The Evaluation screen comes with comments that contain general feedback on the achievements of the competence of users of the course. In addition, it also delivered a sentence that motivates users who encourage the next learning process.

**Model Review**
In order for the Independence Exercise application to be used as Independence Exercise in accordance with the planned course, reviews were conducted which include: (1) Independence exercises material, (2) screen display, and (3) application smoothness.

In this trial model of the Android-based Independence Exercise Application, the research uses two courses namely the Communication Program Innovation SKOM4316 and the Public Opinion SKOM4321 course. Both of the training materials and their feedback have been stated well by the material experts. The app screen view also gets expert reviews and expert advice has been accommodated by changing the view of it. The apps on Google Play are already on a revised version. Prior to launch to users this application was tested on several colleagues on the feasibility of this app for use by prospective users of UT students in particular.

**Model Distribution**
In order for this Independence Exercise application can be utilized by the user, the design result was changed into a package that can be operated on a Tablet or Smartphone. Designed application packages can be uploaded on the website, or installed on Google Play. In this research to distribute the application package to the respondent is done through Google Play and via Bluetooth available Mobile Phone.

Installation of the application package on Google Play requires certain requirements such as registration fee, free of advertising, free from activities the case of differences in ethnicity, religious, beliefs, race and culture and free from third party demands. Another requirement for the developer is the graphical display and information that the developer should provide. This graphical display and information can be seen by potential users of the application at the beginning before the application is downloaded by potential users. In addition, application developers must prepare a screen image at various screen positions at least three photographs. In this research, there are six photo screen which consist of screen icon, opening screen, supporting information screen, time selection screen, display of questions and answers, and evaluation screen. Figure 7 is an app view already installed on Google Play. The leftmost image is the preview before the app is downloaded and installed by a potential user. The middle image is an example of a screen photo required by Google Play and the rightmost screen is general information about this app. The examples of photos that come from OPPO smartphone type A37f with 4 inch screen size.

**User Poll Results**
Polls on prospective applicants of Android-based IE applications are conducted in three UT Regional Center, namely Bogor, Surakarta and Malang. The distribution of students can be seen in Figure 4.
The observation indicates that students who are generally students of this early semester seem interested in this Android-based independent exercise application. In general, students have mobile phone equipment using the Android operating system. On the test site in three areas Regional center, students enthusiastic to immediately try this application despite the limitations of internet access fees.

**Perceived Ease of Using Applications**
According to the students, this Android-based independent exercises app has features with interesting interaction characteristics, easy-to-understand instructions and easy-to-use applications where students’ opinions are easily understood to be the lowest scores among the four questions raised in this poll. Ease of use is the most important requirement in an application and the students agree that this application is quite easy to use. Figure 5 shows the average percentage of respondents’ opinions about the aspect of ease of use of the application.

**Perceived Usefulness of the Application**
In this poll student respondents were asked his opinion about the benefits of this application. The most prominent respondent opinion on the aspect of application usefulness is the application can be used in various places, then followed by the opinion that the application can improve the effectiveness of learning. The next five opinions of, respondents generally agree that the
application can measure the development of learning, respondents can use feedback, respondents can increase motivation, respondents can improve understanding of subject matter, and the last respondents can adjust to the time. Figure 6 shows the average percentage of respondents’ opinions on the benefits aspect using an android independence exercise.

Figure 6. Preceived of Usefulness the Application

1.1.6  Intent to Use the Application
Figure 7 shows the average percentage of respondents’ opinions about the aspect of desire to use this android-based independence exercises application. The respondent's most prominent opinion is that respondents wish to use the application with the aim of improving grade of the course. Student respondents strongly agree with this application so they plan to tell their colleagues. They also argue that will measure their competence by using this application.

Figure 7. Intent to Use of the Application
CONCLUSIONS AND RECOMMENDATIONS

Conclusions
The results of application development models and polls on the student can be concluded that the development of Independence Exercises model based on mobile learning using the Android application facilitated by App Inventor 2 in the course of Communication Studies Program Faculty of Social and Political Sciences of UT succeeded with marked by the acceptance of the app in Google Play and accepted by the student. Students' opinions generally accept this Android-based app as an easy-to-use application, containing good benefits for students and students wishing to use the app as part of their learning process.

Recomendations
Utilization of Android-based mobile phone that is quite evenly among UT students is sufficient capital for the development of learning support services. Therefore, the development of the Independence Exercises (IE) model on this basis becomes easy to deliver. With the use of Android-based applications, the institution also supports inclusive education more widely and easily accessible.

With the launch of MIT open source software such as APP INVENTOR2 this makes the Android application developers more facilitated in developing various types of applications, especially applications for education. Difficulties that have been generally complained by the Android application developers to be reduced. With the utilization of APP INVENTOR2. Engineering becomes much simpler.

REFERENCES
Appendix

Program Studi Ilmu Komunikasi

SKOM4321 Opini Publik

Latihan Mandiri menggunakan sarana bagi mahasiswa untuk belajar mengenai materi komunikasi. SKOM4321/LM merupakan aplikasi untuk latihan mandiri yang memfasilitasi materi komunikasi dengan metode yang efektif.

Anda punya waktu 5 menit

Tanggal

04:50

Sisa Waktu

1. Tentukan sosiologi akan terkait pada penelitian mengenai hal berikut:

Pilihan Jawaban:
- a. Bereaksi pada perubahan dalam pendidikan
- b. Perubahan yang terjadi dalam kehidupan
- c. Perubahan yang terjadi dalam perilaku
- d. Perubahan yang terjadi dalam pola

Pilih jawaban yang benar yang berhubungan antara penduduk dan penduduk setempat.

- a. Benar
- b. Salah

Perubahan persepsi tentang suatu berita

- a. Perubahan persepsi tentang kebijakan
- b. Perubahan persepsi tentang kebijakan yang terkait
- c. Perubahan persepsi tentang kebijakan yang tidak terkait

Perubahan opini tentang berita yang kelompok

- a. Perubahan opini tentang berita yang kelompok
- b. Perubahan opini tentang berita yang kelompok yang lain
- c. Perubahan opini tentang berita yang kelompok yang sama

Perubahan opini di antara partai politik

- a. Perubahan opini di antara partai politik

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Nilai = -
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Anda belum selesai untuk praktek. Anda baru menyelesaikan + 12 soal.
THE CONSTRUCTIVISM APPROACH: ITS APPLICATION ON THE DEVELOPMENT OF WRITING SKILLS THROUGH ONLINE INSTRUCTION

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¹Universitas Terbuka (INDONESIA)
²Universitas Terbuka (INDONESIA)

Abstract
The English Program of the Faculty of Teacher Education, Universitas Terbuka (UT) offers courses to be instructed through online, one of which is the Writing III course. Writing is one of the language skills that students have to acquire in learning a language. It is a productive skill, and the students have to follow certain steps to produce a bit of good quality of writing. It is the teacher who is accountable to guide the students to generate an excellent sort of writing. This study aims at obtaining information on how the constructivism approach was implemented by the tutor to develop the writing skills of the Writing III course through online tutorial. The research method used was the descriptive qualitative. To describe the process of the online tutorial, an observation was conducted. Moreover, an online survey was carried out to gain some information on the perceptions of the participants or students towards the learning materials in addition to the online tutorial of this course. The results of the study show that the tutor has applied the constructivism approach. Nevertheless, the tutor needs to prepare the learning materials better in order to meet the students’ needs. From the online survey, it shows that more than 50% students find difficulties in writing. However, they claimed that they were satisfied with the online tutorial services offered by UT and they admitted that the online tutorial helps them develop their writing in English.

Keywords: constructivism approach, productive skill, online tutorial, quality of writing

INTRODUCTION
Communication engages the four language skills namely listening, speaking, reading, and writing. While listening and reading are receptive skills, speaking and writing are productive ones. When a student listens to a song, a TV news program, or reads a newspaper or a novel, he or she does not have to worry about producing expressions in English. However, when he/she communicates face to face to other people, he/she has to utter words, phrases, or sentences in response to the interlocutors. When a student speaks, he/she sometimes use his hands, facial expressions, or any body language to facilitate the interlocutors to understand what he/she is trying to convey. Although writing is a productive skill, it is different from that of speaking skill. In writing, a student has to communicate with only words and punctuations. Furthermore, writing is a sole performance. The student speaks alone because he/she does not receive spontaneous responds. Nevertheless, it gives the student the chance to think, to try out his/her ideas on paper, to choose suitable words, to read what he/she has written, to revise, and rearrange it. Writing also gives time to the student to find the best possible way of stating what he/she means.

Writing is a process. The student has to go through several stages to publish a complete piece of writing such as planning what are to be written, generating ideas, drafting, revising, editing, and finally producing an inclusive text. In short, to be able to write well in English, the student must deliberately learn how to write because this skill cannot be acquired unconsciously.
is not easy to learn to write well because the student has to express meanings in appropriate
expressions in English.
The English Program of the Faculty of Teacher Education of Universitas Terbuka (PBIS-UT) offers
writing courses, one of which is a Writing III course. This course is considered to be an advanced
writing course which prepares the students to be able to write in English in various forms of essay
in an advanced level. UT is Open Higher Education operating a distance learning system. The
students of UT learn independently without the presence of the lecturers. In reference to this, UT
provides printed and nonprinted learning materials to support the students in gaining the
knowledge and experiences. The main printed materials are the modules while the nonprinted
are materials delivered in the forms of web supplements, Computer Assisted instruction (CAI),
videos, and audios. Moreover, UT provides learning support services in the form of online
instruction or it is called online tutorial as an intermediary for communication and interaction
between students and the lecturers or tutors, and among students.
Tutors play an enormously influential role in the process of online tutorial. They participate as
facilitators who are responsible for organizing the online tutorials to help students to be
independent learners. The tutors are required to present learning materials that facilitate the
students to comprehend the content of the modules of related courses. Consequently, it is a must
for every tutor to be creative and to be able to create a interesting online learning environment
through the appropriate approaches that are transformed into methods that yield meaningful
learning for students.
One of the approaches appropriate to be employed to develop the writing skills is constructivism
approach. The principles of this approach, as maintained by Geeland, are enable the students to
build the knowledge with their own rather than transmitted by the teacher. Geeland explains
further that students will construct new knowledge based on the prior knowledge they possess.¹
With the use of this approach, it is assumed that the students will obtain better understanding of
the techniques of writing.

WRITING SKILL
It has been stated previously that writing is a productive skill. Students need to follow some
phases to produce a clear and comprehensive text. Writing skill is one of the language skills that
demand the product in written form that must be mastered by the students, especially when
learning a second or a foreign language. Writing skills are not limited to students’ ability to use
appropriate grammar; however, they also focus on how students’ ideas are thoroughly and
sustainably accepted by the reader.
Brown categorizes writing skills into two skills, namely macro and micro skills.² There are twelve
skills offered by Brown which are divided into seven macro skills and five micro skills. The seven
macro skills encompass: using cohesive tools on written discourse; using rhetorical forms and
conventions on written discourse; using the communicative functions in appropriate written
language that accords to the forms and the aims; conveying the relationship between multiple

¹ David Geeland, “Undeath theories: constructivism, eclecticism and research in education”, “(Rotterdam:
Sense Publishers, 2006), p. 58
² H. Douglass Brown, “Teaching by Principles: An Interactive Approach to Language Pedagogy”, (New
York: Pearson Education, Inc., 2001), h. 399
events, and communicating the interrelationship among the main ideas, the supporting ideas, the new information, the available information, the generalizations and the examples; distinguishing the literal meanings from that of the implied meanings at the time of writing; expressing specific cultural references appropriately within the context of written discourse; and developing and using strategies such as accurately reading the reader’s interpretation, using pre-writing tools, writing fluently on initial concepts, using paraphrases and synonyms, involving feedback from peers and instructors, and using feedback for revisions and editing.

The five micro skills include: producing sentence patterns in English; producing a piece of writing at an efficient pace objectives; producing a piece of writing with the selected dictions appropriate and acceptable to the reader; using appropriate and applicable grammatical rules; and expressing a particular meaning through different grammatical forms or paraphrasing. The development of communication and information technology has an impact on the development of the world of education, specifically on the language teaching paradigm. The teaching of language has changed from teacher-centered teaching to learner-centered teaching. This has an influence on the alteration of teaching materials as well as the pedagogical approach used in the teaching of writing skills in order to assist the student’s learning process.

Raimes in Richards and Renandya explains that choosing teaching materials is important in teaching writing. The selection of instructional materials should be tailored to the students’ need and learning objectives. Moreover, Raimes explains some matters to be considered in the selection of teaching materials, among other things are: a) the topic should make the students interested, culturally acceptable, and in line with the learning objectives; b) the expected type of writing. This is whether the students write essays, letters or paragraphs and conformity with the needs of the students; c) methods used in getting ideas, whether brainstorming, free writing, list making, drafting or outlining, and these should be tailored to the students; d) instructions for writing. This is particularly to help students to write different types of writing such as letters, descriptions, narratives, expositions and arguments, and what students need; e) the opportunity to collaborate in writing, whether the students work collaboratively or not; f) the opportunity to revise. This is whether the students are empowered to make concepts, or whether they are informed the steps in writing; g) instructions for editing and correction. What students learn from the teaching materials about finding grammar errors and editing.

The work of writing is often the result of thinking, concept development, and revision. Writing is a set of procedures that require special skills from the writers. These are the steps that the students as writers usually follow. First, they might depict ideas from usual activities, experiences, or a sweet memory. The next step is drafting. In this step the students compose the text in a rough form. The students translate ideas into a written organization without being constrained by word choice, sentence structure, conventions, and presentation. The next step of the writing process is revision. The students as writers review their text for precision and consider changes that would improve the piece.

These are essential for effective revision of the content: ideas, organization, voice, word choice, and sentence fluency. Based on their own critical review and feedback, writers may keep elements of the writing as well as make revisions as they add, delete, move, or change elements. This forerunner will develop into a pedagogical production of writing by focusing on the students themselves how to generalize ideas, coherently compiling, revising to clarifying its meaning, using discourse signs and rhetorical conventions, editing discourse to perfect its grammar, and how to produce the final product. The result of thinking, concept development, and revision procedures require special skills from writers who are not naturally possessed by a speaker.

From the above explanation, it is very clear the concept of the difference between the process and the product of a piece of writing. The standard in teaching writing skills that previously focused on final products such as essays, reports, stories and others, has changed direction on the extent to which the final product of the students can be measured according to the criteria that include content, organization, the selection of vocabulary, and grammar, as well as consideration of mechanisms such as spelling and punctuation. 4 Shih in Brown explicates that this new paradigm came to be known as a process approach in teaching writing skills. He further enlightens the characteristics of the process approach in teaching writing skills as the following: a) focusing on the writing process resulting in final writing, b) assisting students in understanding their own writing process, c) helping students build pre-writing strategies, developing concepts, and revising, d) giving students time to write and rewrite, e) placing the revision process in the most important position, f) giving the students freedom to find out for themselves what they want to say, g) giving feedback on the writing process thoroughly, h) encouraging instructors and peers to provide feedback, and i) taking the time to meet students individually during the writing process.

ONLINE LEARNING ON WRITING SKILLS
The era of globalization has a lot to change the views of educators and education observers in Indonesia related to the process of preparing the nation’s children in improving their ability to compete with those from foreign countries who, of course, have been prepared to cope with global developments. This global development is inseparable from the development in the field of information and communication technology, which is more familiar with the term “Information and Communication Technology” or ICT. The development in this field is very influential on almost all aspects of life, including the aspects of education. The term e-learning or online learning began in a rapidly growing and very popular among educational institutions. Many schools or colleges are beginning to apply this e-learning either as an enrichment or web supplement in teaching and learning activities, as well as the main program of student learning. In addition, in terms of network availability, the utilization of internet network in Indonesia is currently growing very rapidly. As a country that has a population of about 260 million, the netter population of the country reaches 83.7 million people in 2014. 5 This places Indonesia in the sixth rank in the world in terms of the number of internet users. Furthermore, Yusuf quotes that e-marketer estimates, the number of

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4 Brown, op.cit. p. 390
internet users (netter) in Indonesia reached 112 million people. With these developments, many universities in Indonesia began to utilize the internet network for the learning process.

The Indonesia Open University (UT) is one of the state universities in Indonesia that applies the Open and Distance Higher Education system or it is often associated with Open and Distance Learning (ODL) terms. UNESCO defines ODL as a system that relates to forms of educational presentation in which teaching and learning activities are conducted "apart from time and place, and technology has a very important role in supporting the presentation." With the ODL system, UT students have different characteristics with students in face-to-face universities where students can meet face-to-face with lecturers. Therefore, one of the characteristics that UT students must have is to become an independent learner.

One of the challenges faced by UT in improving the academic quality offered to the students so that the students’ self-learning process goes well is the provision of varied teaching materials in the form of both printed and non-printed materials. Therefore, the design of teaching materials becomes important in meeting the needs of students. Mutiara, Zuhairi, and Kurniati emphasizes that the teaching materials are structured in such a way as to "stimulate students to engage in independent learning activities, to guide students to understand their content, and to direct them to the concepts learned through independent exercises as well as independent assessments." Based on these opinions, teachers or lecturers have a responsibility to provide meaningful and appropriate teaching materials for the students' self-learning process.

In addition to providing the right materials for online learning, tutoring assistance services are also offered to students as a means of communication and interaction between tutors and students, and among students. Online tutorial or it is so called tuton is a form of learning assistance services that has been provided by UT for all subjects. Tuton aims at providing learning assistance to UT students who are scattered throughout the country or abroad. The students obtain learning assistance services through the use of information technology that allows students to interact with tutors and other students. Tuton, as a form of learning assistance service, is reaffirmed by Zuhairi, Adnan, and Thaib in addition to providing written tutorials, radio, and television. Tuton becomes one of UT students’ learning alternatives. Until now, UT offers tuton for all courses to help students in self-study process.

To access the tuton, students and tutors visit the [www.elearning.ut.ac.id](http://www.elearning.ut.ac.id) page and use the username and password provided during the course registration. Here is how the page looks like.

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7 Dewi Mutiara, Aminudin Zuhairi, Sri Kurniati, Designing, developing, producing and assuring the quality of multi-media learning materials for distance learners: lessons learnt from Indonesia’s Universitas Terbuka. Turkish Online Journal of Distance Education-TOJDE, 2007, 8(8), p. 95
In accordance with the applicable provisions at UT, *tuton* is held simultaneously for all subjects for eight weeks of meetings. Tutors are required to provide weekly initiation materials with varying forms of Word, Powerpoint, or links to relevant online sources. There are three tutorial tasks that tutor has to present to the students that is on the third, the fifth, and the seventh (3rd, 5th, and 7th) week. From the results of the analysis, it is concluded that the use of links to other sources or open sources has been applied; however, it needs to be enriched.

English Language Education Program (PBIS) is one of the programs at the Faculty of Teacher Training and Education (FKIP) at UT in which the students are English teachers. They are in-service English teachers either in the formal educational institutions or informal institutions. In accordance with its characteristics as independent learners as well as teachers, UT students are expected to apply the knowledge gained during the study optimally in their work, including the four English language skills they must master.

The course of PBIS4313/ Writing III is one of the subjects that students of the English program should proceed. This course trains students the writing skills, especially advanced writing skills that discuss materials on various forms of essay. This course is set up with printed materials in the form of modules consisting of 12 (twelve) modules. The printed materials become the basis to prepare the *tuton* materials for tutors.

**THE CONCEPTS OF CONSTRUCTIVISM AS A PEDAGOGICAL APPROACH TO ONLINE LEARNING**

Learning from the constructivists who develop their ideas in learning, it is a challenge for educators to be more creative in presenting classroom activities. Using this constructivism approach, students are expected to gain a better understanding through their learning activities. Richardson explains the concept of constructivism as follows.
create their own new understandings, based upon the interaction of what they already know and believe, and the phenomena or ideas with which they come into contact. Constructivism is a descriptive theory of learning (this is the way people learn to develop); it is not prescriptive theory of learning (this is the way people should learn).  

Referring to this opinion, this constructivism approach allows learners to develop their own ideas based on the knowledge offered by the tutor as well as the interaction done on the learning process in addition to the initial knowledge they already have. This will help learners to better understand the learning materials being studied. Furthermore, Geeland discusses two principles related to constructivism views on teaching and learning activities. First, knowledge will be more easily constructed by the students themselves rather than simply transmitted by the teacher. Secondly, students will build new knowledge based on the knowledge they have had. Geeland presents in detail the following six forms of constructivism. These are: personal constructivism, radical constructivism, social constructivism, social constructionism, critical constructivism, and contextual constructivism.  

The following table delineates the differences among the forms of constructivism.

Table 1. Forms of Constructivism

<table>
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<th>Emphasis / Focus</th>
<th>Expert Name</th>
</tr>
</thead>
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<tr>
<td>1.</td>
<td>Personal Constructivism</td>
<td>Individuals build their own knowledge through the repetition of events</td>
<td>George A. Kelly</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>(constructing the repetition of events)</em></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Individuals build knowledge actively by knowing the subject</td>
<td>Jean Piaget</td>
</tr>
<tr>
<td>2.</td>
<td>Radical Constructivism</td>
<td>Knowledge is built through the experience</td>
<td>Ernst Von Glasersfeld</td>
</tr>
<tr>
<td>3.</td>
<td>Social Constructivism</td>
<td>Social influence is the most important factor in learning and attitude</td>
<td>Joan Solomon</td>
</tr>
<tr>
<td>4.</td>
<td>Social Constructionism</td>
<td>Knowledge is increasing and settling in the social interaction</td>
<td>Kenneth Gergen</td>
</tr>
<tr>
<td>5.</td>
<td>Critical Constructivism</td>
<td>The process of teaching and learning is built through the social interaction</td>
<td>Peter C. Taylor</td>
</tr>
<tr>
<td>6.</td>
<td>Contextual Constructivism</td>
<td>Culture is a tool for developing and organizing ideas.</td>
<td>William W. Cobern</td>
</tr>
</tbody>
</table>

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9 Geeland, *op.cit.*, pp.58-60
The constructivism concepts offered by Geeland suggest some constructivism ideas from different perspectives. Jamaris confirmed Geeland's exposure by discerning constructivist views according to Jean Piaget and Vygotsky. According to Jamaris, Piaget focused his interest on how knowledge is constructed by humans related to "cognitive processes in structuring knowledge" Vygotsky; however, focuses his ideas on "social interaction and social context," which has an important role for individuals to build their knowledge. \(^{10}\) Furthermore, the exposure to Geeland and the views of experts produce a conclusion that a constructivist approach can support the application of technology in education where technology has a very important role in transforming knowledge to learners. Mason and Rennie emphasize the constructivism as the right approach to e-learning. \(^{11}\) They provide an objective review of the constructivist principles associated with e-learning as follows. The purpose of the constructivist principles applied to e-learning is to bring up self-contained and self-confident learners who have the skills to use a set of strategies in building their own knowledge.

Nowadays, many tools or facilities can be utilized by teachers to offer interactive activities in online learning, including collaboration among learners. This activity is important because it allows learners to share experiences and information related to their teaching and learning process with other participants. Jonnasen emphasizes that "teachers should engage students to interact actively in online learning situations." \(^{12}\) In this case the role of the teacher changes as a facilitator.

*Tuton*, which is administered by UT, uses Moodle software, one of the Learning Management Systems (LMS) that can be used online to provide interactive and collaborative learning activities. Zuhairi, et al. explains that this constructivism approach can influence the UT *tuton*, especially in helping students, among others are improving the learning process of students, motivating students to learn, learning to interact, providing various learning strategies, promoting self study, and increasing students' outcomes. \(^{13}\)

From the foregoing discussion, it can be concluded that the context of teaching a foreign language differs from that of teaching of a first language specifically practicing writing skills. This is partly because the influence of the pedagogical factors, including: the need for appropriate approaches with different contexts; teachers of writing skills need to be equipped with knowledge of the sociocultural and linguistic differences of students; and in the case of assessment, teachers should consider the fundamental differences of first and foreign language writing skills. Frequently, teachers only concentrate to the results of students' writing without considering the factors that affect the product of writing. Therefore, the expected writing competencies of the students are not optimally achieved. In online learning, a writing skill tutor needs to have an

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\(^{10}\) Martini Jamaris, *Orientasi Baru dalam Psikologi Pendidikan*, (Jakarta: Ghalia Indonesia, 2012), p. 151


\(^{13}\) Aminuddin Zuhairi, Irma Adnan, Dina Thailb, *Provision of Student Learning Support Services In a Large-Scale Distance Education System at Universitas Terbuka, Indonesia* *(Turkish Online Journal of Distance Education-TOJDE, 2007, 8 (4)), p. 60*
unlimited ability to teach writing as in a face-to-face classroom that can communicate directly. Moreover, a tutor of writing skills on online learning in universities is required to be more creative in presenting the teaching materials as well as using appropriate approaches in assisting and helping students improve their writing skills.

RESEARCH METHODOLOGY
The aims of this study are: to describe the implementation of constructivism approach to online learning on Writing III Courses and to know the students’ perception on their understanding of teaching materials discussed and online learning process of Writing III course. This research is a descriptive research to explore the application of the constructivism approach on online learning of Writing III course and to obtain information from students about the teaching materials and online learning process of Writing III course as a whole. To obtain data and information related to online materials and online tutorial on Writing III course, the writers utilize questionnaires. The questionnaire contains 23 questions in the form of answer selections as well as open questions collected through online using one of the paid online survey applications. The questionnaires were distributed during one month from October to November, 2015. In addition, the data collection was also done through observation of the online learning of this course to obtain information on how far the tutor has applied the constructivism approach to writing skill.

The population in this study are UT students who register and attend the online learning of Writing III course provided by UT. The purposive sampling method was used to determine the respondents. The sample selected is the participants of the online tutorial of Writing III course from the period 2015.2 held from August 31, to October 25, 2015. The number of respondents who fill out the questionnaire through online is 17 out of 95 respondents, or 17.8% of the respondents who live throughout the country. The data obtained from the questionnaire were analyzed then summarized in table form and descriptive analysis. The use of both quantitative and qualitative methods through questionnaires and observation results of online learning is as a step to support data triangulation.

RESEARCH RESULTS AND DISCUSSIONS
This section describes the results of data collection obtained through observation of the Writing III course to find out how far the tutor has applied the constructivism approach to writing skills. This section also discusses the results of the survey about students’ perceptions of the teaching materials and the process of tuton of this course. The process of tuton of Writing III course is described from the observation process by accessing the www.elearning.ut.ac.id page. The results of online surveys conducted by the researchers are to describe the students’ perceptions of the learning materials and the learning process of the tuton. The results indicate that seventeen respondents or 17.8% out of ninety-five respondents response the questionnaires. Fig.2 indicates the students’ perception on the online tutorials.
Figure 2. Students’ Perception on the Online Tutorials

Viewed from the tutor readiness, tutor uploads weekly initiations, provides discussion forums, and presents various material presentations on time. Here is an example of the online tutorial of this course taken from the first week. Fig. 2 points out the online materials presented by the tutor.

The tutor has planned the guideline for tutorial activities or it is so called RAT in the first week before the tutorial begins. The RAT illustrates complete information such as the topics covered, the learning resources offered, and the tutor tasks or assignments that students must complete. All respondents or 100% stated that the tutor has prepared RAT for this course. However, two participants or 11.7% think that the tutor needs to complete the RAT with lesson.
plan or it is so called SAT. The SAT simplifies the material presentation, the learning strategies, and the evaluation conducted in one meeting. From the observation of RAT provided by the tutor, it can be obtained some information concerning the materials discussed in this course. As a whole the materials discussed in the online instruction are essay writing skills which are dissented into several detailed discussions as in the following table.

Table 2. The Discussion Topics of Writing III Course

<table>
<thead>
<tr>
<th>Week</th>
<th>Materials / Topics Discussion</th>
<th>Description</th>
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<tr>
<td>I.</td>
<td>The Paragraph</td>
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<tr>
<td>II.</td>
<td>The Essay (Part I)</td>
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<tr>
<td>III.</td>
<td>The Essay (Part II)</td>
<td>Assignment I</td>
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<tr>
<td>IV.</td>
<td>The Narrative Essay</td>
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<td>V.</td>
<td>The Descriptive Essay</td>
<td>Assignment II</td>
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<tr>
<td>VI.</td>
<td>The Example Essay</td>
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</tr>
<tr>
<td>VII.</td>
<td>The Argumentative Essay (Part I)</td>
<td>Assignment III</td>
</tr>
<tr>
<td>VIII.</td>
<td>The Argumentative Essay (Part II)</td>
<td></td>
</tr>
</tbody>
</table>

These topics are the essence derived from the entire teaching materials discussed in the printed materials or modules. Meanwhile, in a survey given to the students, the researchers also seek information on the extent to which students have difficulty understanding the materials. The researchers offer twenty-five point statements for students to answer in which the online tutor is expected to select the appropriate topic to be discussed.

Related to students’ perception towards the material difficulty level the result shows that from the twenty-five point items that available in the questionnaire derived from the topics and sub-topics of the modules, eight respondents or 50% say that they have trouble identifying the topic sentence in a paragraph. Eleven students or 68.75% state that they find difficulties analyzing the unity and coherence in paragraphs. For the third point of the statements, four students or 50% of the respondents respond that they have troubles writing a paragraph. Over again, four students or 50% of the respondents answer that they find difficulty identifying the three parts of an essay namely, the introductory, the body of paragraph, and the concluding paragraphs.

The fifth point of the statements, six students or 37.50% acknowledge that they have trouble formulating the outline of the essay to be developed. Six students or 37.50% response the sixth point of the questionnaire that they have troubles developing the introductory paragraph, the body paragraphs, and the concluding paragraph. Seven students or 43.75% have problems identifying the characteristics of narrative essay while only one student says that it is easy to identify the characteristics of the narrative essay. From the sixteen students of the respondents, six students or 37.50% claim that it is not easy to write the sequence of events within a narrative essay. Five out of sixteen students state that they have difficulty identifying the characteristics of a ‘descriptive essay’ of place, object, or person.
The respondents or the students respond the tenth point of questionnaires that is they have difficulty developing or writing a 'descriptive essay' of place, object, or person. This is responded by six out of sixteen respondents or 37.50% of the respondents. Most of the respondents or 81.25% say that statement number eleven, identifying the characteristics of expository essay, is difficult for them. Twelve respondents or 75% of the respondents declare that they have problems developing or writing an expository essay. This is statement number twelve. Statement number thirteen, nine respondents or 62.50% of the respondents believe that determining the transitional words are difficult for them.

Ten out of sixteen respondents or 62.50% of the respondents claim that they find difficulty developing the example essay. Moreover, they say that they face problems pinpointing the characteristics of example essay. Nine respondents or 56.25% of the respondents have difficulty distinguishing the patterns of comparison and contrast essay, and the same number of students have troubles developing the outline of 'comparison and contrast essay.' Questionnaire number eighteen, I have trouble writing 'classification essays' by incorporating other writing strategies, is responded by thirteen students or 81.25%. It means that most of the students find difficulty writing a classification essay. Statement number nineteen, I have troubles understanding the 'expository writing' developed by process analysis as well as developing it in the form of composition, is responded by fourteen students or 81.25%. It means that only two students are able to write a process analysis essay.

Statement number twenty, I have difficulty identifying the causal relationship of a paragraph on 'cause and effects essay,' is reacted by five respondents or 31.25%. The percentage of the respondents answering statement number twenty-one is 37.50% or six out of sixteen respondents. Statement number twenty-two, I find difficulty explaining the characteristics of 'Definition Essay,' is answered by ten respondents. Therefore, the students also find difficulty developing the complete and coherent paragraph on 'Definition Essay.' This is indicated by nine respondents or 56.25% of the respondents answering this statement. The last two points of the questionnaire are the argumentative essays. Five respondents or 31.25% of the respondents have troubles identifying the 'Argumentative Essay,' and nine respondents or 56.25% face problems developing 'Argumentative Essay' with the right structure (schematic structure).

From the analysis of the students’ perception on the material difficulty level, it can be seen that the respondents face some problems in writing an essay especially the expository essay developed by classification and process analysis. These show the highest level of difficulty experienced by the students. One of the tutor challenges in Writing III course is the selection of the material presentation form. This has been demonstrated by tutors by utilizing open-source learning resources known as Open Educational Resources (OER) by linking some learning resources in the form of videos from YouTube or other forms of links from the internet. The results of the observations shows that the tutor has provided quite varied and interesting materials. Moreover, the tutor provides tasks in the third, fifth, and seventh weeks. The tasks are about essay writing and the tutor offers feedback to the students’ writing tasks or assignments so that they understand the weaknesses of their own writing. Every week, the
tutors are expected to provide discussion forums as a vehicle for the tuton participants to interact with each other. Fig. 4 shows the results of the observations of the discussion forum of this course.

Figure 4. Weekly Discussion Forum

The picture illustrates the discussion forum situation in the Writing III course. The details of the topic of the weekly discussion forum and the number of tuton participants who responded to each discussion forum are described in the following table.

Table 4. Topics of Weekly Discussion Forum and the Students’ Responses

<table>
<thead>
<tr>
<th>Week</th>
<th>Materials / Discussion Topics</th>
<th>Instructions at the Discussion Forum</th>
<th>Discussion Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The Paragraph</td>
<td>Writing in English is not an easy skill. It needs a process and careful learning. Share your experiences to us or to other students how to improve your writing skills as a student at UT!</td>
<td>23 (24%)</td>
</tr>
<tr>
<td>II.</td>
<td>The Essay (Part I)</td>
<td>Why do you think memorizing the words is not an effective way to help you improve your writing skills?</td>
<td>23 (24%)</td>
</tr>
<tr>
<td>III.</td>
<td>The Essay (Part II)</td>
<td>Please give some comments on the weaknesses of the following paragraph and share to the other students!</td>
<td>9 (9.5%)</td>
</tr>
<tr>
<td>IV.</td>
<td>The Narrative Essay</td>
<td>Discuss the following questions! 1. What is the difference between a cause and an effect? 2. What is the difference between an essay which is</td>
<td>13 (13.6%)</td>
</tr>
<tr>
<td>Week</td>
<td>Materials / Discussion Topics</td>
<td>Instructions at the Discussion Forum</td>
<td>Discussion Participants</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>developed by a cause and effect, and the descriptive essay?</td>
<td></td>
</tr>
</tbody>
</table>
| V.   | The Descriptive Essay         | There is no discussion forum in the fifth week but the tutor replaces it by presenting two videos linked from Youtube as follows.  
1. Descriptive Writing  
(https://www.youtube.com/watch?v=vZXn0TbJrlw&feature=youtu.be)  
2. Describing People  
(https://www.youtube.com/watch?v=JJTvJvlAFk&feature=youtu.be) |                         |
| VI.  | The Example Essay             | In this forum, please share the unique accident, if there was any, in your classroom. If you did not find any accident, you might share your experience as an English teacher. | 10 (10,5%) |
| VII. | The Argumentative Essay (Part I) | There is no Discussion Forum in the seventh week, but the tutor replaces it with three links of material for students to study as follows. | 10 (10,5%) |
| VIII. | The Argumentative Essay (Part II) | There is no any Discussion Forum; however, the tutor replaces it with a Powerpoint about the Argumentative Essay as follows: | 13 (13,6%) |

Based on the details analysis in the table, the tutor has demonstrated her activity in managing the tution with various forms of material presentation. Although the material presented varies, the tutor should still provide discussion forums as an intermediary for participants to ask questions and share experiences or information with other participants. In other words, the discussion forum that serves as a medium for participants to interact, this should be provided every week, whether there is a response from participants or not. In addition, this discussion forum is a facility in which participants can put forward ideas related to the material discussed. Furthermore, this discussion forum can be a place where participants build their knowledge,
share opinions, and interact with other participants. This is the embodiment of the constructivism approach.

In addition to the discussion forum, the implementation of the constructivism approach can be seen from the tutorial assignments given by the tutor specifically in the third, fifth and seventh weeks. In terms of the content, the tutor directs the participants to write an essay consisting of four paragraphs in accordance with the provisions discussed in the initiation of the tutorial and in the discussion forum, that is on their 'experience during their study at UT'. Judging from the topic, the students are given the opportunity to pour their ideas by building new knowledge based on the instruction of the tutor and the knowledge that has been previously owned. The observation report shows that out of a total of ninety-five participants, only 10 students or 10.5% complete their task up to the stage of submitting Task 1, while as many as 14 students or 14.7% only work until the stage of concept writing but not completed until the submission stage. This is unfortunate because the tutor cannot give feedback and score if the task of the participant has not been submitted. Similar to Task 1, the content on Task 2 also represents a constructivism approach in which the tuton participants have to produce two different types of essays: the narrative essay and the descriptive essay, both of which require students to build their own notions based on the essay writing.

The following discussion explains Task 3 which is shown in Fig. 8.

Figure 5. Assignment 3

Moreover, in relation to the technical constraints of tutors and the tuton that cause the smallest number of participants who collect the tasks, the results of a survey of students can be considered as one reason of the lack of essay writing practice in English. Here are the results of the survey.
Of the seventeen respondents, as many as twelve students or 80% said that they were not accustomed to writing essays in English, two respondents provided no answer and the rest or only three students or 20% were familiar with writing essays in English. From the results of the analysis, it can be concluded that most students are not in the habit of writing essays so that they face troubles in the learning process. This can be used as an input for tutors to provide more intensive essay-writing exercises in English.

It is given in the questionnaire the choice of some obstacles that appear and experienced by the students so that it inhibits the smooth process of tuton in this course including: time to go along with the tutorial, learning resources, Internet subscription fees, writing difficulties (on the task), understanding the tutorial materials, bandwidth / Internet Network. The data obtained show that most of the obstacles experienced by students is the time to keep on the tutorial, internet network, and writing difficulty.

The students’ perceptions on their level of satisfaction with the tuton of this course as a whole can be seen in Fig.7.

The data show that as many as eleven respondents or 73.3% are satisfied with the teaching materials and tuton services provided. Two respondents give no answer, and four or 26.67% of students are dissatisfied with the UT-provided study assistance.
Based on the results of the surveys and observations conducted by researchers, there are some important things related to the presentation of the teaching materials and online tutorial on Writing III course. Re-examining the theoretical studies discussed earlier that in the process of selecting instructional materials should be tailored to the needs of the students and the learning objectives. These involve several important matters such as the topic should be interesting, the expected type of writing which are according to the needs of students, the appropriate methods used in gaining the ideas, and the clear instructions for developing a piece of writing. Moreover, there are several important matters that should be taken into consideration such as the opportunities to collaborate, there is a chance to revise and get feedback or feedback from the teacher), it can be seen from the observation and survey that the tutor has met several criteria.

One of the important things that has been implemented is the selection of topics on the tutorial that match the material discussed so that students can gain a meaningful learning experience. This can be seen on the topics of weekly discussion forums offered by the tutor and the responses from the participants were good and they were active in responding and interacting with both the tutor and the students themselves. In the beginning the students had difficulties in understanding the teaching materials they obtained, but they were greatly assisted by the tutor support services shown by their satisfaction statement in which over 60% of the respondents stated that they were very satisfied and felt very helpful in understanding the teaching materials with the service. In addition to topic selection, the selection of writing type or essay form raised in tutorial also has described the ability of tutors in determining the material in accordance with the needs of students although there are several forms of essays that need to be replaced for student learning outcomes more meaningful.

Based on the theory of constructivism approach, the process of the tutorial of this course has illustrated the implementation of this approach though it was not optimum. This can be seen from the provision of discussion forums and the form of assigned tasks. Discussion forums are facilities for tutor participants to interact in their learning process where participants can express their opinions, ideas, ideas, knowledge, and even share experiences with tutors and other participants. The discussion forum enabled students to collaborate with other participants if needed. However, based on the data obtained, from the eight weeks of the meeting there were three meetings that were not available for discussion forums on the fifth, seventh, and eighth week. Thus, students' opportunity to build their own knowledge was not well facilitated. Moreover, the assigned tasks have represented a constructivism approach in which tutors are not limited to asking questions to answer, but rather on assigning tasks to students to produce their own writing through constructing their own ideas or knowledge. The disadvantages found in this process are the lack of participants' opportunities to get feedback from the tutor for the improvement process of their paper.

CONCLUSIONS
Based on the research results and discussion in this study, it can be concluded that the tutor of Writing III course has implemented a constructivism approach. However, she does not maximally
apply this approach viewed from the topics discussed in the discussion forum and also on the
tasks assigned to students. Most tuton students have difficulty understanding the teaching
materials on the printed materials. However, the process of the online instruction offered by the
English program, as students’ learning assistance service is considered very useful and can help
the students understand the teaching materials discussed.

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DEVELOPMENT AND TESTING OF A MOBILE APPLICATION THROUGH DESIGN-BASED RESEARCH

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Abstract
Keeping with the trend in mobile learning and faced with the challenges of providing printed course material on time, the Open University of Sri Lanka (OUSL) is considering the digitization of the existing course material, harnessing the potential of improving learning experience and effect institutional change. This paper reports on the process of this transformation through design-based action research where design, research and practice were concurrently applied through several iterations. For this transformation, one session each from BSc in Nursing, Bachelor of Pharmacy and Bachelor of Medical Laboratory Sciences was selected. The formative evaluation was used as the methodology. In the first phase of the design-based action research, the main research question was formulated. In the second phase, an m-learning application (MLearn) was designed and developed to address the research question. In the third phase, this application was evaluated by five groups of stakeholders; content experts to validate the content, educational technologists to check the alignment of technical and pedagogical features, novice users to check the overall effectiveness of the application, developer to check the ease of usage and researchers to identify the impact of this innovation. These stakeholders were closely involved throughout the whole process which lasted over a period of four months. At the end of this development phase, the results were reflected upon and used for further enrichment. It was observed that the developed mobile application was accessible, appealing, and pedagogically constructive for users. However, optimization, development time, and production costs were identified as major challenges.

Keywords: Innovation, mobile learning, design-based research, Open and Distance Learning, technology,

INTRODUCTION
Mobile technology is an exceptionally fast-growing field that is closely connected with our work and day to day lives. There are new developments added to its growth every day with emerging new patterns of usage, having both positive and negative implications.

In the 21st century, higher education institutions had to be reconstructed to adapt to changes with the increasing global competition, the growing need for higher education, the changing nature of information, rapid developments in information and communication technologies and the varying expectations and demographic features of learners [1]. The changes in the dynamics of information technologies, institutions and learners influence the academics working in higher education institutions to change their teaching strategies/approaches. However, we have not seen a noteworthy adoption of these technologies in the education sector even though they are available everywhere (ubiquitous) and have tremendous potential in addressing needs of the individual learner through their unique capabilities. Wingkvist and Ericsson [2] found that predominant research on mobile learning was small-scale descriptive case
studies with little evaluation and reflection. Out of these studies only 5% had used Action research methodology. Thus, there is a need for comprehensive and reflective m-learning research that focuses on learners’ particular needs and use new research methodologies as there is a severe dearth in the literature in this area. Therefore, we used design-based action research methodology as a research method in this study.

The purpose of this research study was to address this gap by investigating the issues in designing and developing mobile learning applications for the undergraduates of the Faculty of Health Sciences of the Open University of Sri Lanka (OUSL) through design-based action research. It reports on the findings of the evaluation of the application by five groups of stakeholders; content experts, educational technologists, developer, novice users and researchers prior to the delivery of the first cycle.

The first section of the paper defines briefly the mobile learning and design-based action research, and stresses the importance of conducting design-based action research for future learning practices. The next section examines the methodology adopted for the design-based action research for new practices in teaching-learning using mobile learning. The fourth section is dedicated to the findings which were collected from all the stakeholders illustrating the potential for innovative teaching practices through mobile learning. The last section is a critical examination of both designers and users view points, stressing a few relevant elements for designing for mobile learning.

THEORETICAL FRAMEWORK
Mobile learning
Mobile devices are portable, lightweight devices such as mobile phones (cellphones, or handphones), smartphones, palmtops and handheld computers (Personal Digital Assistants or PDAs); Tablet PCs, laptop computers and personal media players. These devices can be carried around easily and used for communication and collaboration, and for teaching-learning activities that are different from what is possible with other media. Therefore these devices are very useful for learners where they could engage in educational activities without the constraints of having to come into the institution. Hence, mobile learning can take place when the learner is not at a fixed, predetermined location, or when the learner takes advantage of the learning opportunities offered by mobile technologies [3]. As a result they are open to low cost, accessing large number of resources via the internet and have spontaneous personal access to them.

Mobile learning has a range of attributes that contribute to its definition: it can be spontaneous, personal, informal, contextual, portable, ubiquitous (available everywhere), pervasive (so integrated with daily activities that it is hardly noticed) and ambient (surrounding us completely and perhaps natural as the air we breathe). With these attributes, it has much in common with other types of e-learning on desktop computers but with the advantages and drawbacks of more varied and changing locations, more immediate (‘anytime’) interaction, and smaller, often wireless devices [4]. This kind of ambient technology, to take place, buildings and public spaces would have to be ‘learning enhanced’ by providing devices or establishing systems to respond to what
is in the learner’s field of view, giving information about specific places or objects and enabling on-the-spot interactions.

Mobile devices present different learning opportunities such as portability, social interactivity, context sensitivity, connectivity, individuality and affordability in academic settings or non-academic settings [5]. Traxler [6] has stressed that mobile devices have influenced all fields including education and currently undergoing a transformation and in fact entered into a mobile era. Most mobile devices in current use are not designed specifically for education or training but rather for personal (even individual) information management or personal communication largely within work contexts or home and one-to-one social use. M-learning can be unplanned, spontaneous learning experience or with planned educational program in the schools by using mobile devices [5]. People can determine their own learning path to achieve their learning goal by using their own private mobile device. In addition, m-learning offers situated learning where learning can take place anywhere and at any time of the day as well as personalized learning through applications, concepts, and often the ownership of devices modified for the user [7]. The idea of making connections to the environment, to resources and communities or groups of people comes more from educational technology research and practices [8]; [9] and educational research on mobile communities [10].

In recent years, researchers have studied the development of the theoretical frameworks of m-learning; Mobile education (FRAME) based on activity theory [11], Conversation theory, developed by Pask [12] on the construction of knowledge through the exchange of knowledge via pervasive mobile devices [13], modified transactional distance education theory for m-learning [14].

When considering these frameworks, there is still a lack of transferable design frameworks on m-learning [15]. Practitioners, instructional designers and trainers are in need of design theories regarding not only how to integrate mobile technologies into learning environments in order to achieve more effective learning via mobile technologies but also how to make these technologies more beneficial for users [16]; [17]; [14]; [18]; [19].

When designing instruction, generally learning content is regarded as the most important dimension. However, Thomas, et al [20] stressed that culture has to be considered as a dimension of instructional design and attention has to be paid equally to language and culture and context along with the resources [21] so that learners can make effective connections between resources and the support. Therefore, designing effective learning for global audiences requires not cultural neutrality but cultural inclusivity [22]; [23] giving priority to “cultural understanding” of learners [24]. The value of universal design concept has been argued as one of the best practices in creating culturally inclusive online course materials [25]; [26]. It allows learners to select from different methods of instruction (reading learning resources), modes of expression (typing a response) and means of interaction (synchronous or asynchronous communication) –[27] to accommodate culturally different diverse learners. It also is necessary to get the views from learners on the designed product to shape the design itself [28].

**Design-based action research**

The aim of the design-based research to develop educational practices through systematic and iterative analysis, design, development and implementation based on cooperation between researchers and practitioners in a real setting, and leading to contextually-sensitive design
principles and theories [29]. The ultimate goal of design-based research is to build a stronger connection between educational research and real world problems. The design-based research process was based on four phases proposed by Reeves [30].

1. analysis of practical problems by researchers and practitioners,
2. development of solutions within a theoretical framework,
3. testing and evaluation of solutions in practice,
4. reflection and documentation to produce design principles.

The research methodology most appropriate to the third phase of the Reeves’s framework is action research [31]. Action research can make the product highly effective, efficient and useful by allowing repeated development of the product until all the problems identified with the product are overcome in the implementation and testing process [32]. By following iterative research process attempts to refine the innovation systematically while also proposing design principles unlike in evaluating innovative product or intervention at the end of the development phase.

In the last phase, based on the analyses of the data collected in each phase, the design principles and the theory can be developed [33].

**CONTEXT**

The OUSL is unique in its teaching methodology as it is the only national university in Sri Lanka which is dedicated to Open and Distance Learning (ODL). Unlike in conventional universities, the OUSL mediates instruction mainly through print course materials. With the advent of various technologies, the OUSL has gone through generations of technology integrating audio-visual, multimedia and online learning into the core print course materials.

There have been many suggestions from time to time to use other technologies than print to reduce costs of production and delivery of printed course materials. However, print has remained as the core medium of instruction even though many such initiatives have been taken to promote offering courses entirely online. Aligned with this view; recently it was proposed that providing course materials in PDF format loaded on a tablet computer would be a viable option to reduce costs of printing and for delivering course materials on time, as tablet computers are becoming cheaper by the day. Hence, Faculty of Health Sciences of the OUSL has taken the initiative to investigate the viability of transforming the existing print material and offer them through m-learning for the undergraduates of the Faculty. This pilot was carried out from a research grant of the OUSL which enabled to experiment with novel mediating technologies.

Three bachelors degree programmes are offered by the Faculty of Health Sciences; Nursing; Medical Laboratory Sciences and Pharmacy. One session each from a degree programme was transformed retaining the already existing content and the framework as these courses are still being offered by the OUSL.

An earlier study carried out with the students of the British Open University showed that the majority preferred e-books as a complementary technology and still would like to receive print course materials [34]. Researcher further reported that learners faced difficulties in downloading e-books, getting satisfactory page and font size, navigation and cursor control etc. Therefore, the
decision was taken not to provide a digitised text as a PDF to learners (as an e-book) but to enhance the already existing print material with additional interactive features with innovative strategies and tools through m-learning application.

METHODOLOGY
In this study, an adapted version of design-based action research model put forward by Keskin and Kuzu [35] was used and illustrated in Fig. 1. They developed the model by combining the design-based research model put forward by Ma and Harmon [33] and the action research cycle suggested by Susman and Evered [32] regarding information systems.

It consists of four interactive phases. The first phase is “analysis of practical problems”. In this phase, a practical problem is identified and the related literature about the practical problem is reviewed. The second phase is “developing of solutions”. In the second phase, after solutions for the practical problem are conceptualized, and research purpose and research method are identified, a prototype that serves research purpose is developed. The third interactive and circular phase includes action research methodology based on system development. It is called “iterative cycles of testing and refinement of solutions in practice and reflections”. In this phase, problems related to the prototype are diagnosed and identified. After action plans are prepared to solve the problems, an action is implemented and the consequences of the action are evaluated. This continues until all problems are solved. The final phase is “reflections and documentations for design”. In the final phase, design principles are generated and guidance for conducting design-based research is developed.

Having considered the research done on design-based action research, this study was also implemented through four phases.
First phase
In the first phase of this design-based action research, the following research questions were formulated:

- How to design a mobile application using an existing print course material?
  - What was the process carried out when transforming the existing print materials into mobile application?
  - What type of interactivity features were added to the mobile application?
  - What were the challenges faced by content experts, developer and educational technologists when designing m-learning systems?
Second phase
In the second phase, a mobile learning application called “OUSL mobile learning” (MLearn) was designed and developed specifically for the Android mobile devises to address the principle research question. The following section will describe in detail the Design of MLearn system.

System architecture and implementation
The system architecture was designed for the entire university which serves as the mobile platform (MLearn) for the OUSL. In order to make the system user-friendly, the unique icon-based system was designed (Fig. 2a and b).

Fig. 2a – MLearn icon
Fig. 2b – Screen cast of the first frame

Fig. 2 – Screen casts of the mobile icon

The navigational structure for this system was linked to each other forming a kind of semantic network. The icon-based system was connected to the home page of the system (Fig. 3), then to the Programmes Page where students can select their own programme, followed by the Course Page and the Session Page respectively.

Fig. 3 – Navigation structure

Each course was designed in such away to make the course as a stand-alone module which can be studied offline. This decision was made considering the baseline survey of the undergraduates of the Faculty of Health Sciences and their past experience of not accessing learning resources through Internet.
Six different categories were built-in in each session considering the four Pedagogical Aspects of Instructional Design, namely Information Design, Instruction Design, Interface Design and Interaction Design including adaptive technologies.

- **Instruction Design features**
  - animated instructions on how to operate the tablet computer at the beginning with skipping facility (Fig. 4a)
  - guidance when they have to rotate the tablet
  - learning outcomes
  - introduction as an advance organiser
  - different types of activities with in-built feedback – can be attempted several times
  - hypertext to images
  - summary
  - glossary
  - autogenerated report at the end of each session on their performance for self-evaluation.

- **Interface Design features**
  - simple navigational structure
  - presentation of the content in a sequential manner
  - provided both program control and learner control options. System guides the program control option through buttons whereas learner control option was designed as a menu as an alternative strategy to support field independent learners where they can choose to proceed the course in any order (Fig. 4b). There is evidence that field dependent (FD) learners perform better using program control while field independent learners (FI) prefer more learner control options [36].
  - specific icons for different activities (Fig. 4c)
  - colour scheme based on the university and faculty colours to distinguish study programmes

- **Interaction Design features**
  - diverse activities (matching by dragging answers, tapping the correct answer etc.)
  - 3D views
  - animated images
  - highlighting text

- **Adaptive features**
  - three types of font sizes
  - Images with zooming facility
  - notepad for making notes
  - copying and pasting facility
  - sharing content with peers with the internet connection (optional).
These features were integrated based on learning theories and research. For instance, advance organiser at the beginning and summary at the end of each session were incorporated to help diverse learners; in particular FD and FI respectively. Research have indicated that FD are holistic and require external help while FI people are serialistic and possess internal cues to help them solve problems [37]. An advance organizer acts as a schema for the learner to make sense out of the new concept whereas a summary (post organizer) serves as a synopsis and supports the reconstruction of knowledge after the presentation of new information.

Third Phase
In the third phase, this mobile application was regularly tested through formative evaluation which was an integral part of the design methodology. It helped to judge strengths and weakness of instruction while still at its developing stages, for the purpose of revising the instruction. The second and third phases were carried out simultaneously with regular meetings with the developer and other stakeholders.

In the first meeting, three sessions (one session per a degree programme) of the existing print materials were handed over to the developer highlighting the requirements, providing necessary information and devises (tablet computers).

The existing print materials were designed as self-instructional materials with smaller chunks of content with intermittent activities to avoid overload of information and to facilitate “guided didactic conversation” with text [38], incorporating advance organisers at the beginning and summaries at the end to accommodate both FI and FD learners.
Since design-based action research is a multi-phase study, the present study involved five groups of stakeholders. The formative evaluation was carried out with 4 content experts, 4 educational technologists, 6 novice users, 4 researchers and 1 developer. In the subsequent meetings, the application was evaluated by these five groups of stakeholders; content experts to validate the content, educational technologists to check the alignment of technical and pedagogical features, novice users to check the overall effectiveness of the application for learning purposes, developer to develop the application, modify it with the feedback and check the ease of usage and researchers to identify the impact of this innovation.

In this study researchers also engaged in the design process along with the content experts, educational technologists and developers. All these stakeholders were closely involved throughout the whole process which lasted over a period of four months. The entire development of the application was through 8 iterations where feedback from different stakeholders at different stages was integrated to the MLearn system. At the end of each development phase, the results were re-examined, reflected upon and used for further enrichment, producing a continuous cycle of design-reflection-design. So formative evaluation was an integral part of the design methodology and the results were used to improve the system in order to make the instruction more effective and efficient. The current interface of mobile application and its functionalities are the result of revisions based on the suggestions during the formative evaluation.

RESULTS AND DISCUSSION

The views expressed by the novel users indicated that the developed mobile application was generally efficient, simple to learn, easy to navigate, appealing and engaging. It was also pedagogically constructive as the content and the tools used in the application were useful from the perspective of both the content experts and the educational technologists. Thus, accomplishing the primary goal of providing effective instruction through mobile learning. It was also found that the developed m-learning system was appropriate to the overall purpose of the university, could be served as an m-learning system for the entire university and also could be used as an academic support system for the OUSL from the perspective of the developer. Having gone through the reflection process, the challenges faced in implementing the MLearn for the entire university by all the stakeholders were categorized into the following factors:

- **Time factor**
  - development time to transform all sessions in the existing course materials into mobile learning
  - time for carrying out usability testing and modifying errors

- **Cost factor**
  - high development costs for developing and implementing mobile system
  - providing mobile devices for all the learners
- Technical factor
  - optimization of the mobile application based on the performance of mobile devices to enhance the visual performance
  - screen resolution
  - design navigation
  - sequence of the content and activities
  - create user interactions through the interface
  - develop interactive activities on the touch screen (e.g., drag and drop activities)
  - use the device both vertically and horizontally
- Teaching factor
  - lack of time to develop mobile content by chunking of the course materials
  - lack of familiarity of the tools by teachers
- Organisational factor
  - inadequate technological infrastructure to support the requirements of the entire university
  - limited availability of mobile devices
  - scarcity of seed funding allocation for innovative educational practices
  - scarcity of support structures for the initiators
  - lack of structures for sustenance of the technological inventions
  - effective leadership to steer the process
- Technical support factor
  - provide learner support through remote access
  - lack of familiarity of the tools by students.

CONCLUSION AND FUTURE DIRECTION
Having gone through this process, it was felt that the design-based action research build on the principles of stakeholder-centredness was effective in developing mobile learning application. However, it also showed challenges with respect to development time, high production costs, technical and organisational issues, workload of academics and providing technical support to students. Therefore, establishing adequate support structures for both teachers and students are essential to sustenance these innovative practices.

This application will be further evaluated through summative evaluation with actual students to assess the effectiveness of the m-learning system to complete the design of the system fully.

The design and development of any instructional material depend on the target population, the subject matter and the context. As such the findings of this study may not have a universal value; however, these findings throw light on some of the aspects to be considered when designing mobile applications.
REFERENCES


USE OF BLENDED APPROACH FOR CAPACITY BUILDING IN ODL: A STUDY OF FACULTY PERCEPTIONS

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Abstract

Capacity building in ODL institutions is extremely crucial for enhancing performance, excellence and quality to meet the requirements of the knowledge society of today. The changing technological scenario and the transforming educational needs pose significant challenges to the ODL system. The notion of blending different teaching and delivery methods, media and tools for a fruitful learning experience has assumed immense significance in the existing educational landscape. This can be employed in designing capacity building programmes for the ODL functionaries in order to develop individual capabilities in terms of skills, knowledge and competences. The present paper discusses the implementation of a comprehensive capacity building model for conducting training programmes for distance educators undertaken in the National Open University (IGNOU) in India. The model involved use of both online and face-to-face modes, and also the social media tools and Open Education Resources (OER) for delivering effective training programmes for enhanced academic and organisational capacities. The paper also investigates the faculty perceptions to the blended approach for capacity building in ODL. Data was collected through a structured questionnaire administered to the teachers and academics of IGNOU (N=35) who participated in the training workshop which was based on the blended design. The findings will provide useful insights to introduce and promote effective training programmes for the educators in open universities. The paper highlights the practical implications of use of blended approach for capacity building in ODL which include the enhancement in the overall effectiveness and efficiency.

Keywords: capacity building, blended approach, ODL, faculty perception, Open University

INTRODUCTION

The educational scenario of today is witness to changing technological developments and the resulting transformations in the educational needs. This poses significant challenges to the open and distance learning (ODL) system. In this scenario, capacity building assumes greater significance for enhancing performance, excellence and quality to meet the requirements of the knowledge society of today. This also highlights the need to prioritize professional development activities in the ODL institutions. The professional development and capacity building activities in the ODL institutions are extremely significant for strengthening the existing capacity and effectiveness thus leading to competent faculty, teachers, other stakeholders. This further contributes to the overall success of the institutions in face of the technological, economic and societal challenges. In the changing educational landscape, the blending-in of different teaching and delivery methods, media and tools for a fruitful learning experience can be immensely useful for professional development and training activities, especially in ODL institutions. The present
paper discusses the use of integrated blended approach in capacity building. The paper discusses a comprehensive capacity building model, using both online and face-to-face modes, which was used for conducting training programme for distance educators. The paper also presents a study into the faculty perceptions to the use of blended approach for capacity building.

**BLENDED APPROACH AND ITS USE FOR CAPACITY BUILDING**

In simplest words, blended learning implies a combination of face-to-face learning and online learning. Garrison and Vaughan [1] aptly define it as the “organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies” to meet the intended pedagogical goals. Research studies have highlighted and recognized the characteristic features, various dimensions and advantages associated with blended approach ([2], [3], [4]). According to Gonzales and Vodicka [5] blended learning involves effective integration of various modes of delivery, models of teaching, and styles of learning for designing meaningful learning experiences. Blended learning environments involve a combination of attributes of online instruction with that of traditional classroom teaching [6] and are characterised by personalized and learner-centred learning experiences [7]. The web based support to the classroom lectures enhances the overall learning experience and makes it more interesting and engaging. Various available technology tools and applications help to augment interactivity, thus creating richer learning environments. Blended learning is quite common and highly encouraged in higher education institutions especially ODL institutions [8]. However, it is not being utilized for achieving the professional development and capacity building objectives.

Perraton and Creed [9] described three specific areas of content for distance education training, these are – subject-specific context, the socio-cultural context of the teachers and learners, and the open and distance learning context. They emphasized the need for broader-based training based on the institutional and sociocultural context instead of one which is focused on the specifics of ODL teaching. A research study [10] has highlighted the need to design a capacity-building program aligned to the needs and/or readiness of the faculty. Review of existing literature reveals that models and studies on providing instruction and training to educators using blended learning approach are limited. Valiathan [11] proposed three versions of blended learning for capacity building of educators. These included skill-driven learning, attitude-driven learning, and competency-driven.

It is also argued that blended online experience, which also use of latest technology and tools, influences the future teaching practice, and therefore, is an effective professional development strategy [12]. Panda and Mishra [13] emphasised the need for a framework for offering online and offline continuing professional development. Further, they stated that the training programmes, based on an inter-disciplinary approach, may combine online activities with reflective practice in the offline community of practice with provision for networking and exchange. Based on the review of related literature and the study of existing training requirements in ODL institutions a need was felt for a comprehensive approach towards effective training of the ODL practitioners. To address this, need the authors conceptualised a model framework for training of distance educators using blended approach. Based on the review of literature a model framework was employed as part of a training strategy. The framework is discussed below.
A MODEL FRAMEWORK FOR CAPACITY BUILDING

A comprehensive training framework is essential for design and delivery of effective and sustainable capacity building programmes for the distance educators in open and distance learning institutions in India. In order to address this need, the authors proposed a model framework based on the blended approach for implementing capacity building initiatives in various distance education institutions [14]. The model focuses on the efficient use of the available educational technologies for enhancing the flexibility of training module and facilitating easy communication and collaboration, thus creating rich learning environments. The model stresses on mechanisms and channels encouraging communication and collaboration during all the phases of training programme. The framework provides for sufficient technical and pedagogical support to the training participants both through synchronous and asynchronous mode. The framework involves both face-to-face components and the online component through a web based training interface. The web based component involves web based courseware, discussion forums, chat, workbooks, and scenarios for practice. The model also involves the use of social media tools such as Facebook, blog, wiki, Flickr and YouTube for heightened interactivity and communication among the participants. The training program may be conducted in classroom mode with lectures and demonstrations. The participants are then given some activity which they can work on their own, by collaborating with peers and trainers through the web based training module. This enables to introduce a high level of flexibility to the training programme as the academics can learn at their own pace and convenience while taking care of their other academic work priorities. The framework has provision for the use of learning scenarios and a wide variety of learning activities, tasks and resources for the benefit of the participants, enabling capacity building in a collaborative manner. There are components such as group activities and task based assignments which become more significant and beneficial in blended mode.

![A Model Framework for Capacity Building in ODL Institutions](image)
The framework focuses on the key identified capacity building requirements of the ODL practitioners which included various aspects of open and distance learning, e-learning, programme evaluation, ICT tools, and other related aspects. The above capacity building framework was employed for design and development of a comprehensive training programme for distance educators at the National Open University (IGNOU), India. The present study was undertaken to extend the current research to further examine how the participants, who were distance educators, perceive the training delivered through blended learning approach.

OBJECTIVES OF THE STUDY
The main objectives of the study were:

- To investigate the use of a capacity building model using a blended approach (using both online and face-to-face modes) for delivering training programmes for distance educators.
- To investigate the perception of the faculty of the national open university about the use of blended approach for capacity building in ODL.

METHODOLOGY
The quantitative method of enquiry using survey method was employed in this study to gain information about the perception of the faculty towards use of blended approach in training and development programmes. The study was conducted on the faculty (teachers and academics) who participated in the Refresher programme for capacity building in Use of ICT for Teaching Learning, which was organised at the Indira Gandhi National Open University (IGNOU), the only national Open University in India. The study included a total of 34 faculty members who participated in the Refresher programme for capacity building in Use of ICT for Teaching Learning. Data was collected using a questionnaire administered online after the completion of the programme. The principal investigator (PI) of this study was the coordinator and instructor, who is also one of the authors.

A structured questionnaire was developed to collect faculty responses. The questionnaire included open-ended questions, yes/ no questions and questions and statements with 3-point scale (Yes/ Not Sure / No). To ensure instrument validity, survey questions were reviewed by multiple experts in the field. The survey instrument was then modified based on expert feedback and delivered using an online survey format.

A blended learning training module was designed and developed for providing training, on the “Use of ICT for Teaching and Learning”, to the faculty members. After the completion of the training programme an online survey site was prepared using google docs, and the questionnaire was distributed (through email) among the participants. A total of 30 complete questionnaires were received and used for analysis.

RESULTS AND DISCUSSION
The faculty perceptions to the blended learning environment are important to understanding their preferences in regard to effective dimensions of interactive learning in the blended training programme. The results from the survey are presented below.
Respondents' Profile
The questionnaire developed by the researchers was administered to 35 faculty members. Of these, 30 complete responses were received, thus indicating a response rate of 50%. The profile of the respondents is presented in Table 1. The results revealed that majority were female (60%) and 40% were male. Majority of the respondents were academics (63%) followed by teaching faculty (36%). Moreover, majority of the respondents 16.4% were in the 36-45 years age group followed by 23% over 46 years of age. Majority of the respondents had 11-15 years of research and teaching experience.

<table>
<thead>
<tr>
<th>Table1: Respondents' Profile</th>
<th>N</th>
<th>N %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>11</td>
<td>36.7%</td>
</tr>
<tr>
<td>Academics</td>
<td>19</td>
<td>63.3%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>40.0%</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>60.0%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35 years</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>36-45 years</td>
<td>18</td>
<td>60.0%</td>
</tr>
<tr>
<td>Over 46 years</td>
<td>7</td>
<td>23.3%</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>9</td>
<td>30.0%</td>
</tr>
<tr>
<td>11-15 years</td>
<td>13</td>
<td>43.3%</td>
</tr>
<tr>
<td>16-20 years</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>21 years and above</td>
<td>3</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

Overall Workshop Design
The respondents were asked about the overall design of the workshop. The results (presented in Table 2) revealed that majority of the respondents (80%) found the workload to be moderate. Only 16% found the workload in the workshop to be heavy.

<table>
<thead>
<tr>
<th>Table 2: Workload in the Workshop</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>24</td>
<td>80.0</td>
</tr>
<tr>
<td>Heavy</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>Too Heavy</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Perception about Various Tools used in Blended Training Programme
Keeping with the blended design of the workshop, various technologies and tools were used to facilitate interaction, collaboration and overall instruction. An attempt was made to assess the perception of the respondents towards the various technologies and tools used. The results revealed (Table 3) that Moodle, audio/video content, discussion forum and open badges were
found to be very useful by the respondents at 53.3%. This was followed by open education resources (50%).

Table 3: Perception about Various Tools used in Blended Training Programme

<table>
<thead>
<tr>
<th>Tools</th>
<th>Very Useful</th>
<th>Useful</th>
<th>Somewhat Useful</th>
<th>Not Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N %</td>
<td>N</td>
<td>N %</td>
</tr>
<tr>
<td>Moodle</td>
<td>16</td>
<td>53.3%</td>
<td>14</td>
<td>46.7%</td>
</tr>
<tr>
<td>OER</td>
<td>15</td>
<td>50.0%</td>
<td>14</td>
<td>46.7%</td>
</tr>
<tr>
<td>A/v content</td>
<td>16</td>
<td>53.3%</td>
<td>11</td>
<td>36.7%</td>
</tr>
<tr>
<td>Assignments</td>
<td>12</td>
<td>40.0%</td>
<td>14</td>
<td>46.7%</td>
</tr>
<tr>
<td>Discussion Forum</td>
<td>16</td>
<td>53.3%</td>
<td>12</td>
<td>40.0%</td>
</tr>
<tr>
<td>Chat</td>
<td>10</td>
<td>33.3%</td>
<td>16</td>
<td>53.3%</td>
</tr>
<tr>
<td>Quiz</td>
<td>9</td>
<td>30.0%</td>
<td>16</td>
<td>53.3%</td>
</tr>
<tr>
<td>Open Badges</td>
<td>16</td>
<td>53.3%</td>
<td>12</td>
<td>40.0%</td>
</tr>
<tr>
<td>WhatsApp</td>
<td>9</td>
<td>30.0%</td>
<td>12</td>
<td>40.0%</td>
</tr>
</tbody>
</table>

Perception about Blended Approach in Training

An attempt was made to assess the perception of the respondents towards the blended approach used in the training programme. The respondents were provided a list of 12 statements on a 3-point scale (where ‘1’ = Yes, ‘2’ = Not Sure and ‘3’ = No). The results as presented in Table 4, revealed that all the respondents affirmed that clear objectives of the training programme are extremely useful. The results show that respondents (96.7%) agreed to the need for proper and clear guidelines, flexibility inherent in the blended approach, and enhanced understanding afforded by a path of information from lectures to web support.

Table 4: Perception about Blended Approach in Training

<table>
<thead>
<tr>
<th>Items</th>
<th>Yes</th>
<th>Not Sure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N %</td>
<td>N</td>
</tr>
<tr>
<td>I feel blended approach helps in increased flexibility.</td>
<td>29</td>
<td>96.7%</td>
<td>0</td>
</tr>
<tr>
<td>Clear objectives of the training programme are extremely useful.</td>
<td>30</td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td>Proper and clear guidelines and instructions are extremely helpful.</td>
<td>29</td>
<td>96.7%</td>
<td>1</td>
</tr>
<tr>
<td>A problem based approach should be used to facilitate active learning.</td>
<td>28</td>
<td>93.3%</td>
<td>2</td>
</tr>
<tr>
<td>Blended approach enables the participants to become more involved in the learning process.</td>
<td>21</td>
<td>70.0%</td>
<td>6</td>
</tr>
<tr>
<td>Items</td>
<td>Yes</td>
<td></td>
<td>Not Sure</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>N %</td>
<td>N</td>
</tr>
<tr>
<td>Blended approach and methods in training facilitate meaningful and</td>
<td>24</td>
<td>80.0%</td>
<td>3</td>
</tr>
<tr>
<td>authentic learning.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More focus should be given on online mode to enable self-regulated</td>
<td>20</td>
<td>66.7%</td>
<td>10</td>
</tr>
<tr>
<td>learning.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A path of information from lectures to web support to hands-on</td>
<td>29</td>
<td>96.7%</td>
<td>1</td>
</tr>
<tr>
<td>results in a good understanding.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blended approach provides greater access to learning tools and</td>
<td>27</td>
<td>90.0%</td>
<td>3</td>
</tr>
<tr>
<td>experiences.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative activities and practice sessions provide maximum</td>
<td>27</td>
<td>90.0%</td>
<td>3</td>
</tr>
<tr>
<td>opportunity for engagement with peers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blended approach in a training programme makes the content</td>
<td>27</td>
<td>90.0%</td>
<td>3</td>
</tr>
<tr>
<td>interesting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital badges should be used in application oriented training</td>
<td>23</td>
<td>76.7%</td>
<td>7</td>
</tr>
<tr>
<td>programmes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSIONS
The distance institutions and educators are under stress for keeping up with the technological developments and the changing learning requirements. There is a need for building capacities of the distance educators equipping them with the essential skills to handle the emerging challenges. The various challenges facing the distance education systems at present necessitate innovative approaches, enhanced performance, and effective utilisation of existing (as well as development of new) capabilities, and resources for achieving the required objectives. The use of the blended approach in training in ODL institutions will enable the integration of the available technological opportunities, institutional teaching resources and expertise, and collaborative exchange, for cultivating and enhancing competencies, and also competitive advantage.

REFERENCES


COGNITIVE PRESENCE IN ONLINE GRADUATE PROGRAM TUTORIALS IN DISTANCE EDUCATION
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¹ Universitas Terbuka (INDONESIA)

Abstract
This study aimed to analyze the cognitive presence in online tutorials of the fully online program of the Master of Public Administration at the Indonesia Open University. The concept of cognitive presence in this study is part of the Community of Inquiry framework. Cognitive presence consists of four phases of critical inquiry, namely (a) triggering event, (b) exploration, (c) integration), and (d) resolution. This study used content analysis method. Text or transcripts in the discussion activities of 9 (nine) courses for twelve weeks were analyzed using unit message to identify whether cognitive presence occurred in the interaction among students and between students and tutors in the online tutorials. The findings indicated that cognitive presence occurred in 9 (nine) courses of the fully online program of the Master of Public Administration until the phase of integration. Cognitive presence did not occur in the phase of resolution.

Keywords: cognitive presence, online tutorial, community of inquiry, Indonesia Open University.

INTRODUCTION
The Indonesia Open University or Universitas Terbuka (UT) is a distance education institution where students are required to study independently. To assist students in the learning process, UT provides tutorials as learning supports. One of the form of tutorials that is offered by UT is an online tutorial. The online tutorial is a learning support service to assist students for better understanding in the subject matters.

The activities in the online tutorials in UT consist of initiation of materials, discussions, and assignments. Students are expected to be active in online tutorial activities, by reading the initiation materials, participating actively in the discussions, and doing the assigned tasks, in order to gain meaningful learning experience in the online tutorial. By actively participating in online tutorials means students interact with tutors and other students. It can help students in developing critical thinking, and can apply the skills gained from the tasks assigned by the tutors. Students’ participation rate also determines the success of the students in the online tutorial activities and contributes in the final grade of the course.

Students of the Master of Public Administration of fully online program were required to participate in online tutorials. Online tutorial was a place for students to interact and had discussions with other students. Students were expected to provide ideas and thoughts critically at the time of discussions. The role of tutor could influence the creation of critical thinking from students. Tutors could provide questions or cases that could stimulate students’ critical thinking in the discussion. In addition, critical thinking could also arise from discussions between students and tutors. However, in practice, sometimes tutors only provided questions that simply demanded a one-way explanation, and did not require students to have dialogues and discussions. Students only
answered questions in a monologue and did not respond to other students. In this case, the presence of critical thinking from students might not be much happening. Based on this background, I analysed how far critical thinking or cognitive presence occurred in the discussion activities of the online tutorial of the Master of Public Administration of fully online program. Cognitive presence in this study was the stage of critical thinking of students that was viewed from the framework of Community of Inquiry (Garrison, Anderson, & Archer, 2000). The cognitive presence stages within the framework were triggering events, exploration, integration and resolution.

REVIEW OF LITERATURE
Cognitive presence is one aspect in the Community of Inquiry framework (Garrison, Anderson, & Archer, 2000). The Community of Inquiry framework is used as a concept and tool to support the learning experience in online learning through computer-mediated communication (CMC) (p. 87). Community of inquiry is defined as "a cohesive and interactive community of learners whose purpose is to critically analyse, construct, and confirm the worthwhile knowledge" (Garrison & Vaughan, 2008, p.9). In other words, within the Community of Inquiry there is an interactive and cohesive online learning community that aims to analyse, build and confirm knowledge critically. These researchers argue that 'community of inquiry' is a place where students and instructors or tutors have a constructivist collaborative learning experience. This learner community interacts by combining three elements, namely social presence, cognitive presence and teaching presence.

The focus of this study is the cognitive presence. Cognitive presence is defined as "the extent to which the learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry." This model consists of four critical inquiry phases, namely (a) triggering events, (b) exploration, (c) integration, and (d) resolution (Garrison, Anderson, & Archer, 2001, p. 10-11).

Triggering event is the first phase of critical inquiry. Inquiry can be interpreted as the act of asking information. In this phase, issues, dilemmas or problems arising from experience are identified. Such problems can be intentionally provided by the instructor when they communicate discussions and tasks. However, in a more democratic and non-hierarchical online learning environment, every student can trigger or add questions or problems in the discussion. Here the instructor has a role to shape or remove the erroneous problem generations, so that the focus of learning remains in accordance with the lesson plan (Garrison, Anderson, & Archer, 2001). An example of this category is the provision of information which is then summed up into questions, asking questions, as well as posting new discussion messages (Park, 2009).

Questions raised in this stage should invite curiosity, interest, and encourage new perspectives. Good questions coming from relevant cases can lead to a deep investigation. For example, the question can begin with "Why do you think like this?" Or "What are the consequences of that" (Hosler & Arend, 2013). In addition, Bender (2003) suggests that to invite students to dialogue or discuss, tutors should create questions that support students in making comparisons, differences or predictions with questions such as: "What would happen if ...?" (p. 153).
The second phase in the critical inquiry process is exploration. In this phase, participants move between ideas or personal thoughts and ideas or shared thoughts. At the beginning of this phase, students are required to understand the problem, and then move on to explore relevant information. At the end of this phase, students begin selecting information relevant to the problem. Characters of this phase are brainstorming, questioning, and exchanging information (Garrison, Anderson, & Archer, 2001). Examples of these categories are different ideas presented in a single message, narrative from personal experience, description or fact (which has not been used as evidence in conclusion), the message-maker explicitly explores by asking the question: "am I off track? ", Is that true? "Participants offer opinions that are not yet supported by the data (Park, 2009).

The third phase is integration. The character of this phase is the construction of ideas emerging from the exploration phase. During the transition from the exploration phase, students begin assessing the application of ideas in terms of how well they connect and explain the problem or event in question. In this phase the students repeatedly move between reflection and discussion. Evidence of integration of ideas and constructions of meaning must be inferred from communication within the community of inquiry. The tutors in this phase are expected to play an active role in the teaching presence role to diagnose the wrong conception, provide probing questions, comments, and additional information as an attempt to model students how to think critically (Garrison, Anderson, & Archer, 2001).

The fourth phase is the resolution of a dilemma or problem by way of direct action. In the context of education. It usually contains a test indirectly using the thoughts and consensus built in to the community of inquiry. This fourth phase requires clear expectations and opportunities to implement new knowledge (Garrison, Anderson, & Archer, 2001). Examples of this phase are real-world applications, and testing solutions.

METHODOLOGY

The method used in this study was content analysis. Content analysis was a research methodology that used a set of procedures to make valid inferences from text (Kanuka and Anderson, 1998). Procedures performed on content analysis included identifying and interpreting variables, collecting samples from text, and validity in defining categorization of the text. The process of selecting a segment of a transcript required the author to define the unit of analysis. Rourke, Anderson, Garrison, and Archer (1999) identified five units of analysis that have been used in computer conferencing research, namely other proportion units, sentence units, paragraph units, thematic units, and message units.

To collect the necessary data in this study, I used data collection techniques through the message unit analysis. Using the message unit as the unit of analysis, I saw messages that arise from interactions between students and tutors in initiations, discussions and assignments, to define categories (Anderson, et al., 2001) of the 9 (nine) courses of the Master of Public Administration of fully online program. For the selection of subjects, purposive sampling technique was used. I looked at the text of the online tutorials for 12 (twelve) weeks, and identified whether cognitive presence occurred in the online tutorial activities.
Following the analytical methods used in the study by Anderson et al (2001), I did not only look at each message unit that showed cognitive presence in just one category; I also looked at the possibility of whether one message showed the characteristics of more than one category. Therefore, any messages posted by the instructor or tutor was coded as indicating or not indicating one or more indicators of each of the three categories of cognitive presence. For reliability testing of this text analysis, 2 (two) persons were assigned to analyse all messages in the discussion transcript during the 12 (twelve) weeks of the online tutorial.

FINDINGS AND DISCUSSIONS
From the data analysis using cognitive presence category and indicator from Park (2009) and by using message unit in the online activities of 9 (nine) tutorial courses of the Master of Public Administration of fully online program, I found that cognitive presence occurred in discussion activities, although not all cognitive presence indicators appeared.

According to Park (2009), the cognitive presence categories were triggering events, exploration, integration, and resolution. Table 1 showed the frequency of cognitive presence categories observed from discussion activities in 9 (nine) courses of the Masters of Public Administration of fully online programs in 2015.1, that were written by tutors and students.

Table 1. Frequency of Cognitive Presence Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Proses socio-cognitive</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triggering event</td>
<td>Recognizing the problem</td>
<td>Presenting background information that culminates in a question</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Sense of puzzlement</td>
<td>Asking questions. Messages that take discussion in new direction</td>
<td>65</td>
</tr>
<tr>
<td>Exploration</td>
<td>Divergence - within the online community</td>
<td>Unsubstantiated contradiction of previous ideas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divergence - within a single message</td>
<td>Many different ideas/themes presented in one message</td>
<td></td>
</tr>
<tr>
<td>Information exchange</td>
<td></td>
<td>Personal narratives/descriptions/facts (not used as evidence to support a conclusion).</td>
<td>432</td>
</tr>
<tr>
<td>Suggestions for consideration</td>
<td>Author explicitly characterizes message as exploration, e.g., “Does that seem, about right?” “Am I way off the mark?”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to Darabi, et al. (2011), in the triggering event phase, students would clarify information to understand initiation materials and discussion questions. In the exploration phase, students would apply their ideas in different settings and analyze the parts of the content. Students then would assess and evaluate the results of the analysis in relation to several criteria in the integration phase. Based on this evaluation, students would create solutions in the resolution phase.

From the results of data analysis, it appeared that in the online tutorial of the Master of Public Administration of fully online program, the tutors created questions of the discussions or triggering the ideas. These tutors provided discussion questions or case studies that had to be answered by the students. Students were not seen participating in providing discussion questions. In answering discussion questions, some students sometimes clarify by rewriting the discussion questions before they answered the questions.

In the discussions, most of students (432 messages) answered the discussion question only to the exploration phase, where the most written messages written by the students were those

<table>
<thead>
<tr>
<th>Brainstorming</th>
<th>Adds to established points but does not systematically defend/justify/develop addition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaps to conclusions</td>
<td>Offers unsupported opinions</td>
</tr>
</tbody>
</table>

**Integration**

<table>
<thead>
<tr>
<th>Convergence—among group members</th>
<th>Reference to previous message followed by substantiated agreement, e.g., “I agree because…”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergence—within a single message</td>
<td>Building on, adding to others' ideas.</td>
</tr>
<tr>
<td>Connecting ideas, synthesis</td>
<td>Justified, developed, defensible, yet tentative hypotheses</td>
</tr>
<tr>
<td>Creating solutions</td>
<td>Explicit characterization of message as a solution by participant</td>
</tr>
</tbody>
</table>

**Resolution**

| Vicarious application to real world testing solutions | None coded |
| Defending solutions |

According to Darabi, et al. (2011), in the triggering event phase, students would clarify information to understand initiation materials and discussion questions. In the exploration phase, students would apply their ideas in different settings and analyze the parts of the content. Students then would assess and evaluate the results of the analysis in relation to several criteria in the integration phase. Based on this evaluation, students would create solutions in the resolution phase.

From the results of data analysis, it appeared that in the online tutorial of the Master of Public Administration of fully online program, the tutors created questions of the discussions or triggering the ideas. These tutors provided discussion questions or case studies that had to be answered by the students. Students were not seen participating in providing discussion questions. In answering discussion questions, some students sometimes clarify by rewriting the discussion questions before they answered the questions.

In the discussions, most of students (432 messages) answered the discussion question only to the exploration phase, where the most written messages written by the students were those
related to the information exchange indicator. In the indicator, students gave opinions and described the facts to the tutor and other colleagues.

In the integration phase, only a small percentage of students answered the discussion questions. In here, most messages (59 messages) of students remain individually answered, but they developed, unified, and justified their own answers to the extent of the temporary hypothesis. Only 2 students referred to other student messages by agreeing to the answers of the other students and giving the reasons. In this integration phase, students not only gave opinions and facts, but they also analyzed their own answers. Meanwhile, none of the messages from the students in the online tutorial discussion forum were included in the resolution phase. In this resolution phase, students were expected to provide solutions to a case in discussion.

According Toledo (2006), the types of questions raised in the discussion affect the level of critical thinking of students. However, according to Meyer (2003) and Park (2009), although this method could attract attention and keep students active in discussions, the discussions usually did not go beyond the exploration phase. More structured discussions and better discussion of facilitation were required (Darabi, et al, 2011).

From my observation, the discussion questions proposed in the tutorials of certain courses in the online tutorial of the Master of Public Administration of fully online program had partially provoked critical thinking, but it was not a question of encouraging discussion among students. Among the 9 (nine) courses in the online tutorials, some tutors provided discussion questions by asking students to read the discourse or case, then asked them to give an opinion by associating the theory with the case. This resulted in the students tended to answer the question individually. They did not respond to answer from other student colleagues. There was not much dialogue or collaboration in building arguments or case analysis. As a result, there was no interactive discussion between students. With no interaction between students, the content of the discussion was a collection of answers to questions that did not co-exist with one another. It did not rule out the same student answers. Thus, it could be understood that student discussion’s answers did not move from the exploration phase.

I think the types of discussion questions that could provoke collaborative discussions were the type of case studies questions. Tutors could ask students to work together to discuss cases and how to solve the cases. Thus, students were invited to think critically and collaborate with other students in solving cases. It was hoped that with this type of questions, cognitive presence would be present until the integration phase, or even resolution phase.

In addition, from my observation, the tutors did not play much role as a facilitator in the discussions. They did not give much feedback during the discussions. The presence of tutors in their capacity as facilitators by providing feedback on student discussions was expected to improve the cognitive presence of students.

CONCLUSION
Cognitive presence occurred in all 9 (nine) online tutorial courses of the Master of Public Administration of full online program. It occurred majority in discussion forums, and it was only in the triggering event and exploration phases. Meanwhile, only a few cognitive presences were
present until the integration phase. While in the resolution phase, cognitive presence was not present at all.
The cognitive presence phase could be influenced by the type of questions asked by the tutor in the discussion forums. Tutors needed to develop questions that provoked critical thinking from students and provoked discussions among students. Students needed to have a collaborative discussion, not just answer the discussions individually. Tutors also needed to provide feedback and encouraged students to collaborate in discussions. The types of questions that provoked discussions and collaboration between students would create cognitive presence until the resolution phase.

REFERENCES
UTILIZATION OF PSYCHOLOGICAL SKILLS WHILE DEVELOPING VIDEO LESSONS FOR THE DISTANCE LEARNERS

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² Director & Professor, STRIDE, IGNOU (India)

Abstract

An online survey was conducted on utilization of attention, listening, reading and memory skills of the distance learners of Master of Arts in Distance Education Programme and Post Graduate Diploma in e-Learning of Programme (IGNOU), India. The main objectives of this study were to (i) study whether the learners use any specific skills while attending the video, listening the audio, reading the contents presented through PPTs or slides; (ii) examine whether the distance learners face trouble remembering the contents of the video lesson, and (iii) present the feedback received from the learners on the five video lessons prepared by one of the authors.

Analysis of the responses received through the online survey of sixty two respondents revealed that around 46% learners face trouble remembering the initial contents of a video session of 30 to 40 minutes duration after they finish watching video. Around 37% learners face trouble remembering contents presented 5-10 minutes before the content they are watching now. Around 53% learners never use any specific skills while attending video lessons. Around 58% respondents rated their attention and memory skills as average, around 57% percent rated reading skills as average, and around 48% rated listening skills as average.

These findings helped one of the author preparing five video lessons (each of 30 minutes duration) on ‘Design and Facilitation of e-Learning Courses’ as a part of MOOC.

Key words: Video lessons, attention skills, listening skills, memory skills, MOOC

INTRODUCTION

Video has taken an important place in teaching and learning. Whether it is classroom teaching-learning, open distance education, online learning and so on, educators, instructors and others are creating videos of different durations using different techniques. Educational videos add new dimensions to learning and make learning more meaningful and effective. Video lessons provide accessibility to those learners with disabilities and who are not able to attend a live classroom. Due to advancement to technology, any learner can use a video as and when needed. The learner can use it repeatedly, which is important for retention. High quality video lessons may help learners to attend the video lessons without any interruption, help in memorizing the contents and recall whenever necessary. Video lessons can provide a multidimensional experience to the learner by adding photos, graphs, chart, slides, screenshots, on-screen captions and so on. This type of presentation allow learners with different learning strategies/skills to retain information/content in more suitable way. Videos can also increase interactivity in teaching-learning process.
A huge amount of videos are available online. However, a question comes to mind, ‘are all the video programmes effective’? The authors of this article have watched several hundred video programmes available online and offline as well. It is noted that most of the video programmes specifically the programmes developed for different groups of learners are not of high quality as those did not include the elements those serve as a productive part of a learning experience. Some of the primary considerations for constructing educational material including video are: cognitive load, learners’ engagement with video and active learning (1). Learners psychological skills e.g. attention and listening skills, reading skills, memory skills etc. need to be taken care of while developing educational video. If the learners could not follow the contents and presentation of the video and recall the contents after watching the video, this will be a wasted effort to develop such a video programme.

REVIEW OF LITERATURE

Several studies reported in the literature have shown that video can be an effective educational tool (2), (3), (4), (5), (6), (1) According to Brame (1) if video has to serve as a productive part of learning experience, the instructor may consider three elements for video design and implementation: cognitive load, active learning and engagement/ affective domain.

Cognitive load theory (7), (8) suggests that memory has several components: sensory memory, working memory and long-term memory.

Sensory memory collects information from the environment and lasts only for a short time. Information is selected for temporary storage and processing in working memory as it has limited capacity. After processing in working memory, information is encoded in long-term memory.

The instructor should keep in view that the learner must be selective due to limited capacity of working memory. This has significant implications for developing educational video programmes.

As the working memory has a limited capacity and information must be processed by this memory to be encoded in long-term memory, it is necessary to prompt working memory to accept process and send to long-term memory the most important information (9), (1).

Working memory has two channels for information acquisition and processing: a visual or pictorial channel and an auditory/verbal processing channel (10). The instructor can maximize the capacity of working memory by using both the channels. The cognitive theory articulates the goal of learning as ‘meaningful learning’. This requires cognitive processing which included (i) paying attention to the presented material, (ii) mentally organizing the presented material into a coherent structure, and (iii) integrating the presented material with existing knowledge (10).

The cognitive load theory suggests that any learning experience has three components: intrinsic load, germane load, and extraneous load.
The *intrinsic load* is inherent to the subject under study and is determined in part by the degrees of connectivity within the subject.

The *germane load* is the level of cognitive activity necessary to reach the desired learning outcome (e.g., making comparisons, analyzing the components etc.).

The *extraneous load* includes the cognitive effort that does not help the learner toward the desired learning outcome (e.g. load that arises from confusing instructions, irrelevant and/or extra information etc.).

Based on this theory, experts and researchers have noted several recommendations about educational video. Some are noted below:

(i) **Signalling or Cueing** ([11]): It is the use of on-screen text or symbols to highlight important information. Signalling or cueing may be provided by a change in colour or contrast, or a symbol that draws attention to a region of a screen. By highlighting the key information the instructor can direct learner attention. This can reduce extraneous load and can increase germane load by emphasising the organization of and connections within the information ([11]).

(ii) **Segmenting**: It is the chunking of information which allows learners to engage with small pieces of new information and also to give them control over the flow of new information. This type of segmenting is important for learning from video ([9]).

(iii) **Weeding**: It is the elimination of extraneous information e.g. music, complex background etc. which increase extraneous load and can reduce learning. Researchers have seen that weeding can improve retention and transfer of new information ([9]).

(iv) **Matching modality**: It is the process of using both audio and visual channel to convey new information. If an animation or slide is used on screen and at the same time the presenter narrates the content it gives the learner dual and complementary streams of information to highlight features that may be processed in working memory. Researchers have shown using both channels to convey complementary information increase learners’ retention and ability to transfer information ([10]) and also increase learner engagement with videos ([12],[1]).

If the learners are not engaged with the educational video they watch, it will be wasted effort. The instructor must include elements that help promote learners engagement.

*Length of the video*: Guo and colleagues ([13]) observed that maximum medium engagement time of the learners for a video of any length was six minutes only.

*Style of presentation*: Meyer ([14]) opined that conversational style encourages learners to develop sense of social partnership with the video presenter that leads to greater engagement.
Guo and colleagues ([13]) noted that if the video presenter speaks relatively quickly and with enthusiasm the learner engagement increased.

Impact of guiding Questions: Researchers observed that there is an impact of guiding questions on learners’ learning from educational video ([15]).

Video is a rich and powerful medium being used in e-learning. Researchers have highlighted advantages of video in various situations.

It can present information in an attractive and consistent manner. ([16]).

Video provides a multi-sensory learning environment that may improve learners’ ability to retain information ([17]).

Video can enhance learning outcomes due to vivid and fascinating presentations. In an early study, Nugent ([18]) found that stories presented via the combination of visual and auditory information helped in better retention than those presented via a single information source.

Video as a combination of images and sound creates a powerful medium for explanation of concepts while instructing learners with content that provides multiple senses ([19]).

With this background in view the present topic has been taken up for study. The main aim is to study how the psychological skills can be utilized while developing video lessons for the distance learners and to obtain feedback on those videos from the learners.

OBJECTIVES OF THE STUDY

Objectives of the present study are to:

(i) Examine whether the distance learners face trouble remembering the contents of the study materials after reading;
(ii) Study whether the distance learners face trouble remembering the contents of the video lesson of 30-40 minutes duration;
(iii) Study whether the learners use any specific skills while attending the video, listening the audio, reading the contents presented through PPTs or slides;
(iv) Develop video lessons of a suitable duration keeping in view the responses of the learners, and
(v) Discuss the feedback received from the learners on these video lessons.

METHODOLOGY

The present study has two parts:

Part I
An online survey has been conducted on utilization of attention and listening, reading and memory skills of the distance learners of Master of Arts in Distance Education Programme (MADE) and Post Graduate Diploma in e-learning Programme (PGDEL) of IGNOU, India.

**Population**
All the distance learners of MADE and PGDEL Programme of IGNOU who enrolled during 2012-2014 sessions were the population of the study.

**Sample**
One hundred twenty learners were selected randomly (50% male, 50% female) as participants for this study.

**Tool**
Likert type scale consisting of 17 main items and 34 sub-items developed by the researchers and validated by 5 experts in this area has been used.

Out of 17 main items, 13 items and all the 34 sub-items are based on 3 point Likert scale (Always, Sometimes, Never) and 4 main items are based on 5 point Likert Scale (Excellent, Very Good, Good, Poor, Very Poor).

**Analysis**
Altogether 73 distance learners of the two programmers have responded. However, responses of 62 distance learners have been considered for final analysis as they have responded to all the items and sub-items included in the scale. The results are presented in percentage in the form of a table.

**Part II**
Keeping in view the findings obtained from 62 respondents, the second author prepared 5 video lessons (each of 30 minutes duration) on “Design and Facilitation of e-learning Courses as a part of MOOC.

A group of 09 learners watched the videos and given feedback in a structured format on 2 video lessons.

The feedback received from the learners have been presented in the second part of the study.

**RESULTS AND DISCUSSION**
The learners were asked to respond to a statement with regard to remembering the contents of the study materials as the time passes on during and after reading. The responses reveal that after completion of a ‘Unit’ of the Block of study material around 68% learners sometimes forget the contents of the opening unit of the Block. Around 70% learners sometimes forget the contents of the two units before the one now reading, around 41% learners sometimes forget the contents
of the unit just before the one now reading, whereas, more than 55% learners never forget the same. Again, around 31% learners sometimes forget the contents of the section just before the one now reading, whereas, around 68% learners never forget the contents of the section just before the one now reading (Table 1).

Table 1: Shows the responses of the participants (in percentage) with regard to remembering the content of the study material

<table>
<thead>
<tr>
<th>When I read study material I face trouble remembering</th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents of the opening unit of the block</td>
<td>4.8</td>
<td>68.2</td>
<td>27.0</td>
</tr>
<tr>
<td>Two units before the one now reading</td>
<td>7.9</td>
<td>69.9</td>
<td>22.2</td>
</tr>
<tr>
<td>Unit just before the one now reading</td>
<td>3.2</td>
<td>41.3</td>
<td>55.5</td>
</tr>
<tr>
<td>Section just before the one now reading</td>
<td>1.6</td>
<td>30.7</td>
<td>67.7</td>
</tr>
</tbody>
</table>

The findings reveal that time plays an important role in forgetting. Again, the percentage of learners facing trouble in remembering the contents of units is significant. So, there is a need to know whether the learners use any specific reading skills for better retention.

The learners’ were asked to respond to a statement with regard to remembering the contents of the video lecture of 30-40 minutes duration as the time passes on during and after watching the video lesson. The responses reveal that after watching the whole video, around 16% learners always forget the introduction part of the video, around 30% learners sometimes forget the same contents and around 54% learners never forget the same.

Around 9% learners always forget the contents watched 20 minutes before the one now watching in a video, programme, around 37% learners sometimes forget the same contents, whereas, around 54% learners never forget the same.

Around 8% learners always forget contents watched 5-10 minutes before the contents watching now in a video programme, around 29% sometimes forget the same content, and around 63% never forget the same (Table 2).

Table 2: Shows the responses of the participants (in percentage) with regard to remembering the content of the video lecture

<table>
<thead>
<tr>
<th>When I watch a video programme/lecture of 30-40 minutes duration I face trouble remembering</th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction part after watching the whole video</td>
<td>16.1</td>
<td>30.2</td>
<td>53.7</td>
</tr>
<tr>
<td>Contents watched 20 minutes before the one I am now watching</td>
<td>9.0</td>
<td>37.0</td>
<td>54.0</td>
</tr>
<tr>
<td>Contents watched 5-10 minutes before the one I am now watching</td>
<td>7.9</td>
<td>28.7</td>
<td>63.4</td>
</tr>
</tbody>
</table>
Almost similar findings are evident with regard to remembering content of the video lecture. It is important to study whether the learners use any specific skill for watching video lecture which generally use both auditory and video channels.

In response to a statement whether the learners face trouble in attending a video lecture of 30-40 minutes duration, around 8% learner stated that they always face trouble, around 46% learners sometimes face trouble and another 46% learners never face trouble.

In response to another statement, 60% learners stated that sometimes they face problem to concentrate on audio, whereas, 37% learners never face any problem.

In response to statement related of study skills while reading the contents presented through PPTs slides, 40% learners state that always they use specific study skills, 41% learners sometimes use specific study skills, whereas, 19% learners never use study skills while reading the same contents.

In response to another statement, 19% learners state that always they use specific skills while watching video online, around 51% learners sometimes use skills and around 30% learners never use skills while watching a video online.

Again, 11% learners state that they always use attention and listening skills while watching video lecture, 37% learners state they sometimes use these psychological skills, whereas, 52% learners state they never use those skills while watching video (Table 3).

Table 3: Shows the responses of the participants (in percentage) with regard to use of attention, listening, reading and memory skills

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I face trouble attending a video lecture</td>
<td>8.2</td>
<td>45.8</td>
<td>46.0</td>
</tr>
<tr>
<td>I face problem to concentrate on audio</td>
<td>3.0</td>
<td>60.0</td>
<td>37.0</td>
</tr>
<tr>
<td>I use specific study skills while reading the contents presented through PPTs/slides in a video</td>
<td>40.0</td>
<td>41.0</td>
<td>19.0</td>
</tr>
<tr>
<td>I use specific skills while watching a video online</td>
<td>19.0</td>
<td>51.2</td>
<td>29.8</td>
</tr>
<tr>
<td>I use specific attention and listening skills while watching video lecture</td>
<td>11.0</td>
<td>37.0</td>
<td>52.0</td>
</tr>
</tbody>
</table>

It is interesting to note that a significant percentage of learners use specific skills while watching video specifically the visual elements. While listening to audio element significant percentage of learners face trouble and do not use any specific attention and listening skills while watching video.
The researchers were interested to know how the learners rate their psychological skills like attention skills, listening, skills reading/study skills and memory skills. Responses of the learner reveal that around 8% learners rate their attention skills as excellent, 19% very good, around 30% good, around 38% poor and around 5% very poor.

Similarly, around 6% learners rate their listening skills as excellent, around 17% very good, around 27% good, 45% poor and 5% very poor.

In response to another statement the learners reveal that around 3% learners rate their memory skills as excellent, 27% as very good, around 57% good and around 13% poor.

Lastly, around 5% learners rate their study skills as excellent, around 31% as very good, around 47% good, and 16% poor (Table 4).

Table 4: Shows how the participants rate their attention skills, listening skills, memory skills and study skills

<table>
<thead>
<tr>
<th></th>
<th>Very Poor</th>
<th>Poor</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you rate your attention skills?</td>
<td>4.8</td>
<td>38.0</td>
<td>30.1</td>
<td>19.0</td>
<td>8.1</td>
</tr>
<tr>
<td>How would you rate your memory skills?</td>
<td>0.0</td>
<td>12.7</td>
<td>57.1</td>
<td>27.0</td>
<td>3.2</td>
</tr>
<tr>
<td>How would you rate your listening skills</td>
<td>5.4</td>
<td>45.0</td>
<td>26.8</td>
<td>17.1</td>
<td>5.7</td>
</tr>
<tr>
<td>How would you rate your study skills</td>
<td>0.0</td>
<td>16.3</td>
<td>47.2</td>
<td>31.7</td>
<td>4.8</td>
</tr>
</tbody>
</table>

The above findings are based on a video lecture of 30-40 minutes duration. Around 54% learners reported that (either always or sometimes) they face trouble while watching a video of such duration. It proves that the learners engagement dropped off as the video becomes longer in duration.

It is interesting note that the learners forget the contents of the video lectures as time passes on during the video lecture or at the end. It is important to highlight that majority of the learners rate their memory skills as average and a good percentage as poor.

Similarity, a significant percentage of the learners rate their attention skills, listening skills and reading/study skills as average. Furthermore, the learners do not use those skills always for watching video lessons.

Keeping these findings, and the findings reported in the literature in view the second author prepared 5 video lessons (each of 30 minutes duration) on ‘Design and Facilitation of e-learning courses’ as a part of MOOC. The highlights of these video lessons are the followings:

(i) Use of Access Devices, which help the learners to come closer to the content, to be attentive and motivate to watch the video.
(ii) Presentation of structure of the video lesson using both audio and visual channels.
(iii) Making linkages with previous learned contents.

(iv) Spell out objectives/learning outcomes clearly using both audio and visual channels.

(v) Presentation of contents step by step. A voiceover presentation combining visual information with audio narration.

(vi) Change of colour and contrast for drawing attention and better processing in working memory by highlighting important ideas or concepts in visual channel with audio narration.

(vii) Minimize extraneous cognitive load.

(viii) Use of both audio and visual channel including illustrations to convey appropriate part of an explanation.

(ix) Use of conversational style and enhance engagement of the learners with the video.

(x) Suggest self-assessment questions to take up immediately after the video session.

(xi) Repetition of important points whenever necessary and summary at the end using both auditory and visual channel.

(xii) Making Linkages with next video lesson.

Fig.1: video lecture using both audio and visual channels
5.1 Feedback on Video Lessons

Feedback obtained from learners have been detailed below:

- All have appreciated the presence of access devices (presentation of structure, objectives, introduction, video guide, summary and so on).
- Majority have appreciated the linkages with previous learned contents and next video lessons.
- All appreciated the change of colour while highlighting important words/sentences which helped in retention of the contents.
- All have expressed satisfaction of voiceover presentation combining visual information with audio narration.
- All appreciated conversational style.
- Majority have expresses satisfaction of getting self assessment questions in between presentation which was a new experience to them.
- Overall comment was that was that the video lesson was a complete package of educational video.

The following suggestions have been noted by the learners for further improvement in video.

- Length of the video may be shorter i.e. around 12-15 minutes. If it is 30 minutes then segmenting may be accomplished by including “click forward” pauses within a video. Shorter video and/or video with click forward facility are important for learner engagement with video ([13]) and learning from video ([9],[16]).

  Another aspect may be to use ‘animation’ on screen while narrating the contents. This may help in better understanding the contents.

  Embedded questions improved the learners’ performance on subsequent quizzes (Vural, 2013). So, in an interactive video more and more embedded questions may be added.
CONCLUSION

While developing educational video psychological skills of the learners specifically attention skills, listening skills, reading skills and memory skills need to be kept mind. Some important strategies need to be used like use of conversational style, presentation of structure and objectives of the video at the beginning, making linkage with previous knowledge, a voiceover presentation combining visual information with audio narration, change of colour and contrast for drawing attention and better processing in working memory, minimizing extraneous cognitive load by avoiding sound and complex background, repeating important words and points, making the video short, and adding embedded questions.

REFERENCES


INNOVATION AND GOOD PRACTICES OF MANAGEMENT STUDIES IN OPEN DISTANCE LEARNING IN SRI LANKA

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ABSTRACT

Universities need to have new strategies and “Future ready” plan can be considered as core competency in Education sector. How well equipped are today’s universities for tomorrow’s demands? In the face of enormous socio-economic and demographic challenges, Sri Lankan Universities require a more advanced educational performance, providing a better contribution to innovation, competitiveness and economic growth. Educational systems and associated business models must be agile enough to respond and survive to changing external factors. Universities are currently facing an increasing demand for management graduates, especially in the Open Distance Learning in Sri Lanka.

Ascertaining one’s role and place within the innovation society is essential. Nowadays not only open and distance learning universities but also traditional universities are started open distance learning mode. To be ready for the next decade these universities must search to create added value and innovate their institutional models accordingly.

In this paper, the open and distance learning providing universities are assessed on their potential to innovate beyond flexible education towards generating new ways of academic and commercial entrepreneurship, including networked initiatives of educational and enterprise incubation. It is evident that universities cannot do without creativity, innovation and entrepreneurship: this is the engine of prosperity not only for universities, but for enterprises, economy and society as a whole.

Keywords: educational innovation, institutional scenarios, academic entrepreneurship

INTRODUCTION

New innovations in distance and open learning are ever taking place. However, the pace has been intensified in this direction by the advances in information and communication technology. The innovators and early adopters have been there in all the ages that make these innovations take place and new ideas flourish. Distance Education and Open Learning coupled to the related attributes of Flexible and Multimedia Learning have developed by leaps and bounds over the last three decades. The Open University model of the leading open universities in the world with several modifications to suit local cultural, social & economic needs have been adopted in a number of countries. The age old concept of the grant of degrees in universities has got extended to the award of Diplomas & Certificates at lower levels in both conventional and non-conventional universities; this has been largely due to the momentum generated by Distance and Open Learning directed towards further and continuing education of adults and the employed. Concurrently the concept of giving mature students a second chance or even a delayed chance through Distance and Open Learning has continuously progressed. The establishment of the Commonwealth of Learning with its headquarters in Vancouver, Canada has over the past 20 years presented a much welcome catalytic effect for speedier developments in the enhancement of tertiary and higher education through Distance Education and Open Learning.
Open and Distance Learning in Sri Lanka

Sri Lanka’s burst into Open and Distance Learning commenced about more than 40 years ago with the establishment of the Sri Lanka Institute of Distance Education in the late seventies for the grant of diplomas. However the establishment of the Open University of Sri Lanka in 1980 with the absorption of the Sri Lanka Institute of Distance Education. Sri Lanka was also the first country in the South Asian Region and seventh in the world to establish an Open University. ‘University All’, the Open University provides a ladder of opportunity to 40000 students representing varied social classes, age groups, ethnic groups, religions and languages.

The vision of the Open University of Sri Lanka (OUSL) is “To be the premier Open and Distance Learning institution in Asia through excellence, efficiency and equity in lifelong learning.” OUSL enables students to enroll at Foundation Level and then obtain higher credentials even up to the PhD level.

University education become more & more severely competitive and the government resorted to standardization mechanisms in an attempt to facilitate the admission of students from rural and underprivileged areas. While the number of students admitted to conventional university free education was less than 6% of the relevant student cohort. However the important difference between theory and practice as far as the concept of Distance Education and Open Learning was concerned in Sri Lanka was the fact that Sri Lanka had a huge number of school leavers who had not had the practical opportunity to read for a Sri Lankan University Degree in any field, even if they had the money unless they went abroad. The demand for higher education provision continues to grow annually and supply cannot meet demand. In 2015 only 17.14 percent out of the 60.46 percent students satisfying minimum entry were selected for university in Sri Lanka.

There are approximately more than 10,000 Sri Lankans going abroad on annual basis. Demand for international education and qualifications continue to grow. An increasing number of foreign and private institutions see Sri Lanka as a significant market, as they seek to diversify. They are also establishing more courses run jointly with Sri Lankan institutions in-country, and / or promoting distance or open learning methods.

There is also demand for postgraduate studies in the research fields. Graduate output from Sri Lankan universities for the year 2005 were 12,545 (first degree) and 4,589 (postgraduate) and these were increased for the year 2015 as 29,545 first degree and 7,513 postgraduate. Out of these, a considerable percentage of graduates preferring research programmes have also increased in the fields of management studies and ICT. In addition, some of other Universities have introduced new undergraduate courses in online system. However, there are no postgraduate courses in these fields and, as a result there is further demand for research programmes abroad. MBAs have become very popular with professionals, but they generally demand for distance learning / affiliated courses, due to the high cost and employed people.

Management Studies at the Open University of Sri Lanka

The degree programme in Management Studies at the Open University of Sri Lanka drew in thousands of applicants, a considerable number of whom were raw school leavers and young students many of whom were employed, mature or adults. While an admission test had to be held for Management in view of the gross inability of the available human resources to accommodate more than about 1500 students annually, all the applicants for Management Studies were admitted disregarding severe constraints coupled with the need for conduct of Day schools. Sri
Lanka also had the added difficulty that self studies in Sri Lankan schools had a severe setback since the abolition of any type of distance education in the early seventies.

Bachelor of Management Studies Honours (BMS (Hons)) Degree programme in four years—we in fact took 5 to 6 years to finish the programme even through with a depleted lot of students. Instructional day schools, home assignments and periodic assessments tests took a pride of place as teaching tools from the inception of the programme. These together with the inevitable need for eligibility through the attainment of a minimum mark for continuous assessment have been successful motivating mechanisms for students.

The BMS degree programme has on the other hand catered largely to more experienced and adult learners on account of the very restrictive and competitive admission test that enables only less than 30% who apply to be admitted into the programme. Apart from this degree programmes which were commenced at the inception of the Open University of Sri Lanka other degree programmes in certificate and master level have been also offered to students over the years with considerable success. The Distance Education Mechanism and the Open Learning Philosophy have been very effectively adopted in all these programmes in enabling large numbers of Sri Lankan students, both adults and School Leavers, to pursue degree programmes in an effective and successful manner through the Open University of Sri Lanka.

The successful competition of the BMS and DIM and CEMBA/CEMPA, MBA in HRM, ESBM programme at the Open University of Sri Lanka and its continuance over two decades producing over 3500 graduates educated through a very much more welcome and motivated mechanism of distance education has indeed been a success story in the Open University of Sri Lanka. Not only adults, the matured and the employed, which are the conventional targets group for non conventional distance education, but also a large number of school leavers, who would otherwise never have been enabled to obtain a recognized and acceptable university education, were able to reap the benefits of post-secondary education through the Open University of Sri Lanka.

The Open University of Sri Lanka through the mechanism of Distance Education and the concept of open Learning, has therefore become the only effective path available for an average Sri Lankan to pursue a recognized university degree at a moderate cost. It is indeed so gratifying and satisfying to observe the large number of persons employed at middle level making use of the opportunity provided by the Open University of Sri Lanka to obtain a University Degree and better their prospects and enhance their career re-development.

LITERATURE REVIEW

Quality ODL

Higher education including open & distance learning is an instrument of transformation. This transformation cannot come about without high quality of the system and what the system offers. It is difficult to define quality. In the distance learning system, quality is best defined as fitness for purpose in combination with exceptional high standards, perfection and consistency, value for money, and transformation capabilities. Quality assurance must cover areas such as curriculum design, content and delivery organization; teaching, learning and assessment; etc

Sri Lanka has always been quality conscious in education around the world. From times immemorial, Sri Lankan peers have laid great emphasis on quality education, and evolved systems and concerns for ensuring quality. In recent times, several national level efforts are made
to ensure quality. It is well recognized that higher education including open and distance learning, is an instrument of social and economic transformation. It is the most important source of HRD all over the world. One cannot think of this transformation without a quality conscious education system. Quality in higher education is synonymous of well developed HRD scheme. The education without quality is no education at all.

There are two aspects of quality in the educational context: quality of the system as a whole and quality of what the system offers to the students or the learners. In relation to conventional education quality covers various components of face-to-face teaching like the infrastructure and basic amenities, social & geographical environment, professional competence of the teaching, administrative and finance staff, appropriateness and relevance of the curriculum, teaching-learning materials, teaching and learning processes, community support to the institution, performance evaluation of the teachers, students and the system as a whole.

Open learning removes barriers in access like admission pre-requisites, physical attendance at a particular place and time, possession of prescribed equipment, books, journals, and so on. Distance learning means that the learners are physically separated in space and time from the teaching institution and its staff. Nevertheless, the broad criteria of quality concerns mentioned above apply, to open and distance learning also. A special feature of ODL is the application of well-tried principles of division of labour and specialization operating more systematically and self consciously than in the conventional system. The five areas of quality concerns need to be vigorously applied to the following elements of ODL to ensure that no element lacks the expected degree of quality: Curriculum design, content and organization; Teaching, learning and assessment; Student progression and assessment; Student support and guidance.

In ODL Education Institutional support can be considered as important. This has been highlighted by Olcott & Wright (1995) as departmental support is essential for increasing participation in distance education. The Department of Management Studies at Open University of Sri Lanka is supporting students in terms of different aspects by understanding the nature of relationship with students. In ODL, learner support has been a central issue of interest to distance educators for last decades as practitioners and researchers have tried better to understand the experience of the distance learner, what holds learners back, and what contributes to persistence and success in the learning process (Brindley and Paul 2004).

The challenge was to Open University of Sri Lanka for CEMBA program is to compete with traditional MBAs offered by other national Universities and international Universities. This has been identified with different strategies. And more importantly is go in line with the Vision of Open University of Sri Lanka. According to (Tait,2000) The primary functions of student support are proposed as being threefold such as (1) cognitive: supporting and developing learning through the mediation of the standard and uniform elements of course materials and learning resources for individual students; (2) affective: providing an environment which supports students, creates commitment and enhances self-esteem; and (3) systemic: establishing administrative processes and information management systems which are effective, transparent and overall student-friendly.
Principles of International Distance Education

The international organization of distance educators, called the International Council for Correspondence Education (ICCE) from 1938, and since 1982 known as The International Council for Distance Education (ICDE) is one of the oldest existing international educational organizations. There can be no question that such internationalization of education will increase. The only questions concern how such global systems will be operated. At the same time as new technology pushes towards collaboration, this collaboration has been advanced in recent years by the establishment of such regional associations as the Asian Association of Open Universities, the Latin American Cooperative Network for the Development of Distance Education, and the European Association of Distance Teaching Universities.

The concept of international collaboration is something through which distance education has the potential to lead the world to greater tolerance and understanding. The unstable global environment threatens us all. Problems are bigger than can be resolved by individuals alone, no matter how eminent, at any level of social organization. "If we are going to keep this world together, we are going to have to create structures to understand other countries" (Delonghi, 1988).

Some idea of the range of possibilities for the future can be gathered from the following hierarchy of collaboration: Sharing information, Exchanging experience, Exchanging advisers and consultants, Collaborative staff training, Accepting each other's students, Acquiring and/or exchanging external materials, Collaborating on evaluating external materials, Collaborating on adaptation of materials, Cooperating on development of related course units, Establishing credit transfer arrangements, and Creating a common open learning system. There are now signs, as Moran and Mugridge (1993) have observed, "That, for political, educational, and financial reasons, collaboration is becoming a central feature of distance education at the local, regional, and international levels."

Granger and Gulliver (1991) reported that distance educators are concerned with the increasing number of entrepreneurs who view the new delivery systems chiefly in terms of their profit potential. They caution that computer networks and satellite uplinks are as accessible to unscrupulous and fraudulent organizations as they are to legitimate ones. All of this means that as distance education programs and institutions attempt to deal with new teams of competitors on their own playing field, international inter-institutional could become a necessary survival mechanism. In order to remain viable, educational institutions will have to work together cooperatively in partnerships and consortia for self-preservation.

What is happening is that the emerging technologies themselves are driving institutions to cooperate with other countries. In addition to practical and instrumental justification for collaboration, there are ideological reasons for engaging in collaboration that distance educators find as compelling as its pragmatic advantages. These reasons reflect the philosophical basis upon which most of distance education operates, the concept of opening up universal access to educational opportunities and resources.

Innovation in ODL Education and Development

Innovation is defined as “the process of making changes to something established by introducing something new.” It applies to “…radical or incremental changes to products, processes or services.” intentionally bringing into existence something new that can be sustained
and repeated and which has some value or utility (Selman n.d). Over the years there have been many changes in the way education is designed and delivered in parts of the world.

Today, technology is a significant driver behind change, and sometimes plays an important role in innovations in educational design and delivery. There are immense possibilities for greater and wider-spread change with the use of present-day technological advancements, as well as with the implementation of innovative educational programs. The challenge is to ensure that innovation plays a constructive role in improving educational opportunities for billions of people who remain under-served in a rapidly developing world.

Technologies that are now available in most Commonwealth countries increase the potential to support learners and educators, and can help remove the barriers of time and distance. New information and communications technologies (ICTs) do not replace all previous ones, nor do they replace the need for good educational design and delivery. However, appropriate technologies can provide additional possibilities for learner support, interactivity, and access to education.

How can innovation and technology offset the barriers of access and mobility that has been a deterrent to education in many parts of the developing world? With the emergence of smart phones, eBook readers, ‘Podcasts’ and ‘Vodcasts,’ Internet and low-cost computers, as well as solar electricity, cell phone access, and other technologies, comes the opportunity to provide education to assist individuals and communities in places under-served by traditional educational institutes. Technology and other innovations enable educational design and delivery to be adapted to the needs and environment of students enrolled in Open and Distance learning (ODL) and traditional educational programs. Thus, technology can also help programs shift to a ‘learner-centered’ approach to education.

The focus must be on achieving education and development objectives, not on popularizing technical gadgets. However, learners have demonstrated the ability to gain technical proficiency in a variety of software, hardware, and other information and communications technologies (ICTs). How can education systems assimilate this into program design and delivery in order to improve efficiency, control costs, and expand delivery of education to larger numbers of people? How will the convergence of communications technologies affect the potential for providing improved learner support?

Today, educators have the challenge of monitoring changes in technologies, determining if they apply to learners living in ‘the real world,’ and seeking ways to use technologies to complement and support instructional methodologies and practices. Given the challenges of insufficient numbers of teachers being trained, teachers leaving the profession, and too few classrooms in developing countries, can technology enable more people to access education? Will the next generation of low-cost computers make it feasible for more students in developing countries to have access to this technology? It is not the technology, but the potential it provides for access, efficiency, and enhanced learning opportunities. Computers better enable learners to access education through ODL. Learners can use Internet technology to communicate with other students or instructors across a city or around the world. Teachers and students can access information through virtual libraries and the World Wide Web, and use software to master technical as well as academic skills.

Providing education in new and unconventional ways is only one of a number of solutions, but it is through innovation that we can meet the challenges of improved efficiencies, lower costs,
increasing accessibility, and greater success in achieving development goals through education. Since its inception as an instructional paradigm, distance learning has been characterized by creativity on the part of the educators and administrators who strive to provide rigorous programs of study for students at a distance. These educators have also provided creative learning experiences characterized by access, choice, flexibility, and mobility options for the students they serve. However, education, and especially distance education finds itself in a dynamic state, fueled by information and communication technology innovations that emerge on a regular basis. The context of innovation in a field such as distance learning requires that its practitioners continually examine their practices with a view to improvement or even transformation.

The trends, innovations, and challenges of the current instructional technology context may provide the stimulus for a renaissance in practice for distance educators, and may begin to provide us with a Distance Learning model that draws upon the power of social networking applications to bring communities of learners together in new, positive, and cost-effective ways. Anderson (2005) has noted that social software tools can alter the workload of instructors by substituting costly student-instructor interactions with student-student and student-content interactions in ways that are both academically rigorous and cost-effective when scaled beyond small groups of students. Undoubtedly there will be many published accounts of research involving social software models over the next few years, examining both the pedagogical and administrative practices associated with these technical applications. However the process of innovation proceeds, distance educators are advised to monitor the social fabric of the web, the blogs and wikis, and the formal and informal networks of researchers and practitioners that contribute thought leadership and critique to the trends and innovations that have the creative power to alter and improve the practice of distance learning.

**Conceptualization of ODL Innovation Practices**

**Entrepreneurship and Employability:**

Bosma et al. (2009) identify agricultural, manufacturing and innovation driven economies. In agricultural or factor driven economies the notion of entrepreneurship is one of necessity: it is exercised to generate and maintain an individual income, herewith avoiding the risk of unemployment. In manufacturing economies or efficiency driven economies the notion of entrepreneurship is one of opportunity: it is exercised by the recognition of a good opportunity, which implies more income and a way of obtaining more independence. In service economies or innovation driven economies, the notion of entrepreneurship is one of possibility. Although modern societies are in need of innovation to sustain their economy, the individual and financial necessity of actually becoming entrepreneurial seems diminished: a relative decrease of entrepreneurial activity is observed for economies progressing from agricultural and manufacturing towards innovation driven economies (Bosma et al., 2009). Throughout the economic systems though, general school-level education and training is noted to increase with economic development, however post-school quality of entrepreneurship education and training is seen as inadequate in almost all innovation driven countries. The innovation driven economy strongly depends on entrepreneurs (Drucker, 2001). Entrepreneurship is one of the important drivers of economic growth, productivity, innovation and employment: with new firms entering the market and old ones disappearing, it allows for both growth and economic restructuring.
Worrying messages that in Sri Lanka concerning future labour market imbalances and expected shortages in skills and competences. Globalisation, greying populations, urbanisation and the evolution of social structures, together with the growing importance of information and communication technologies, biotechnologies, nanotechnologies and green technologies, have accelerated the pace of change in the labour market and associated requirements for skills and competences (EC, 2009). Although nobody is able to precisely predict what the future holds, it becomes more apparent that Europe is bequeathing us with an ageing, decreasing and more inflexible workforce which strongly requires anticipatory measures, this while simultaneously and across all sectors and occupations, the nature of work is changing. Labour markets and the skills people need are evolving ever faster and future jobs are likely to require higher levels of education and a different mix of skills, competences and qualifications (EC, 2009).

Indeed society paces onwards and requires more and more complex skills; workers accordingly should be able to participate in lifelong learning and be able to adapt to a variety of new tasks over their working lives. Next to domain-specific knowledge and expertise, workers more and more require the acquisition of transversal skills and competences such as analytical skills, self management and entrepreneurial skills, which are transversal and transferable in the event of reconversion after restructuring and displacement. Preventive measures must be taken and upgrading of the lower skilled must be taken up as a priority to maximise employment and self employment opportunities. Public authorities, education and training providers, students, social partners, as well as regional and local actors must join hands in contributing to the design of more efficient education and training policies.

**Emerging Student Profiles: Dependent Variable**

Today however we are far away from the universities of the thirties in the previous century, which were at the leading edge of knowledge in almost every field, being the repositories of intellectual capital. Many universities nowadays however, don’t have exclusive rights on explicit knowledge anymore (Gibbons et al., 1994; Huff, 2000). Rather knowledge sharing and transfer mechanisms between universities and businesses have become a reality.

Employability can be defined as the empowerment of students to seize opportunities on the labour market to gain and maintain employment and move around on the labour market (BBS, 2009). Employability depends on much more than explicit knowledge, but has a lot to do with personal skills and sociability, or the so called general and/or transferable skills, part of it including tacit knowledge. In frame of the innovation economy, organisations tend to look much further than just a successful degree when recruiting, they seek students with flexibility that are able to adapt to manifold situations. In order to improve chances on the labour market, the skills base of students must be extended. When considering the improvement of subject specific and personal skills in relation to the three cycles of Bachelor, Master and Doctorate, the dialogue and involvement of employers should be promoted, in order to effectively devise and innovate curricula. However, caution must be exercised with the adaptation of curricula to prevent universities from becoming proprietary knowledge providers to firms and/or or taking on the role of existing professional training centres.

Educated, employable or entrepreneurial: it is not a matter of choice. The innovation driven economy requires students to (i) generate, judge and validate knowledge, (ii) satisfy the need of human capital on the labour market, and (iii) push value creation by new endeavours and/or
ventures. The European Reference Framework for key competencies in a knowledge-based society (EC, 2004), was keen on identifying entrepreneurship as a key competence to be implemented for all students as part of a multifunctional package of knowledge, skills and attitudes that all individuals need as a foundation for lifelong learning. We must indeed strongly promote that students are equipped with the ability to induce change brought about by own discovery or invention, or by adapting to discoveries or inventions brought about by external drivers.

**University Strategies and Institutional Profiling: Independent Variables**

In as far as universities of the past have operated with non or semi-permeable borders to societal stakeholders, those that wish to grant themselves a respectable position in the educational landscape of the post-2010 decade, or even want to become recognisable landmarks, can no longer afford passivity. Universities must be inventive when it comes to satisfying labour market demands and the needs of the innovation driven economy. To adapt to a world altered by technology, changing demographics and globalisation, in which the higher-education landscape includes new providers and new paradigms, innovation and flexibility from institutions are needed (U.S. DOE, 2006). Undoubtedly also in this context, funneling the possibilities of new media and social networking technologies will bring high yields to learning in the different settings: formal, informal and non-formal.

**Inclusion and Social Mobility:**

The first scenario is a baseline scenario in which higher education is associated with the various potential ‘public good’ functions. Herein, higher education aims to provide for more equitable access in terms of costs, entry qualifications and flexible learning opportunities. Education can enact a strategy of more inclusion (CEPS, 2009; Go8, 2009). An inclusive higher education strategy enables disadvantaged groups to enhance their educational attainment throughout first and second cycle study programmes, and improve their social and professional mobility. The aim is to fully take part in and benefit from a successful economy and obtain a set of competences which act as foundation for further learning as part of lifelong learning.

**Continuous and Professional Education:**

In the second scenario, higher education connects with the labour market by delivering students with the so required high level skills and competences, while simultaneously driving the dialogue on curriculum development with external stakeholders (Mincer, 1962). This scenario connects higher education with continuous education and training requirements and employability prospects. Depending on the lifelong learning mission of the university under discussion, the organisation provides for continuing education and professional training and/or develops joint programmes in collaboration with dedicated professional education and training institutions.

**Innovation and ODL Delivery:**

In the third scenario, higher education connects with entrepreneurship and innovation by delivering students that are not only educated in subject matter but also have essential skills and competences to adopt or drive successful developments. Such universities excel in programmes aimed at the coaching of innovation and feed the lessons which they have learned back into the curriculum (WEF, 2009). Simultaneously, opportunities for new economic activity and
entrepreneurship provide for new research domains and teaching horizons. Any decisions by universities however, on one of these three scenarios however, will have to be balanced with the current possibilities, and the level of transparency, of the university’s financial system. We shall come back to this issue later.

**Institutional Support: Moderate Variable**

Multilingual Open Educational Resources for Independent Learning: a new generation of OER with a strong focus on development and delivery of quality-assured materials for off-campus target groups. Open technologies to make learning and higher education more accessible (Boticario et al., 2006). To serve the call for employability skills and competences, along with the increasingly individualised needs of the 21st century, Open and Distance Teaching Universities (ODTUs) experiment with radically new and flexible placement practices (van Dorp, 2008). Many single mode ODTUs in Europe seem to have quite a focus on educational delivery, without the possibility of providing students access to work experience during enrolment, the kind of experience traditional universities refer to as: placements. Stakeholder relations are limited in that respect, as regards the cooperation with public and private organisations, professional bodies, chambers of commerce, and social partners. Moreover, the typical organisational and administrative characteristics of ODTUs prevent the implementation of traditional placements.

The NVI surpasses the networked business incubator, as described by Bøllingtoft and Ulhøi (2005). The NVI is a key social platform for entrepreneurship aimed to support flexible modality incubatorship. It is an ‘open’ virtual platform, a social and technological infrastructure which delivers professional entrepreneurship services and takes full advantage of Web technologies. It caters for relational symbiosis and scale advantages by providing virtual office space to tenants, communication facilities, collaborative support tools, virtual business and financial coaching support, IT infrastructure and web development services, access to e-content, access to incubator tenants, access to external stakeholders, and other types of social and entrepreneurial support.

Universities in Sri Lanka, both conventional universities and ODTUs, tap from a mix of different public and private financial sources, which is reflected in the different institutional profiles, their missions, strategies and business models. One of the main challenges of today’s universities is managing an increasingly diversified portfolio of activities with increasingly limited access to state funded financial resources. Most universities increasingly rely on external project and programme funding schemes. Many university costing systems however do not account for the full costs made in these activities, and accordingly do not provide for a sound basis to decide on long term financial sustainability of these activities (Geuna, 2001). Only universities that will be able to identify their costs ‘in full’ will be able to determine whether they can operate on a financially sustainable basis and prove what is needed on a reliable and verifiable basis.
RESEARCH METHODOLOGY

Qualitative method has been used with interviews with students. As Kvale (1996: 174) suggests an interview is “a conversation, whose purpose is to gather descriptions of the life-world of the interviewee” with respect to interpretation of the meanings of the ‘described phenomena’. The purpose of the research interview is to explore the views, experiences, beliefs and/or motivations of individuals on specific matters (eg factors that influence their attendance at the dentist). Qualitative methods, such as interviews, are believed to provide a ‘deeper’ understanding of social phenomena than would be obtained from purely quantitative methods, such as questionnaires (Silverman, 2000). According to Oakley (1998) qualitative interview is a type of framework in which the practices and standards be not only recorded, but also achieved, challenged and as well as reinforced. And also secondary sources such as annual reports and other newspaper articles etc. have been used as supporting evidences of the study.

In this paper, the open and distance learning providing universities are assessed on their potential to innovate beyond flexible education towards generating new ways of academic and commercial entrepreneurship, including networked initiatives of educational and enterprise incubation. It is evident that universities cannot do without creativity, innovation and entrepreneurship: this is the engine of prosperity not only for universities, but for enterprises, economy and society as a whole. At the moment few of the conventional universities which are offering their Distance Educational Programs and external courses (in Management) in Sri Lanka other than Open University of Sri Lanka. Anyway there is a need for further research to be conducted to assess the success of above with proper investigation.

FINDING BEST PRACTICES

“The lectures and assignments were complimenting my day-to-day activities. Hence not feeling any stress during the course. Said Management graduate. Also the guest lecturers from

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Figure 1: Conceptualization Model for ODL Innovation Practices
other industries and sharing their experiences were true strength for the course. Also other extracurricular activities and the Corporate Social Responsibility (CSR) project undertaken by the group were taught us to build human relations which is vital in management programmes. CEMBA program of OUSL is scheduled in such a way not to improve the knowledge, but to develop the skills and develop human relations between different professional groups”

As per one of pass out student Dr Sridharan Sathasivam (Currently Director, Healthcare Quality & Safety, Ministry of Health) CEMBA program has helped him solve management problems with different perspectives. Hence not feeling any stress during the course. Having MSc and MD in Medical Administration, MBA course gave me an opportunity to think from a different angle. And also refer following quotation.

“The classroom gave me opportunity to mix with the professionals from other sectors especially banking, plantation, share market, private organizations and universities. Such interaction with the other professionals helped me to look my profession and strategies in the health management in a different view”

Networking is one of the most important aspects of the MBA experience which gives you tremendous exposure and practical experience which is part and parcel of post graduate program. This has been supported by Ms. Pushpika Mullekanda (CEO/Managing Director - Rights Minds (Pvt) limited. Refer following,

“OUSL MBA program helped me to assess my decisions in qualitative and quantitative way. I achieved so much because of my honesty, passion and determination. As a female entrepreneur I was blessed to be admired by so many for my values and talents and My MBA batch mates always with me in my success. Secret of my success was I did 200% in whatever did and I was the happiest end of the day. And networking with my MBA friends always gives me comfort as they represent different fields and their opinions are very much important in decision making”.

This observation align with the findings of Chen, Doherty and Vinnicombe, (2012) which discuss about how Women emphasized the benefits of acquiring and developing networks from undertaking the Executive MBA (EMBA). And also in Commonwealth of Learning (COL) always concern about gender equality which encourage COL Partner Universities to be inclusive of women in all aspects of the CEMBA/CEMPA Programme’s activities.

Commonwealth Executive MBA program has initiated and contributed towards society for Corporate Social Responsibility (CSR) programs. Following CSR activities has been conducted by the department and All CSR programs can be considered as part of Strategic Management module in MBA: (1) Cancer Hospital, Maharagama (CEMBA), (2) Udagama Primary School, Padukka (CEMBA), (3) Eye Cataracts Campaign (CEMBA), (4) Mehtsevana Detention Center – Nugegoda CSR (CEMBA), (5) Ragama Ranaviru Sevana (MBA –HRM) and (6) Pandadura Seevali Vindyalaya (CEMBA).

Students are engaging with this and them always willing to contribute more for this nature of work. See following remarks by Dr Sritharan. “Also other extracurricular activities and the Corporate Social Responsibility (CSR) project undertaken by the group were taught us to build human relations which is vital in management programmes. CEMBA program of OUSL is scheduled in such a way not to improve the knowledge, but to develop the skills and develop human relations between different professional groups”
As quoted “Develop Human relations between different professional groups” always important. This has been supported by one of the student -Sisil Silva (Engineer in leading private company in Sri Lanka)

“This CSR has touched many of US and we feel we can do lot for others. As MBA students we need to identify the society as whole as macro environment and I think this (CSR program) always help is read that (society) in proper way” And activities such as that always improving creativity with team work while emerging leaders also can be seen, Refer following,

“Thank you very much for your appreciation. It is certainly with your guidance and marvelous commitment by the team leaders that we were able to achieve this success. In the process we have done something which is new and creative also” said one of leader Ravindra Pathirathna, upon completion of Mehtsevana Detention center, Nugegoda CSR –CEMBA.

And also the CSR activities conducted by Department has improved team work among Students which is also important in the Journey of MBA. Refer following email “It's your initiative and the guidance which contributed immensely for the success of this project. Finally the CSR project not only enlightened lives of our beloved sisters, it formed a group of friends.....Friends for life”. Says Ruwan.

Hence empowering students and engaging activities towards to society always important to increase the corporate image of the program and University as well. Refer quotations of following article which has been written for newspapers and bulletins.

“Life is all about learning. The most important facet in life should be learning with emotional intelligence. This is all about learning by understanding by helping others, because you have been given a chance, a rare chance to be a human. Cohort ten of the Open University has utilized this “rare chance” by demonstrating their excellent talent team work, sense with subject knowledge. They have done a worthy cause as sons and daughters of mother Lanka”. (Asian Tribune, “CSR in Open University of Sri Lanka with MBA group”.

After a needs assessment, the Corporate Social Responsibility programme focused on building a library for the remote Udagama Primary School, which is located 33 km east of Colombo in the Avissawella Electorate. One of the key factors in focusing on this particular school is its student composition, which mostly comprises estate children from different ethnic and religious backgrounds. To build the library, the students raised LKR 1.5 million. Based on feedback from the students of Udagama Primary School, the Corporate Social Responsibility programme can be deemed a successful case study from an MBA perspective, as well as from a humanitarian perspective (Connections_Vol21-No1.Commonwealth of Learning (COL) Publication.

Department of Management Studies is serving students in Sri Lanka who are coming from different destinations including some rural areas. According to Census and statistics department (2012) in Sri Lanka, majority of population in the country is in rural sector (77.4%). Hence reaching majority who need education is essential. Refer following comment made by one student (Kumara Alwis) who is following Bachelor of Management Studies (BMS) at Department of Management Studies (DMS).

“I am final year working student and locating in Badulla (220KMs from main city, Colombo). Because of University online system I get all schedules and time tables. And also I have my study center very close by. My knowledge has improved lot and last month I got a promotion as assistant manager and I think credit should goes to My University”
This is one of the good examples that the satisfaction of students with good practice has achieved with proper outreach. And also it can be seen that innovative ideas of the student being promoted in the course module of project proposal in certificate course called Entrepreneurship of Small Business Management (ESBM) offered by DMS. See following comment by Mekala (female) who already passed out from the program.

“I just passed my O/L s and joined OUSL. In my project proposal my supervisor always motivate me to have different marketing mix for business and finally for my proposed business of garments I have done with “A” Grade. On the same time I started my Business and used the same application of Product, place, Promotion with proper pricing (4 Ps) strategies which was something considered as competitive advantage”. And also same idea was communicated by Vimal, who is completed his certificate course and now following degree at OUSL.

“With project report I proposed how to start a “Communication center” and now it has converted into reality, I do not want to start this. But because of the course module I have to conduct a small study (market survey) which motivate me to do the same. I think it is a blessed choice”

In Sri Lanka, Small and Medium enterprises (SME) sector is important for growth of the national income. The SME sector in Sri Lanka contributing for 52 percent of the Gross Domestic Product (GDP) and 45 percent of the total employment, whilst making up more than 75 percent of the total number of enterprises in the country. It is clear that the Certificate course of Entrepreneurship of Small Business Management (ESBM) is contributing to Sri Lankan Economy in terms of skilled business people.

CONCLUSION AND RECOMMENDATION

This paper outlined three scenarios, three strategic directions for ODLs and mainstream universities: (1) Inclusion and Social mobility and Employability/Entrepreneurship, (2) Continuous/Professional Education and Employability/Entrepreneurship, and (3) Innovation/ODL Delivery and Employability/Entrepreneurship. Regardless of the profile of educational institutions or the desired strategic shift in a certain direction, all educational institutions should meet the new standards of the innovation economy. Entrepreneurship is acknowledged to be a key competence and can no longer be omitted from the curriculum. At this moment, society is not eager to receive risk averters students or students that merely consume jobs. No, what society requires are more creative and risk taking students that are curious, and excel in research, entrepreneurship and innovation, and drive the production of new jobs. Educational programmes should be reinforced and restructured with such requirements in mind. Especially ODTUs have the possibility of addressing the adult population, a population identified to be more entrepreneurial (Kauffman, 2010). The call for high-level, educated, employable and entrepreneurial (adult) students with the proper skills, competences and qualifications in this respect, cannot be misunderstood. Curricula infusion with new elements must take place. We have posed the question: what transformations are welcome in university curricula, when skills to generate and apply new knowledge have become essential in powering the innovation-driven economy? By mode of example, we have provided a number of practices able to support institutional profiling in different directions.

However, infusing new parts in ODTU curricula, which have been successful in pilot projects, will by itself not be enough to satisfy the quality and the demand for new skills and competences on the labour market. Something more dramatic is needed: a change of educational philosophy.
This change must come in the form of education and research programme fusion. In a traditional Bachelor profile, students have a standard intake of obligatory courses, while actually missing out on the real understanding as to why these courses are needed. Students often only realise the necessity of incorporating particular skills and competences once they have experienced own research work in their Masters. But without early research contact, students may easily decide to neglect certain courses and/or drop-out, and be deprived of vital skills and competences. To say it bluntly, to allow for enhanced connectivity with future research and innovation directions, course flexibility should be added and research options incorporated. In the future education curricula should be steeped with research challenges and should promote undergraduate research in what we may call research-based bachelors. Students working with researchers and tuning their educational profile based on participation and experience in real research projects: directly learning to perform successful research. The undergraduate research also strengthens the relationship between the university and organisations in the region for which research is conducted and stimulates the creative and productive processes of students, making them better prepared for entry on the labour market. It is now evident as by societal progress that the old institutional dichotomy between education and research is fading out and making way for an education-research continuum.

Table 1: Intake and Output of the Department of Management Studies

<table>
<thead>
<tr>
<th>Year</th>
<th>MBA in HRM Intake</th>
<th>CEMBA Intake</th>
<th>BMS Intake</th>
<th>ESBM Intake</th>
<th>MBA in HRM</th>
<th>CEMBA</th>
<th>BMS</th>
<th>ESBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>95</td>
<td>467</td>
<td>745</td>
<td>10</td>
<td>58</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>90</td>
<td>481</td>
<td>576</td>
<td>19</td>
<td>63</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>70</td>
<td>582</td>
<td>249</td>
<td>23</td>
<td>36</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>33</td>
<td>72</td>
<td>800</td>
<td>34</td>
<td>145</td>
<td>281</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>53</td>
<td>68</td>
<td>816</td>
<td>25</td>
<td>39</td>
<td>195</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>60</td>
<td>57</td>
<td>900</td>
<td>34</td>
<td>32</td>
<td>165</td>
<td>335</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>26</td>
<td>74</td>
<td>880</td>
<td>28</td>
<td>30</td>
<td>172</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>60</td>
<td>77</td>
<td>1038</td>
<td>29</td>
<td>48</td>
<td>250</td>
<td>310</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>45</td>
<td>84</td>
<td>979</td>
<td>27</td>
<td>38</td>
<td>310</td>
<td>325</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>46</td>
<td>65</td>
<td>702</td>
<td>38</td>
<td>51</td>
<td>332</td>
<td>182</td>
<td></td>
</tr>
</tbody>
</table>
Table 2: Intake and Output of the Management and Commerce Degrees - 2016

<table>
<thead>
<tr>
<th>University</th>
<th>Graduate Intake</th>
<th>Graduate Output</th>
<th>PG Intake</th>
<th>PG Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombo</td>
<td>427</td>
<td>558</td>
<td>2193</td>
<td>540</td>
</tr>
<tr>
<td>Peradeniya</td>
<td>150</td>
<td>188</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SJ-Pura</td>
<td>1169</td>
<td>1102</td>
<td>620</td>
<td>119</td>
</tr>
<tr>
<td>Kalaniya</td>
<td>606</td>
<td>465</td>
<td>727</td>
<td>154</td>
</tr>
<tr>
<td>Jaffna</td>
<td>570</td>
<td>377</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Ruhuna</td>
<td>320</td>
<td>311</td>
<td>65</td>
<td>15</td>
</tr>
<tr>
<td>ESL</td>
<td>303</td>
<td>73</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>SESL</td>
<td>265</td>
<td>148</td>
<td>265</td>
<td>10</td>
</tr>
<tr>
<td>Rajerata</td>
<td>377</td>
<td>291</td>
<td>151</td>
<td>35</td>
</tr>
<tr>
<td>Sabaraga</td>
<td>360</td>
<td>287</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Wayamba</td>
<td>501</td>
<td>315</td>
<td>246</td>
<td>104</td>
</tr>
<tr>
<td>Uva</td>
<td>127</td>
<td>91</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OUSL</td>
<td>702</td>
<td>332</td>
<td>111</td>
<td>89</td>
</tr>
<tr>
<td>PGIA</td>
<td></td>
<td></td>
<td>461</td>
<td>60</td>
</tr>
<tr>
<td>PGIM</td>
<td></td>
<td></td>
<td>446</td>
<td>444</td>
</tr>
<tr>
<td>PGHSS</td>
<td></td>
<td></td>
<td>143</td>
<td>19</td>
</tr>
<tr>
<td>PGHRA</td>
<td></td>
<td></td>
<td>492</td>
<td>186</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5877</strong></td>
<td><strong>4538</strong></td>
<td><strong>5966</strong></td>
<td><strong>1780</strong></td>
</tr>
</tbody>
</table>
Figure 3: Intake and Output of the Management and Commerce Degrees - 2016

REFERENCES


INNOVATING TEACHING: PERSPECTIVES OF ASIAN TERTIARY EDUCATORS
Billy Tak-Ming Wong
The Open University of Hong Kong (Hong Kong)

Abstract
This study aimed to identify the teaching innovations that have been implemented at higher education institutions in Asia, their characteristics, the views of Asian tertiary educators on the innovations, and the relationships between the characteristics of institutions and their teaching innovations. Semi-structured interviews were conducted with 28 Asian tertiary educators. Results show that their innovations can be divided into two main categories, those involved the use of advanced technologies (e.g. mobile technologies) and those who did not. Differences in these two groups in terms of the characteristics of institutions were found. Educators who mentioned innovations that involved the use of advanced technologies were from universities. The innovations of this group of educators also have a longer history of application of 1.5 years of more. This is in contrast to the second group of educators whose institutions were smaller community colleges, with innovations implemented for less than 1.5 years. Differences between these two groups of educators in terms of the aims and importance of innovations, innovative features, perceptions on the suitable sources for evaluation, improvements needed for the innovations, and finally the innovations they would like to see in the future were also identified. The difference in the nature of institution (i.e. university vs community college) is a possible influence on the nature of teaching innovations adopted by institutions. The co-existence of teaching innovations that are both technologically and non-technologically oriented also highlight that technology is only one of the many aspects of teaching innovations as different from the prevalent view in the current literature. This paper ends with some recommendations for future research.

Keywords: Innovation, technology, teaching, Asia, tertiary education

INTRODUCTION
Innovation has been regarded as key for higher education institutions to respond to technological advances and the change of social and cultural values [1]. Educational institutions must be “change-resilient” and continuously improve their practices and methods of delivery which require change [2]. In the educational context, innovation often lies in teaching, with ‘newness’ as an essential ingredient [3]. It can occur in forms such as the use of new methods and novelty in contents, pedagogy or curricula [4-6].

Despite teaching innovation has been understood and practised in various ways, technology is an element commonly found among them. For example, Zhu, Wang, Cai, and Engels [7] pointed out that technology is often used as a support mechanism for the delivery of new teaching methods. Lee [4] emphasised the use of new and meaningful teaching methods that can be supported by technology such as cloud-based applications and electronic whiteboard. Lantz [8] presented the use of clickers in the classroom to supplement teaching. Zhu et al. [7] specified technological competence as one of the four major competencies required in innovative teaching, in addition to learning, social and educational competence.
This study focused on the views of Asian tertiary educators on teaching innovations. It identified the teaching innovations that have been implemented at higher education institutions in Asia, the characteristics of the teaching innovations, and examined the relationships between the teaching innovations and the characteristics of institutions. Specifically, this study addresses the following research questions:

1. What teaching innovations have been implemented at higher education institutions in Asia?
2. What are the characteristics of those teaching innovations?
3. What are the views of Asian tertiary educators on the teaching innovations, regarding their future development and ways of evaluation?
4. What are the relationships between the characteristics of institutions and their teaching innovations?

This paper first reviews relevant literature on teaching innovations. It then describes the methodology of this study, followed by the findings and discussion of the limitations as well as directions for future research.

LITERATURE REVIEW

Literature relevant to teaching innovation focuses on the perceptions on teaching innovations, the correlates and drivers of teaching innovations, and the specific innovations implemented by educators and researchers and their evaluation.

Zhu et al. [7] compared the extent of innovation in teaching and learning in the schools in two cities (Beijing and Hong Kong) as perceived by their teachers and students. Using the criteria of technology, pedagogical orientations, and cultural environment, they found that teacher and student interviewees expressed a high to medium level of information and communications technology used in both schools but a low level of use of technology for collaboration, a low level of innovation-orientation, a medium level of student-centred learning, and finally a high power distance. His conclusion is that students and teachers of both schools did not perceive their schools as innovative, despite the existence of innovative elements in their teaching and learning strategies.

Smith [6] identified external and institutional rewards as well as recognitions as the key drivers for innovation in learning and teaching. Some key success factors are support from senior management and the availability of technical support. A barrier for the development of innovations in tertiary institutions is that there is only support for short-term projects, which hinders the long-term development of institutional innovation.

Lunde and Wilhite [9] identified the characteristics of teachers who are innovative. Results indicate that passion, persistence in improvement, attentive to students, use of active learning, risk taking, and keeping themselves vital are the key characteristics.

Lee [4] investigated how teaching innovation and the integration of information technology into teaching contribute to learning effectiveness. The results show that both of them have direct, positive and significant effects on students’ learning effectiveness.

As far as the specific teaching innovations practices are concerned, Evans et al. [10] found that their blended curriculum in pre-clinical epidemiology and biostatistics resulted in positive effects on both student satisfaction and their mastery of core materials. Foster and Yaoyuneyong [11] implemented flipped classroom in two business classes. Positive feedback was received from
students, who expressed that they recognized the value of the process, improved their communication skills, and became better prepared for the workplace environment. Neo and Neo [12] reported the use of multimedia technology as a teaching and learning strategy in a problem-based learning environment. Students expressed positive attitudes on the innovation, in terms of enjoying the teamwork and that the innovation could enable them to think critically and being active in their participation. Drummond et al. (2016) combined video and simulation in teaching medical students, and also got the positive impacts on teaching and learning.

METHODOLOGY
Semi-structured interviews were conducted with a total of 28 academics to collect the information about the teaching innovation practising in their institutions and their views on them. About 60% of the interviewees were involved in frontline teaching, 25% belonged to the management level, and the remaining composed of IT experts, teaching and learning officer, and senior research assistant. The interviewees were affiliated to 23 institutions, of which 6 are private ones and 17 are publicly-funded institutions. About 40% of the institutions are of sizes of more than 10,000 full time students. All the institutions are located in Asia.

The interviews covered three parts, including (1) the factual information of the teaching innovation, such as the aim, commencement date of the implementation; (2) the features of the innovation and the method of evaluation; and (3) the views of the interviewees on the teaching innovations in terms of their possible improvements and the effectiveness of evaluation methods. The data were then coded with categorizes of themes for each question identified. Descriptive statistics such as frequency distribution and cross-tabulations were performed to explore patterns of the findings.

FINDINGS

The nature of innovations and their implementations

Types of innovations
The teaching innovations can be classified into two main groups — those that involve the use of technology and those that do not. A total of 18 interviewees reported teaching innovations involving the use of advanced technologies, as given in Table 1. Among the technologies behind those innovations, most of them are internet or mobile-oriented. The participants emphasized that real time communication is a key advantage. MOOC and flipped classroom, as two examples highly relying on the internet, have become popular and demonstrated their effectiveness in improving students’ learning performance [10].

<table>
<thead>
<tr>
<th>Teaching innovations</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use of online materials or specific software tools</td>
<td>6</td>
</tr>
<tr>
<td>2. Use of mobile technology</td>
<td>5</td>
</tr>
<tr>
<td>3. Massive open online course</td>
<td>3</td>
</tr>
<tr>
<td>4. Flipped classroom</td>
<td>3</td>
</tr>
<tr>
<td>5. Simulation</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 1. Teaching innovations that involve advanced technologies
Table 2 lists the innovations where technology is not a core part of them. The most frequent one is active learning of students, followed by the use of videos and collaboration between students. A characteristic of this group of innovations is that they not only focus on students’ learning but also other aspects such as teaching and students’ feedback. More than half (55.6%) of the innovations were implemented at a course level. This is consistent with the situation described in literature that teaching innovations are often employed at a discipline-specific rather than an institution-wide scale, possibly due to disciplinary differences in study contents.

<table>
<thead>
<tr>
<th>Teaching innovations</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active learning</td>
<td>3</td>
</tr>
<tr>
<td>2. Use of videos in classroom teaching</td>
<td>2</td>
</tr>
<tr>
<td>3. Interdisciplinary collaboration between students</td>
<td>2</td>
</tr>
<tr>
<td>4. Sharing of teaching &amp; learning resources between teachers</td>
<td>1</td>
</tr>
<tr>
<td>5. Student feedback questionnaire</td>
<td>1</td>
</tr>
<tr>
<td>6. Mutual class observation among teachers</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Aims of innovations

Table 3 shows the aims of the innovation as reported by the participants. The innovations which are technology oriented emphasize more on the cognitive and academic aspects of learning, as well as the facilitating conditions, e.g. students’ participation and teacher-student interactions. The non-technology oriented ones, on the other hand, are more related to the non-academic and non-cognitive aspects of students’ development such as the ability of independent learning and creativity.

<table>
<thead>
<tr>
<th>Technology oriented</th>
<th>Non-technology oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim</td>
<td>Freq.</td>
</tr>
<tr>
<td>Check students’ understanding</td>
<td>6</td>
</tr>
<tr>
<td>Increase students’ participation</td>
<td>5</td>
</tr>
<tr>
<td>More teacher-student interaction</td>
<td>4</td>
</tr>
<tr>
<td>Help students to solve problems</td>
<td>2</td>
</tr>
<tr>
<td>Prepare students for actual exam or work environment</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
</tr>
</tbody>
</table>
Features of innovations
Table 4 presents the features of the innovations, where distinctive patterns are found in the two groups. The technology oriented innovations feature students' learning and usability in terms of technology, while the non-technology oriented ones focused on students' collaboration and facilitation of teaching.

Table 4. Features of innovations
<table>
<thead>
<tr>
<th>Technology oriented</th>
<th>Non-technology oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features</strong></td>
<td><strong>Freq.</strong></td>
</tr>
<tr>
<td>Technological usability</td>
<td>4</td>
</tr>
<tr>
<td>Motivate students</td>
<td>2</td>
</tr>
<tr>
<td>Check students’ understanding</td>
<td>2</td>
</tr>
<tr>
<td>More discussion in class</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Evaluation of innovations
Table 5 reports how the innovations were evaluated. There are no clear patterns between the two groups. The common methods for evaluating the innovations mentioned by the interviewees are feedback from students as well as their academic performance, evaluations by different stakeholders such as teachers, management, and government. Part of the participants reported that no evaluation was conducted for the innovations. Some of them also pointed out that no direct evaluation was specifically conducted for the innovations; and the evaluation was conducted together with other student experience as a whole, e.g. students’ overall evaluation of their learning experience.

Table 5. Methods of evaluating innovations
<table>
<thead>
<tr>
<th><strong>Methods</strong></th>
<th><strong>Freq.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student feedback (e.g. survey, interviews, focus groups)</td>
<td>7</td>
</tr>
<tr>
<td>2. Students’ academic results</td>
<td>3</td>
</tr>
<tr>
<td>3. Teachers feedback</td>
<td>3</td>
</tr>
<tr>
<td>4. Management</td>
<td>1</td>
</tr>
<tr>
<td>5. Government</td>
<td>1</td>
</tr>
<tr>
<td>6. Evaluation not conducted yet</td>
<td>6</td>
</tr>
<tr>
<td>7. No tailor-made evaluation conducted specifically for the innovations</td>
<td>4</td>
</tr>
<tr>
<td>8. Others</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Views on teaching innovation
Ways of improving the innovations
Table 6 shows the participants’ views on ways to improve the innovations. Between the two groups, the technology oriented ones were viewed as having rooms of improvement in terms of
student participation. That for the non-technology oriented ones involve active learning, catering the emotional needs of students, catering for diversity, and changes in students’ mindset.

Table 6. Ways of improving the innovations

<table>
<thead>
<tr>
<th>How to improve the innovations</th>
<th>Technology Oriented</th>
<th>Non-technology Oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student participation</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>More active learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catering the emotional needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catering for diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvement in students’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mindset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Preferred ways of evaluation

Table 7 presents the participants’ preferred ways of evaluating the innovations, which may be different from the ones in practice in their institutions. Both groups regarded student feedback and academic performance as the best indicators for the success of the innovations. The technology oriented group also includes indicators such as usability and students’ online usage records. For the non-technology oriented group, evaluation by stakeholders including parents, management and industry representatives was pointed out.

Table 7. Preferred ways of evaluating the innovations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student feedback</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Students’ academic performance</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Students online records</td>
<td>1</td>
<td>Evaluation by parents</td>
</tr>
<tr>
<td>Usability tests</td>
<td>1</td>
<td>Evaluation by management</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>Evaluation by industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>representatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

The relationships between the characteristics of higher education institutions and their teaching innovation

Table 8 presents the comparison between the innovations in terms of the characteristics of institutions. The technology oriented ones were mainly from universities (77.8%), which usually have more resources for implementing the innovations. A relatively larger proportion (47.1%) of this group of innovations has a longer length of implementation of above 1.5 years. In comparison, a smaller proportion (55.6%) of the non-technology oriented group was from universities, but more from smaller institutions (e.g. community colleges). The innovations of this group were implemented mostly (80%) for 1.5 years or less.
Table 8. Comparison between the characteristics of institutions and the teaching innovation

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Technology oriented</th>
<th>Non-technology oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>University vs. smaller institutions</td>
<td>University: 14 (77.8%)</td>
<td>University: 5 (55.6%)</td>
</tr>
<tr>
<td></td>
<td>Smaller institutions: 4 (22.2%)</td>
<td>Smaller institutions: 4 (44.4%)</td>
</tr>
<tr>
<td></td>
<td>(Total no. of institutions: 18)</td>
<td>(Total no. of institutions: 9)</td>
</tr>
<tr>
<td>Length of implementation</td>
<td>0.5 – 1.5 years: 9 (52.9%)</td>
<td>0.5 – 1.5 years: 8 (80.0%)</td>
</tr>
<tr>
<td></td>
<td>&gt; 1.5 years: 8 (47.1%)</td>
<td>&gt; 1.5 years: 2 (20.0%)</td>
</tr>
<tr>
<td></td>
<td>(Total no. of institutions: 17)</td>
<td>(Total no. of institutions: 10)</td>
</tr>
</tbody>
</table>

DISCUSSION
The institutional nature might shape the adoption and conceptualization of teaching innovation. The conceptualization that teaching innovations may have no relationships with the use of technology is in contrast to some literature which put the incorporation of the latest technology as the core element of teaching innovations [14], or at least one of the core elements [7]. The findings of this study also confirm Zhu’s [5] view that innovations in teaching and learning should not be viewed only from the perspective of adoption and acceptance of technology. Other relevant factors to conceptualize teaching innovations also include the cultural environment [5], active learning [15], open-ended and collaborative learning [11, 16], implementation of course design that inspires students to integrate knowledge with practice [4], student engagement [17], in addition to advancement of knowledge, cognitive development and improved academic performance. Lunde and Wilhite [9] conceptualized innovative teaching as a cluster of qualities of teachers being able to interact effectively with learners, teachers’ openness to change, being persistence, being reflective, use specific teaching approach, and use discipline-embedded pedagogy. It is shown that some of the non-technological elements, such as active learning, collaborative learning, integration of knowledge and practice, stimulation of interests, interactions between students, were mentioned by the interviewees of this study.

In some innovation practices, technology was used to enhance the non-academic aspects of students. This phenomenon is a synthesis of the two views of the participants, who either emphasized the use of technology to enhance the cognitive skills and academic performance of students, or the development of the non-academic aspects of students with non-technological means. For example, Neo and Neo [12] applied multimedia to enhance students’ problem solving skills and found significant improvements of students.

Another trend observed is the combination of technological and non-technological means. For example, Drummond et al. [13] combined simulation technology of high-fidelity mannequin stimulator and conventional video watching in the training of medical students on pediatric cardiopulmonary arrest. They found students who received this type of training outperformed those who did not, thus showing the effectiveness of this innovation.

CONCLUSION
This study identified two major ways to innovate teaching as reported by educators in Asia, in terms of whether technologies are involved. For the technology oriented ways, being able to assist students in their learning and increased teacher-student interactions were the importance of the
innovations. Students’ feedback and academic results and usability of the innovations were regarded as the most suitable source of information for evaluating the innovations. For the non-technology oriented group, the importance of the innovations lied in their abilities of enhancing students’ independent learning ability, creativity, and self-reflection. Innovative features of this group include cross-disciplinary collaboration between students, creativity, active learning, and facilitation of teachers’ teaching. Different from the technology oriented group, this group addressed as well the non-academic aspects of students and the teachers’ teaching; and this innovations can be improved by catering for different needs of students, such as emotional needs, and evaluated by different stakeholders, such as parents, management, and industry representatives. Findings of this study suggest that the characteristics of institutions (i.e. universities vs. community colleges) might be associated with the nature, aims, focuses and evaluation methods of the innovations.

The differences found between the two groups also show a difference in the conceptualization of teaching innovations from the prevalent conceptualization in literature that technology is a core element of teaching innovations. The wider variety of aims of innovations in addition to students’ cognitive development, learning outcomes, and motivation also deserves our attention. Technology is not the only indicator of teaching innovations. Other directions that are also worthy of development include teaching philosophies, approaches, methods and curricular. Cognitive learning and academic results should not be the only dimensions on the effectiveness of the teaching innovations. Other aspects of student development such as emotion management, ability of collaborating with others, problem-solving, critical thinking, are also important directions for the development of teaching innovations. These competences play an important role in cultivating the 21st century competence of individuals.

As a small-scale exploratory study, the results provide potential directions for further investigation. Firstly, there is a need for gathering more details on educators’ views on active learning, the reasons behind their view of engaging students as an important feature of the innovations, and whether a lack of institutional supports is the possible reason of smaller institutions for using less technology in their teaching innovations.

Both this study and relevant literature have shown that evaluation of the effectiveness of teaching innovations is still in an immature stage. In this study, the innovations were either not evaluated or evaluated only in terms of their short-term effectiveness. In addition to academic performance, usage rate, cognitive development and learner satisfactions, other dimensions may also include learners’ collaborative skills, self-awareness, reflection ability, and problem-solving skills. As suggested by some participants, there is a need to evaluate teaching innovations not only in terms of students’ attitudes and academic performance, but from the perspectives of different stakeholders.

How effectiveness may differ regarding differences in gender, age, learning style and other teacher characteristics is another direction for future research. The results can allow us to unveil how contextual factors and teacher characteristics influence the effectiveness of teaching
innovations, so that better designs and implementation of teaching innovations could be undertaken.

ACKNOWLEDGEMENT
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REFERENCES
THE BEHAVIOURAL INTENTION TO USE VIDEO LECTURE IN AN ODL INSTITUTION:
INSIGHTS FROM LEARNERS' PERSPECTIVE
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⁴Open University Malaysia (MALAYSIA)

Abstract
Since its inception in 2001, Open University Malaysia (OUM) has been committed to providing greater access to education via the online and e-learning (ODel) mode. OUM has developed a wide range of learning materials to cater to the diverse needs of learners through its learning material development arm, the Centre for Instructional Design and Technology (CiDT). Learners can now access the University’s e-content – 1,560 PDF modules, 865 HTML modules and 221 video lectures – anytime, anywhere, via OUM’s learning management system myInspire. There have been few studies on feedback regarding video lectures for the university. A survey questionnaire was distributed to five OUM learning centres in the Klang Valley via a convenience sampling design. Using descriptive and inferential statistics as the main analytical tool, this study aimed to gain insight into learners’ behavioural intention to use the video lectures as their learning material. The behavioural intention construct is measured in terms of perceived ease of use and perceived usefulness of video lectures. It is hoped that the findings of this study will provide feedback as to learners’ intention to use as well as guidelines on how to improve the development of video lectures as the university gears to offer more courses in the fully online mode in the near future.
Keywords: video lectures, perceived use, perceived usefulness, online

INTRODUCTION
The world of education has witnessed a dramatic shift in teaching and learning in the last two decades due to the advent of the Internet and the wide usage of technology. As a result, education providers face a myriad of challenges in engaging learners, be it in conventional universities or in ODeL institutions. There is a need to develop a repertoire of learning strategies and materials that can cater to the different needs of learners across a variety of learning environments. OUM responded to this call by leveraging on Internet technology to transmit education across to its learners via supported academic materials such as video lectures, e-modules, an online forum, self-learning tasks and exercises etc. Additional learning aids and tools are provided, upon request, to smooth out the long and challenging journey of ODeL learners.
In recent years, the trend seems to be an increasing emphasis on the development of video lectures, uploaded online on various learning platforms as well as on YouTube, to cater to the needs of learners who like to be “talked to”. The majority of these videos look like traditional lectures chopped up into smaller chunks, in the style of a “talking head” (lecturer talks to the class) or “tablet capture” (lecturer writes on the blackboard while talking).
This trend, too, has been making an impact at OUM which now focuses on the development of pdf colour modules and video lectures as the primary e-content that drives learning at the
university. This study, thus, aims to gain insight into learners’ behavioural intention to use the video lectures as their learning material. It is hoped that the findings of this study can provide insights to the university as it gears up to adopt a fully online mode in the future. Towards this objective, many new and innovative elements have been introduced in the teaching and learning process to assist learners, including video lectures, task-based activities, exercises in various formats etc. Nevertheless, not many studies been conducted to date, to test the usefulness and ease of use of such learning materials. Figure 1 shows the current learning model in OUM. OUM puts strong emphasis on assisting its adult learners, who have to juggle studies with work and family commitments, through the learning process.

Figure 1: Current ODL Model of OUM
LITERATURE REVIEW

Over the last ten years, the production of video has gone from a complicated and technical process to one easily done by the general masses. It is now possible for anyone with a mobile phone to make a video recording. In the past, this process required expert technicians with specific knowledge, and access to expensive specialist video equipment, processing and streaming files. Now, mobile devices, from smart phones, digital devices, iPads and digital cameras have the standard option of recording video at an ever-increasing quality and these recorded video files can be instantly uploaded via Wifi to social media and to servers in the cloud.

Teaching “into camera” requires an adjustment of established teaching practices and developing a new set of teaching skills (Guo, Kim, & Rubin, 2014). Academicians need to make decisions about the role of technology as well as managing student expectations by explaining to students the specific role of technology in the educational context. Bassili (2008) explained the importance of considering whether instructional technology adds value to the learning process and its experience by students because using technology simply because it is available does not necessarily lead to effective teaching outcomes.

Video lectures are instructional videos prepared by the course instructor to supplement classroom lectures. These videos have the same content and subject rigor as classroom lectures, labs, homework, and examinations, but are portable and can be viewed whenever a student wants and at the student’s learning pace. According to Merrill et al. (1992) and Kirschner (2002), as an informal supplemental instruction, video lectures provide instructor-delivered models of reasoning and problem solving. This reduces cognitive load for beginning students and is expected to increase learning and grade performance. Bryant and Hunton (2000) also discussed educational technology’s attributes from the perspective of behavioural and cognitive learning theory.

Zhang et al. (2006) studied interactive video where video segments can be directly chosen to engage learners. Moreno (2006) maintained that media characteristics affect technology-based learning. Lesser and Pearl (2008) and Van Wyk (2011) use topic-relevant cartoons and songs to enhance learning environments as course content relevance and social richness in a course’s learning environment are positively associated with student enjoyment and performance in traditional classroom courses (Nemanich et al, 2009). Meanwhile, Nicholson, Nicholson, and Valacich (2008) found that less complexity and more sensory-richness increased student interest and performance. Additionally, Bryant and Hunton (2000) examined the influence of visual and audio elements on learning outcomes in distance education.

Bransford, Brown, & Cocking (2000) highlighted the importance of interactivity in videos in helping students learn by being able to re-visit and review the material. They emphasised the potential of technology to help learning, but only if used properly. The use of video has changed dramatically over the years, from the use of television and physical cassette tapes in the 1960s to screen casts and live lecture captures today. Figure 2 shows the timeline, adapted from Greenberg & Zanetis (2012).
This study adopted the Technology Acceptance Model (TAM) developed by Davis in 1986. TAM identifies two dimensions – perceived ease of use and perceived usefulness – as precursors to intention to use a technology. The model has proven to be useful in helping to explain and predict user behavior of information technology (Legris, Ingham, & Collerette, 2003). According to TAM, one’s actual use of a technology system is influenced directly or indirectly by the user’s behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system. TAM also proposes that external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use. Figure 1 depicts the original TAM (Davis, 1989).

For the purpose of this research study, an attempt was made to gauge the “ease of use” and “usefulness” of the video lectures as perceived by OUM learners as these two dimensions would affect the learners’ behavioral intention to use (view) the video lectures and facilitate the learning process.

Figure 1: Technology Acceptance Model (TAM)
Source: Davies (1986)

This study adopted the model of TAM with only perceived usefulness and perceived ease of use on attitude and behavioral intention to use. Refer to Figure 2 for the model used for this study.
METHODOLOGY

As mentioned earlier, there are various learning materials provided by the university and learners can now access the University’s e-content – 1,560 PDF modules, 865 HTML modules and 221 video lectures. These 221 video lectures were produced by academicians and the Centre for Instructional Design and Technology (CiDT) in tandem with the university’s future fully online courses pathway. These video lectures cover a wide range of courses to cater various learners in all programmes.

A total sample of 392 questionnaires were collected for this study. The respondents were learners from five OUM learning centres in the Klang Valley, namely, Sri Rampai, KL Main Campus, Shah Alam, Bangi and Petaling Jaya with convenience sampling design. The collection of questionnaires was done in the September 2016 and January 2017 semester. Descriptive and inferential statistics are used as the main analytical tool to study the learners’ behavioural intention to use the video lectures as their learning material. The behavioural intention construct is measured in terms of two dimensions; (1) perceived ease of use and (2) perceived usefulness of video lectures. The questionnaire consists of 20 questions from the two identified dimensions (perceived ease of use and perceived usefulness of video lectures) and uses 4-scale Likert scale. Each dimension consists of ten questions. A median value based on the 4-scale Likert scale is 2.5; hence the threshold value of 2.5 is used to measure the dimensions.

A brief summary of the respondents’ demographic profile is shown in Table 1. The distribution in the gender category among the respondents is relatively equal; 43.1% and 56.9% are male and female respectively. Most of the respondents are lesser than 30 years old, followed by 31 to 50 years old; only 2.6% of the respondents are above 51 years old.

Table 1: Respondents’ Demographic Profile

<table>
<thead>
<tr>
<th>Details</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>43.1</td>
</tr>
<tr>
<td>Female</td>
<td>56.9</td>
</tr>
</tbody>
</table>
Table 2 shows the descriptive analysis for the respondents based on OUM learning centres. A total of the responses from 392 respondents were collected from five learning centres during September 2016 and January 2017 semester. Approximately 41.6% of the respondents are from the Petaling Jaya Learning Centre, followed by Sri Rampai (19.6%), Bangi (17.6%), Shah Alam (13.3%) and KL Main Campus (7.9%). Most used device to assess the video lectures based on these respondents is Personal Computer/ Laptop (85.7%), mobile phones (11.2%) and tablets (3.1%).

Table 2: Respondents based on OUM’s learning centres

<table>
<thead>
<tr>
<th>Learning Centre</th>
<th>Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Rampai</td>
<td>77</td>
<td>19.63</td>
</tr>
<tr>
<td>KL Main Campus</td>
<td>31</td>
<td>7.90</td>
</tr>
<tr>
<td>Shah Alam</td>
<td>52</td>
<td>13.30</td>
</tr>
<tr>
<td>Bangi</td>
<td>69</td>
<td>17.59</td>
</tr>
<tr>
<td>Petaling Jaya</td>
<td>163</td>
<td>41.58</td>
</tr>
</tbody>
</table>

RESULTS AND ANALYSIS

Descriptive and inferential statistics are used as the analysis tool. Twenty questions were asked in the questionnaire and this was later sorted out into two dimensions; perceived ease of use and perceived usefulness of video lectures.

Table 3 shows the overall mean and standard deviation value for the two dimensions. The mean value is used due to ease and convenience of interpretation. Both the overall mean for perceived ease of use and perceived usefulness are above 2.5; with 2.807 and 2.713 respectively. Overall perceived value on video lectures based on the two dimensions is 2.76; higher than the threshold value of 2.5 as well. This shows a relatively high likelihood of learners to be using and viewing
the video lectures in the future. Learners find the video lecture rather easy to use and rather useful in the learning process via ODL.

Table 3: Overall mean and standard deviation based on dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived ease of use</td>
<td>2.807</td>
<td>0.8671</td>
</tr>
<tr>
<td>Perceived usefulness</td>
<td>2.713</td>
<td>0.8553</td>
</tr>
<tr>
<td>Overall value</td>
<td>2.76</td>
<td>0.8625</td>
</tr>
</tbody>
</table>

Table 4 illustrates the mean value for each question based on the two dimensions. The mean in the perceived ease of use dimension ranges from 2.75 to 2.89, while the standard deviation ranges from 0.828 to 0.910. The mean in the perceived usefulness dimension ranges from 2.60 to 2.83, while the standard deviation ranges from 0.825 to 0.866. Both the dimensions generated results at lowest mean value of 2.6 and highest at 2.89. This clearly shows that learners are quite receptive on video lectures but those videos would have to be of a certain quality, standard and also be interactive to capture learners’ interest and attention for the course. In comparison between the two dimensions, perceived ease of use tends to have a slightly higher mean value as compared to perceived usefulness of video lectures among the respondents in this study.

The overall mean value for perceived ease of use for video lecture and perceived usefulness of video lecture is 2.807 and 2.713 respectively. This shows that the results for both dimensions tend to have a higher end of value 2 but have yet to reach the more positive level of 3 in the scale. Therefore, CiDT would need to work hand-in-hand with the subject matter academics to ensure the latest and most engaging video approaches are produced to assist learners in online learning. This is because based on this study, the receptiveness of learners towards video learners, though positive, can still easily lean the other way and fall into the “unfavourable” category.

These video lectures need to be reviewed frequently in order to ensure latest information has been incorporated into the courses, especially courses such as taxation and accounting guidelines, public finance policies, laws, information technology, latest science findings etc. These courses need to be updated so as to provide learners with the latest regulations, findings, breakthrough etc in the real world.

Research findings also show that the sample video lectures rank lower in areas such as “helps me to complete my assignment” and “grab my attention till the end”. A possible reason for the slightly lower ranking in helping learners to complete assignment might be due to the fact that OUM’s video lectures are not developed for the purpose of helping students do their assignments. The primary objective is more to reinforce learning and explain difficult concepts in a mode other than “grey text”.

However, the findings do seem to suggest that more can be done in terms of enhancing the graphics and visual elements to make them more attractive so as to hold learners’ attention till the end. These are areas that can be looked into to improve the quality of the video lecture so that a higher value can be reached in future.
Table 4 shows the mean value for perceived ease of use dimension. The three highest mean score items are pertaining to the language used in the video lecture (2.89), the relevancy of the content of the subject itself (2.89) as well as the flexibility to view it by learners (2.88). Nevertheless, the three lowest mean score are pertaining to the pace of the video (2.76), revision for exams (2.75) and the video to be played smoothly from the beginning till the end (2.75).

Table 4: Mean value for perceived ease of use

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean value</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived ease of use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q18: The language used in the presentation is appropriate</td>
<td>2.89</td>
<td>0.828</td>
</tr>
<tr>
<td>Q11: Viewing at my own time is convenient</td>
<td>2.89</td>
<td>0.841</td>
</tr>
<tr>
<td>Q1: The content is relevant to the topic discussed</td>
<td>2.88</td>
<td>0.882</td>
</tr>
<tr>
<td>Q2: The presentation is well-organised and systematic</td>
<td>2.83</td>
<td>0.854</td>
</tr>
<tr>
<td>Q3: I can find the video easily in myInspire</td>
<td>2.78</td>
<td>0.910</td>
</tr>
<tr>
<td>Q7: I can use any device to view the video lecture</td>
<td>2.77</td>
<td>0.870</td>
</tr>
<tr>
<td>Q15: I can access the video wherever I am</td>
<td>2.77</td>
<td>0.889</td>
</tr>
<tr>
<td>Q6: The presentation flow is well-paced</td>
<td>2.76</td>
<td>0.851</td>
</tr>
<tr>
<td>Q19: The video plays smoothly from start to finish</td>
<td>2.75</td>
<td>0.837</td>
</tr>
<tr>
<td>Q12: I use the video lecture in my revision for exams</td>
<td>2.75</td>
<td>0.887</td>
</tr>
<tr>
<td><strong>Overall mean value for perceived ease of use of video lecture</strong></td>
<td><strong>2.807</strong></td>
<td></td>
</tr>
</tbody>
</table>

Meanwhile, in the perceived usefulness dimension, three highest mean score value are on the content of the course (2.83), coverage of the subject (2.78) as well as assisting learners in understanding the course (2.72). However, three aspects scoring lowest in mean value are help in assignments (2.6), ability to grab attention (2.66) and visuals attractiveness (2.67).

Table 5: Mean value for perceived usefulness

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean value</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q17: The content is concise, focusing on main concepts</td>
<td>2.83</td>
<td>0.828</td>
</tr>
<tr>
<td>Q5: The video lecture has adequate coverage of the topic</td>
<td>2.78</td>
<td>0.825</td>
</tr>
<tr>
<td>Q8: I have better understanding of the difficult concepts</td>
<td>2.72</td>
<td>0.866</td>
</tr>
<tr>
<td>Q9: The content in the video lecture is accurate</td>
<td>2.72</td>
<td>0.855</td>
</tr>
<tr>
<td>Q20: It motivates me to learn more about the subject</td>
<td>2.72</td>
<td>0.901</td>
</tr>
<tr>
<td>Q13: It contains information that is current and up to date</td>
<td>2.72</td>
<td>0.867</td>
</tr>
<tr>
<td>Q16: I find it useful for my online forum interaction</td>
<td>2.71</td>
<td>0.835</td>
</tr>
<tr>
<td>Q14: I enjoy the attractive visual aids in the video lecture</td>
<td>2.67</td>
<td>0.854</td>
</tr>
<tr>
<td>Q10: The presenter is able to grab my attention till the end</td>
<td>2.66</td>
<td>0.834</td>
</tr>
</tbody>
</table>
To sum up in a nutshell, the results findings show that OUM learners have a positive perception on the “ease of use” and “usefulness” dimensions. This suggests the behavioural intention to view the video lectures and the likelihood of OUM learners using video lectures as a learning reference. However, certain areas, such as enhancing the visual elements, innovating on ways to hold students’ interest, ensuring that the video lectures play smoothly from start to finish, need attention if video lectures are to be ranked higher than the current scores. The implication is that OUM academics and the team responsible for video lecture development do need to strategise on ways to improve the video lectures in terms of visual presentation and technical issues if they wish video lectures to feature more prominently in the learners’ preferred modes of learning.

One of the questions tried to superficially gauge learners’ preference in terms of face-to-face tutorials or video lectures. Feedback from the questionnaire seems to suggest that for this group of respondents at least, the majority still prefer to learn via the face-to-face mode (80.1%). Only 19.9% opted for video lectures (see Table 5). This is interesting as it seems to suggest that while learners view video lectures as “easy to use” and “useful”, they still preferred to have face-to-face tutorials if asked to choose between face-to-face interaction and video lecture mode only. This is an aspect that merits attention in future research.

Table 5: Percentage on mode of learning

<table>
<thead>
<tr>
<th>Mode of learning</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn via face-to-face</td>
<td>80.1</td>
</tr>
<tr>
<td>(N=314)</td>
<td></td>
</tr>
<tr>
<td>Learn via video lecture</td>
<td>19.9</td>
</tr>
<tr>
<td>(N=78)</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

In conclusion, the findings from this research study seem to suggest that OUM learners have a positive perception of video lectures with reference to the two dimensions of “ease of use” and “usefulness”. Where ease of use is concerned, OUM learners rate content relevancy, appropriate language and viewing flexibility as the strongest points of video lectures. The aspects ranked lowest are technical (ability to play the video lecture smoothly from the beginning to the end) as well as objective of usage (video lectures are not rated high as revision material for exam preparation).

Likewise, in the “usefulness” dimension, OUM learners find the video lectures useful because they are concise and useful to reinforce learning as they focus on main concepts; the aspect ranked lowest is the usefulness of video lectures in assisting to complete their assignments. Video as a medium continues to have an on-going impact on higher education, challenging the traditional role of the lecturer and the format of delivering course content. Many lecturers, however,
still lack adequate knowledge, guidance and training to integrate this technology into their teaching, either at a practical, technical level, or at a didactic, teaching level (Stover & Veres, 2013). Lecturers may not be convinced of potential benefits, may be afraid of this new technology, or see no need to adapt (Reece, 2013). The possibilities offered by new technology can appear overwhelming, challenging and unsettling to traditional teaching.

At OUM, however, technology has become an integrated part of the operations of the university. The focus is to offer learners PDF modules as the primary e-learning material and video lectures as important supplementary learning material. The objective is not only to reinforce learning but also to cater to learners’ different learning styles (one-dimensional modules as well as two- and three-dimensional video lectures) and learning preferences (from print modules to learning from tablets, ipads and smart phones).

If the mushrooming of online courses in recent years is anything to go by, video lectures will definitely be increasingly favoured as a choice mode of learning in the near future. It is thus imperative that more studies be done to gauge learners’ preferences vis-à-vis the use of video lectures. Studies pertaining to aspects such as the context in which learning is taking place in higher education, ways of integrating videos into instruction so as to result in effective learning, teaching “with” and “through” video, and the support needed to create and deploy various types of video content will definitely chart new directions and shed light on the way forward for educationists in the 21st Century.

Higher education providers should make greater efforts to boost university students’ e-learning self-efficacy. It is necessary for the university to put more emphasis on offering a greater variety of e-learning options and advertising the benefits of e-learning to students. The overall results from this study reflect positive feedback from the respondents regarding video lectures, with areas to improve on. Video lectures need to be engaging and able to grasp the learners’ attention till the end of the video. Many aspects need to be considered in order to achieve that, including the skill of the presenter, the content of the video lecture, the flow of the content etc. Another aspect to look into is to decide whether video lectures should assist learners in completing assignments and if so, then how to guide the learners to do this. This can be a challenge because assignment tasks usually require learners to apply learning to real-life scenarios. However, this is an area that the academicians and the CiDT can work together for the benefit of ODeL learners.

REFERENCES


Assessed on 6 June 2017


Abstract

As users of the World Wide Web, open universities have been producing electronic texts to introduce and deliver their academic services. This paper is a corpus-driven study of these written electronic texts particularly the “About Us” section of 41 members of the Asian Association of Open Universities (AAOU). Guided by Swales’ (1990) seminal work on genre analysis, the researchers identified a total of 12 recurrent moves which indicate the open universities’ communicative purpose in the “About Us” section of their websites. Keyword analysis was conducted using the AntConc application (Anthony, 2017) to dissect the microstructure of the electronic texts. These included the data for frequency and keyness that determine overused and underused keywords and their importance in the section. Concordance for several keywords was also generated to thematically analyze how AAOU members used these keywords to portray their respective institutions. Findings of this study can be used as reference towards further improvement of the websites. These can also serve as reliable indicators of the discourse in the open and distance learning sector.

Keywords: genre analysis, keyword analysis, corpus-based study, open and distance learning genre, academic web genre

INTRODUCTION

Genre analysis involves the study of language and its usage and application in different settings (Bhatia, 1997). As a method that uncovers structural patterns of texts, genre analysis led to a plethora of studies that provided an understanding of genre across academic disciplines. Scholars have also come up with different approaches to genre analysis and applied these to written and spoken texts (Pho, 2013). However, the emergence of the World Wide Web offers new avenues to apply genre analysis to electronic texts. This provides a new area that will allow researchers to make sense of conventional knowledge as presented in the World Wide Web.

In the context of education, scholars have been dissecting parts of university websites. Tomaskova (2015) studied the websites of American, British, and Czech universities to determine similarities and differences in terms of multimodal features. It was found that the universities differed in their representation, and these could be attributed to their social and cultural contexts. Meanwhile, some scholars took a critical approach in studying university websites as done by Zhang and O’Halloran (2013) in their analysis of the National University of Singapore’s (NUS) website and strategies which positioned the university as a global player rather than a national institution. Similarly, the study also found that in the past 14 years, NUS’s website shifted from an information-based to a consumer-based approach. These findings also resonated with the study conducted by Jessee (2009) which focused on student profiles published in university websites. These profiles were found to be promotional in function, but were also anchored in the academic
and research thrusts of the universities. Given these examples, it can be said that scholars have recognized university websites as a means of promotion. While these assumptions have been founded, Caiazzo (2009, as cited in Yang, 2013) still recognized university websites as excellent study texts for corpus linguistics. Accordingly, this will permit an in-depth look into universities’ construction of social realities and the meanings that they attached in varying contexts.

The current study is an attempt to apply corpus linguistics in written electronic texts, particularly the “About Us” section of Association of Asian Open Universities (AAOU) members’ websites (AAOU, n.d.). This inquiry is important because it will provide an insight as to how AAOU members describe and portray themselves in the World Wide Web which the also utilize largely in distance education. This will also lead to the understanding of conventional knowledge among AAOU members during the period of study. Moreover, as genre is deemed as a dynamic construct (Bhatia, 1997), the inquiry will inform the members of the AAOU regarding their current communicative purposes, overused or underused keywords, and their usage of these words which they may opt to work on in the future. With these, the researchers asked the following questions:

1. What is the macrostructure of the “About Us” sections of AAOU members’ websites?
2. What are the overused and underused keywords utilized by AAOU members in their “About Us” sections?
3. In what contexts do AAOU members use specific keywords in their “About Us” sections?

RELATED LITERATURE
In describing the macrostructure of the “About Us” section, the researchers will use Swales’ (1990) concept of rhetorical moves. Accordingly, rhetorical moves are discourse units that require researchers to segment parts of the texts based on its communicative purpose. In Swales’ seminal work, these rhetorical moves permit those who are not part of the discourse community to understand and learn about the genre. One of the foremost move analyses conducted on websites was done by Askehave and Nielsen (2005) on a European industrial company website. Accordingly, the website employed the following rhetorical moves to achieve its communicative purpose: (1) attracting attention; (2) greeting; (3) identifying sender; (4) indicating content structure; (5) detailing (selected) content; (6) establishing credentials; (7) establishing contacts; (8) establishing a discourse community; and (9) promoting an external organization. Guided by Askehave and Nielsen (2005), a number of scholars have also followed through with genre analysis of websites. Isa, Ali, Fadzillah and Mohamad (2016) used Askehave and Nielsen’s (2005) rhetorical moves as benchmark in analyzing the websites of oils and gas companies worldwide. The same was done by Johari and Ali (2015) in their analysis of the websites of Malaysian small and medium enterprises (SMEs). The scholars found that while Malaysian SMEs had varying moves, the goal of these companies was still evident and that was to persuade customers to buy company products and/or avail company services. Sensitivity to audience’s needs could also be observed as the websites of Malaysian SMEs maximized on Islamic contents.

In the context of education, move analysis has been employed in the study of academic outputs. It has been applied to research articles across different fields of study. Cross and Oppenheim (2006) analyzed the abstracts of protozoology studies, and managed to uncover a five-move
pattern which included the following: (1) situating the research within the scientific community; (2) introducing the research through its features and/or objectives; (3) describing the methodology; (4) discussing results; (5) drawing conclusions and presenting recommendations. A number of scholars have also been interested in the similarities and differences of abstracts written by native and non-native English speakers (e.g. Li, 2011; Marefat & Mohammadzadeh, 2013; Niu, 2013; Talebzadeh, Samar, Kiany & Akbari, 2013; Benham & Golpour, 2014; Nasseri & Nematollah, 2014; Al-Khasawneh, 2017). Aside from abstracts, move analysis has also been applied to application essays. Ding (2007) analyzed the moves used by medical and dental school applicants. Among these were “(1) explaining the reason to pursue the proposed study; (2) establishing credentials related to the fields of medicine/dentistry; (3) discussing relevant life experience; (4) stating future career goals; and (5) describing personality.” Samraj and Monk (2008) also used move analysis to compare the application essays of applicants to the Linguistics, Business Administration, and Electrical Engineering program of a state university.

In the context of academic websites, Yang (2013) also conducted a move analysis in the “Why Choose Us?” section of websites of universities worldwide. The analysis yielded the following six moves used to promote universities to potential students: (1) establishing a distinguished status; (2) ensuring excellent teaching quality; (3) presenting a leading role in research; (4) offering attractive incentives; (5) enjoying a friendly environment; and (6) ending with suggestions. Meanwhile, Zhang (2017) dissected the “About Us” section of five universities in China, and found that there were seven obligatory or optional moves exemplified by 11 different subsections. These were as follows: (1) welcoming (e.g. president’s message); (2) establishing credentials (e.g. overview, history, facts & figures, publications); (3) describing administration (e.g. leadership); (4) attracting attention (e.g. university logo, motto, song, video); (5) offering extra services (e.g. facilities available, international student services); (6) locating the service (e.g. visiting the campus); and (7) soliciting response (e.g. contact us).

Aside from mapping out the moves in the electronic texts, genre analysis can also be approached through keyword analysis (Trible, 1999 as cited in Xiao & McNery, 2005). Keyword analysis allows researchers to determine the words considered as “key” since these have unusual frequency in relation to a reference corpus (Scott, 1997 as cited in Gabrielatos & Marchi, 2012). According to Scott (2011), keyness may be positive or negative. Words with positive keyness appeared “more often than would be expected by chance in comparison with the reference corpus” while words with negative keyness occurred less. Keyword analysis has been at the core of research studies in literature. Scholars relied on keyness to dissect the works of prominent writers such as Shakespeare (Culpeper, 2009), Jane Austen (Fischer-Starcke, 2009), and Irving (Cermakova, 2015). Likewise, social scientists have also incorporated keyword analysis in the study of media and politics such as Barrett’s (2007) comparison of articles about the war on terror published by newspapers in the United States, Great Britain, and Germany, Clark’s (2011) study about the Iraq war based on the broadcasts of BBC and CBS, and Charteris-Black’s (2012) dissection of Tony Blair’s speeches. Keyword analysis has also been helpful in understanding academic web genre. Yang (2013) generated the keyness of “Why Choose Us?” section of university websites through the use of Scott’s (2008) Wordsmith tool. The analysis yielded more overused than underused keywords. The keywords were also consistent with the promotional nature of the genre that also
portrayed the universities as both authoritarian and inclusive. The use of collective pronouns such as “we” and “our” were overused to personalize (Fairclough, 1993 as cited in Yang, 2013) the universities, and connect more to the readers. Similarly, adjectives in superlative forms were also overused to attract more students. Words that conveyed absence or contradiction such as “no,” “but,” or “not” were avoided.

While keyness renders a quantitative perspective of the electronic texts, scholars have also been interested in concordance lines which serve as indicators of the contexts where the words occurred (Kent University, n.d.). Concordances have been deemed helpful in the English language learning and vocabulary retention of non-native speakers (Jalilifar, Mehrabi & Mousavinia, 2014; Yilmaz & Soruc, 2015). Accordingly, concordances permit learners to make sense of English words easily. Aside from this, concordances also allow researchers to link words with the bigger context, a method forwarded by Weber (2001) in teaching law undergraduates how to write legal essays. Web genre has also benefitted from the use of concordances. Jimenez-Crespo (2011) analyzed American corporate websites geared for customers in Spain. Significant differences and impact were found in the use of Spanish words in original and localized legal sections.

Guided by the literature cited on move analysis, keyword analysis, and concordance or keyword-in-context analysis, the researchers proceeded with the three-part genre analysis.

METHODOLOGY
The researchers have chosen to study the “About Us” section of AAOU members’ websites in order to grasp how open universities in Asia present themselves. In line with this, the researchers referred to the AAOU website to get the list of full and associate members. All of these members will be considered for the study. Exclusion will only apply in case of the following: (1) the university website does not have an explicit “About Us” page; (2) the university website is down during the duration of the data gathering; (3) the university website belongs to the supra-system where the open university is a constituent; and (4) the university website does not have a direct and complete English translation. In the course of the study, the researchers managed to dissect the About Us sections of 41 out of 63 full and associate members of AAOU.

After the selection of samples, the researchers proceeded to conduct the move analysis. It is important to note that while Swales defined what constitutes as rhetorical moves, he did not specify how move boundaries can be determined (Lewin, Fine & Young, 2001, as cited in Nordquist, 2017). With these, the researchers relied on how each of the “About Us” section was divided. This came in the form of sub-sections that have individual hyperlinks. The researchers read each sub-section and noted how these were sequentially arranged in the “About Us” section. There were many overlapping subsections and the researchers had a consensus as to which sub-section should be merged with another. Since the researchers ranked how these subsections were presented, the median was used to arrive with the final sequence of the subsections or in this case, the rhetorical moves. If a tie between two rhetorical moves was found, the researchers then looked at the mode then the mean of the sequences.
For the keyword analysis, the researchers manually collected the electronic texts through the use of an open sourced scraper (Heaton, 2010) for Google Chrome. The contents were then compiled in a notepad that was loaded to AntConc 3.5.0, and open sourced text analysis software developed by Lawrence Anthony (2014) of Waseda University. In order to measure keyness in AntConc, the electronic texts contained in the notepad were analyzed in relation to the British National Corpus (2007), one of the largest and most used reference corpus. Keyness comes in log-likelihood or chi-square statistics. In this study, the researchers have chosen to use log-likelihood as this is deemed more reliable and more considerate of data that do not have a normal distribution (Xiao, n.d.). More than the log-likelihood scores which determine statistical significance, Gabrielatos and Marchi (2012) suggested for researchers to also consider effect size which is the percentage difference of the frequencies of electronic texts being studied and the reference corpus. Both log-likelihood and effect sizes will be considered for the current study. The researchers did not employ a stop list. Instead, keyness for words was generated organically, and the researcher deliberated on the keywords that could be eliminated due to insignificance. These commonly included linking verbs, articles, prepositions, and conjunctions.

The researchers also used the concordance function of AntConc to determine the location of the words and analyze how these words were used. The researchers agreed to focus on concordance lines for words related to the overarching theme of AAOU 2017 which is “Open University for Inclusive and Equitable Quality Education” (AAOU, 2017). In the selection of these words, the researchers first read the wordlist and through consensus, chose the words that fit the conference’s overarching theme. With regard to the context of the words, the researchers conducted a microanalysis of the subsections where the words appear. This was followed by paragraph and sentence microanalysis. The researchers relied on consensus in terms of merging and separating identified themes.

**RESULTS AND DISCUSSION**

**Move analysis**

AAOU members varied in terms of rhetorical moves. The researchers focused on the 12 rhetorical moves present in 1 out of 5 “About Us” sections of AAOU members’ websites (see Table 1). First, institutions introduced themselves by providing an overview that encapsulates their establishment and mandate. For some institutions, this move may also come with the indication of the institution’s vision, mission, and goals. This is followed by a welcome message addressed to the visitors from the head of the institution. The message reiterated more on the thrust of the university, specifically on the programs offered that visitors may consider for application. Initiatives to live up to the university’s vision, mission, and goals were also discussed. AAOU members further introduced the head of institution by sharing his or her professional credentials which exemplified a prolific career in instruction, research, and public service. The aim of this move was to establish his or her suitability to govern the institution.

Once the head of the institution had been properly introduced, majority of the institutions also opted to provide a section that delineates their mission, vision, and goals. This served as a venue where an idealized image of the institution was described and where integrity was being
established by mentioning the principles that guide the institution. This rhetorical move was followed by the establishment of the institution’s accomplishments through its historical milestones achieved by the institution as a whole or by the members of its community. More details were provided through the introduction of the officials who were in charge of the offices in the institution and the key functions of these offices. These could also come in the form of organizational charts that showed the supra-system and sub-systems that worked interdependently to achieve the institution’s vision, mission, and goals. More facts and statistics were also provided along with current milestones on the instruction, research, and public service thrusts of the universities.

The last leg of the “About Us” section was geared more towards interacting with the visitors. This was accomplished through the rhetorical moves of offering services through various physical and online facilities and establishing contacts through the location of the offices, email addresses, and social media accounts. Information regarding institutional linkages is also indicated in order to show influence and connections with other institutions of similar mandates.

It can be deduced that the rhetorical moves employed by AAOU members also resembled those that were mapped by Zhang (2017) in his dissection of “About Us” section of Chinese university websites. Some similarities with rhetorical moves in Yang (2013) and Askehave and Nielsen (2005) were also evident. This exemplified that the “About Us” section of AAOU members’ websites exemplified both a promotional culture that relied on authoritarian and inclusive portrayals. The former can be seen in the rhetorical moves that emphasized on information about AAOU members’ history and mandate, suitability of administrators, commitment to integrity, structure and functions of the organization, reinforcement of institutional accomplishment, and display of influence through networks and linkages. Meanwhile, inclusivity was shown through the welcome message from the President or Chancellor as well as the offer to provide services and the invite to visit the campus and connect through available channels.

Table 1. Rhetorical moves employed by the AAOU members in their “About Us” sections

<table>
<thead>
<tr>
<th>Rhetorical Move</th>
<th>Communicative Purpose</th>
<th>Sub-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing the institution</td>
<td>Providing an overview of the institution through a number of information about its history and mandate.</td>
<td>Overview</td>
</tr>
<tr>
<td>Greetings</td>
<td>Welcoming the visitors of the institution's website</td>
<td>President’s Message</td>
</tr>
<tr>
<td>Establishing administrator's suitability</td>
<td>Letting the visitors know that the institution is being run by a competent administrator with impressive credentials</td>
<td>President’s Profile</td>
</tr>
<tr>
<td>Establishing integrity</td>
<td>Providing an ideal image of the institution</td>
<td>Vision, Mission and Goals</td>
</tr>
<tr>
<td>Rhetorical Move</td>
<td>Communicative Purpose</td>
<td>Sub-section</td>
</tr>
<tr>
<td>---------------------------------</td>
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<td>-----------------------------------</td>
</tr>
<tr>
<td>Establishing accomplishments</td>
<td>Providing an overview of the opportunities and challenges taken and overcome by the institution over the years</td>
<td>History</td>
</tr>
<tr>
<td>Introducing the administration</td>
<td>Providing the visitors with information about the officials who run the institution’s offices</td>
<td>Board of Directors, Executive Committee</td>
</tr>
<tr>
<td>Detailing organizational structure</td>
<td>Providing the visitors with information on the functions of the institution’s offices</td>
<td>Organization, Organizational Chart</td>
</tr>
<tr>
<td>Supplying organizational data</td>
<td>Providing facts and figures to describe the institution</td>
<td>Facts and Figures</td>
</tr>
<tr>
<td>Reinforcing accomplishments</td>
<td>Providing information about current institutional milestones</td>
<td>Achievements, Milestones</td>
</tr>
<tr>
<td>Offering services</td>
<td>Providing information about the services offered and facilities available in the institution</td>
<td>Support and Facilities</td>
</tr>
<tr>
<td>Establishing contact</td>
<td>Providing lines of communication through different channels</td>
<td>Contact Us, Campus Location</td>
</tr>
<tr>
<td>Establishing influence and connections</td>
<td>Providing information about partner institutions and networks</td>
<td>Linkages</td>
</tr>
</tbody>
</table>

**Keyword analysis**

The analysis in AntConc (Anthony, 2017) yielded a total 7300 words. Among these, only 2974 are calculated as keywords with significant statistical and effect sizes differences. An overwhelming majority of these keywords have positive keyness. As delineated in the methodology, the researchers decided to eliminate words such as linking verbs, articles, prepositions, and conjunctions. Please see Appendix 1 to find the top 100 keywords with positive keyness. A quick categorization of these keywords shows that AAOU members made sure to emphasize the salient characteristics of open and distance education. These can be seen in the high and positive keyness of words “open” and “distance” as well as the words “online” and “face” which was used to indicate blended learning (face-to-face plus online mode of learning).

The choice of pronouns also resonated with Fairclough (1993 as cited in Yang, 2013) specifically the use of collective pronouns such as “their” and “our.” It could also be deduced that AAOU members were still largely dominated by male members as exemplified by the high positive
keyness of the pronoun “his.” Yang’s (2013) findings that pertained to the use of positive adjectives were also evident in the “About Us” section of AAOU members. Words with negative connotations (e.g. “no,” “not,” or “without”) were not used as much as “all,” “first,” “has,” “have,” “more,” and “well.” Same focused were given to verbs that denote positive actions such as “achieve,” “ensure,” “provide,” “providing,” “service,” “sign”, “signed”

Apart from the attempt to distinguish open universities from others through the mode of learning and the worldview of openness, the “About Us” section of AAOU members’ websites still used words that often characterized universities in general such as “international,” “quality,” “system,” “established,” “national,” “professional,” among others. Physical and online facilities were also mentioned (e.g. “campus,” “centers,” and “institute”). Aside from these characteristics, a bulk of the Top 100 keywords with positive keyness pertained to the thrusts of the universities: academic (e.g. “learning,” “knowledge,” “students,” “programs,” “study,” “teaching,” “course,” “degree,” “faculty,” “learners,” “professor,” “registration” among others), research and public service (e.g. “research,” “public” and “policy”). There were also keywords that referred to the administration of the universities (e.g. “financial,” “Chancellor,” “mutual,” “understanding,” “division,” “President,” “council,” “business,” “department,” “memorandum,” “vice,” and “control”) Whereas some cut across areas in the universities’ mandates (e.g. “development,” “management,” “technology,” “services,” “resources,” “activities,” and “plan”). The universities objective to have societal impact was also apparent in the words “society,” “state,” “country,” “social,” “world,” and “Asia” among others.

In terms of negative keyness, majority of the results were letters that served as enumerators (i.e. “a,” “b,” “c,” among others). The pronoun “I” is also found to occur least in the “About Us” section. This could be attributed to the fact that the said pronoun countered the personalization of the universities as collective entities. Hence, the use of the pronoun “I” was only limited to the 2nd rhetorical move which was carried out through the welcoming message of the organization head.

Concordance analysis
The researchers selected words for concordance analysis via consensus. These words should be associated with the overarching theme of AAOU 2017 which is “Open University for Inclusive and Equitable Quality Education.” After deliberations, the following words were selected: (1) open or openness; (2) access, accessible, or accessibility; (3) assessment; (4) quality; (5) inclusive or inclusivity; (6) equal or equality; (7) equity or equitable; (8) justice.

Open or openness
In the “About Us” section of AAOU members’ websites, the word “open” managed to have a high ranking and positive keyness primarily because the word was part of the universities’ names as well as the area or field of study of the academics working in the universities. Despite this, there were also varying contexts wherein AAOU members used the word open. These are as follows:

(1) accessibility of services, facilities, and materials (e.g. “Distance education utilizes open media,” “The objective is to framework a sustainable provision of quality open textbooks to teachers and students”);
(2) as an adjective to describe what the universities stand for (e.g. “...our door to learning is always open,” “…we have to open the horizons of knowledge and provide a new and useful knowledge for them to achieve their ambition”);
(3) a policy for admission (e.g. “In 1997, NOU abolished the entrance examination and started to offer a wider open admission to learners”);
(4) mode of learning (e.g. “It has tried to increase the Gross Enrollment Ration (GER) by offering high-quality teaching through the Open and Distance Learning (ODL) mode”);
(5) a university practice (e.g. “It engages and encourages an open exchange of ideas and seeks input from all who wish to participate in its learning programs”);
(6) a free source (e.g. “KNOU aims to serve as the fount that makes the dream of a better, harmonious world a reality for all by providing first-class educational environment, by its unwavering support for research, and by being an open source for knowledge and exchange to the members of our world community”);
(7) a system (e.g. “The objective of SOES is to promote, advance and disseminate knowledge through the open and distance learning system, in order to provide education, skill development, and lifelong learning opportunities to all segments of the population from India and other countries...”).

While the word “open” was mentioned more than 400 times (ranked 9th) in the “About Us” section of AAOU members’ websites, “openness” was only used 5 times (ranked 1833rd), once as a proper name for a program, another as a practice in admission and enrollment (e.g. “…the University has drawn up an innovative strategy, by offering greater flexibility and openness in terms of course-wise enrollment, so that learners can opt for a capsule of a few relevant courses which suit their requirements”) and thrice with regard to the core values of the AAOU members (e.g. “Openness is one of the OUC’s core values,” “The OUC upholds the educational philosophy of Openness, Responsibility, Quality, Diversity, and Internationalization” and “The central part of this emblem symbolizes a peacock, the vehicle of Saraswati, the goddess of knowledge and wisdom. The circular strokes spreading outwards indicate openness, dynamism and contribution. The YCMOU emblem thus signifies the spread of knowledge, far and wide, which is the motto of the university”).

Access, accessible, or accessibility
In the AntConc (Anthony, 2017) wordlist, the word “access” ranked 142nd (n = 59) while “accessible” and “accessibility” ranked 624th (n = 16) and 2285th (n = 3) respectively. The contexts where these words were used were categorized as follows:
(1) general admission (e.g. “To achieve the twin objectives of widening access for all sections of society and providing continual professional development and training to all sectors of the economy, the University uses a variety of media and latest technology in imparting education,” and “Asia e University views itself as an enabler to be harnessed by Asian educational institutions to increase cross-border accessibility of their programmes, especially in critical areas that are in demand for capacity-building”);
(2) admission for the marginalized sector (e.g. “It (AIOU) has opened up educational opportunities for the working people and has provided access to females at their doorsteps,” “Expands access to affordable programs to underserved learners,” and
“Specific efforts shall be made for providing access to education and equity in opportunities to women, Scheduled Castes, Scheduled Tribes, the rural population, the remote areas, tribal regions, differently-abled, and the socially and economically weaker sections of society”;

(3) in relation to equality (e.g. “We aspire for the highest academic integrity and in providing equal rights, equal access and equal treatment where learning opportunities are concerned”);

(4) in relation to equity (e.g. “The University shall strive to develop a national network using emerging technologies to meet the challenges of access and equity”);

(5) in relation to academic instruction (e.g. “The choice of technology should take into account availability, accessibility and acceptability. Priorities in the use of technologies for distance education will have to be different in different contexts. The possibilities of outreach and economy of scale are as important considerations for IGNOU as individualised access and interactivity”);

(6) services and facilities (e.g. “Special focus is given to the development, access and delivery of the e-library. The digital library is accessible to all AeU Library members, students, staff, researchers and scholars from any place and at all times”);

(7) attainment of higher education and quality education (e.g. “Our mission is to provide Filipinos everywhere access to quality higher education through innovative methods of teaching and learning that are designed to be responsive to their needs as well as to national development priorities” and “I hope that the University will continue to ensure quality of education and teaching and play an increasingly important role in improving access to Higher Education in the country”).

Assessment
The word “assessment” appeared 25 times and ranked 388th among the keywords with positive keyness. The word was used as a proper noun for councils and departments and a field of expertise of faculty members. Aside from these, AAOU members also talked about “assessment” in the following contexts:

(1) the type or kind of assessment being used in the university (e.g. “The self-assessment activities, included in the books, help ensure the acquisition of learning outcomes” and “The evaluation model (for students) is also changing from summative assessment to formative assessment”);

(2) the system or tools for assessment being used in the university (e.g. “SCDL has for the first time in India, introduced online assessment systems, to pursue our mission of providing learners with flexible learning opportunities anywhere, anytime and to provide ultimate convenience, ease and flexibility to our students”);

(3) as part of university policies (e.g. “[The Academic Management Committee aims] To review and make recommendations to Senate on all matters of academic rules and regulations including admission and assessment policies”);

(4) as a university process (e.g. “Planning & Development Division (PDD) (is) Involved in making five-year plans and annual plans of the University, mid-term assessment of plans, and manpower planning”).
Quality

Aside from the words “open,” “international,” and “distance,” one of the words with the highest positive keyness was “quality” which ranked 21st in terms of usage (n = 192). Through concordance analysis, the researchers found that the word “quality” was used a lot and in different ways:

1. **a state of being** (e.g. “The unique quality the OUK bears will make it the city university that stimulates the rejuvenation of higher education market, enhances the occupational competitiveness and learning ability, creates an international platform of global learning and media utilization, and increases turnover and transformation for the city”);

2. **in relation to admission** (e.g. “The new approaches to delivery modes, such as online open access of our study material, the use of technology to support flexible learning model allowing learners to learn at a distance, experience enriched methods of Blended Learning/delivery methods and bringing parity in quality of education with regular students has raised the quality of students joining School of Open Learning since 2014-15 i.e. more than 50% students with marks above 60% and approximately 10,000 with more than 80% marks have joined School of Open Learning in 2015-16”);

3. **in relation to assurance and control** (e.g. “It is now well recognised that open learning is the most viable option to make education accessible to all in India. However, it must offer quality education if it is to compete and collaborate with the conventional system. Due to its inherent character, the ODL system lends itself quite naturally to quality assurance and control. The University envisages a proactive role for itself by sharing professional capabilities and resources, to maintain and coordinate standards of Distance Education in the country”);

4. **as a major initiative of the universities** (e.g. “The higher education environment of Hong Kong has experienced substantial changes since 2008, some of which have significant implications for the operations of the University. These developments include, for example: the full implementation of the 3-3-4 academic system; the increased Government support for self-financing tertiary education, such as the provision of funds for teaching and learning quality enhancement, scholarships for students, and research for academic staff…”);

5. **as a form of measurement** (e.g. “Revisions implemented by integrating all of the requirements of quality standards required by the Act, Regulations State, AAOU QA Statements of Best Practices and also with the Strategic Plan and RENOP UT to meet national quality standards (BAN PT) and international (ISO 9001 and ICDE)”);

6. **as a university policy** (e.g. “Simintas UT’s 2012 revised form an integrated quality policy which contains 10 components and 110 points in the form of quality policy statement as follows good practice”);
(7) as a university practice (e.g. “HYCY controls quality management as well as course contents development by having established a ‘lecture development and management system’ for the first time among cyber universities in Korea”);

(8) as a preference (e.g. “Through technology, learning can happen anytime, anywhere, but it is by focusing on quality that we believe everyone can achieve their dreams through ODL”);

(9) as a principle (e.g. “In the spirit of moving ever forward through innovation and a dedication to quality, OUM has embarked on several initiatives to make studying even more accessible, affordable and flexible”);

(10) as an obligation to society (e.g. “Promote interdependence among Asian countries in all areas of cooperation by identifying Asia’s common strengths and opportunities which will help reduce poverty and improve the quality of life for Asian people, whilst developing a knowledge-based society within Asia and enhancing community and people empowerment”);

(11) the state of university products (e.g. “Since 2002, the Open University (UT) has developed a quality assurance system (SIMINTAS) are used to ensure the quality of all products and activities at UT”);

(12) the state of resources (e.g. “The OUC has established four major supporting alliances to help fulfill its historic mission and realize its social values, develop a learning society and fully utilize available high quality social sources”);

(13) in relation to academic standards (e.g. “We believe in providing an innovative, comprehensive academic programmes that offer you top quality instruction, high institutional standards and a broad range of educational opportunities”);

(14) in relation to standards of learning materials (e.g. “In the last 26 years, IGNOU, through high-quality self-learning material and innovative programmes, has established itself as a National Resource Centre and a provider of quality education — at par with other national and international institutions of higher learning”);

(15) in relation to human resources standards (e.g. “As part of all on going plans the OUK is engaged in, enhancing the quality of human resources development and international cooperation are the two major missions. The OUK, the most competent social education university, will not just facilitate the building and enriching of city education network, but also provide infinite possibilities for development in metro Kaohsiung with global opportunities and diversities in the future”);

(16) in relation to standards of university services (e.g. BJOU is dedicated to offering high quality educational service, fulfilling diversified and personalized continuing education and lifelong learning demands of all capital citizens, and promoting construction of Learning City Project in Beijing, by integrating education and technologies profoundly, implementing concept of ‘teaching without social distinction’, flexible yet diversified teaching methodologies and open-door enrolling policy”).

Inclusive or inclusivity
The word inclusivity was not used in the “About Us” section of AAOU members’ websites, but the word “inclusive” appeared 7 times and ranked 1370th among the keywords with positive keyness. AAOU members used “inclusive” both to characterize themselves (e.g. “OUHK is inclusive”) and
their aspirations (e.g. “Being comprehensive and all-inclusive in the national and global domains and based on the world standards”). “Inclusive” was also a descriptor of accessibility that should be granted to society (e.g. “Inclusive access to higher education can thus transform our strong demographic advantage into a peaceful, modern and prosperous society”) and also a mechanism for its improvement (e.g. “The Indira Gandhi National Open University (IGNOU), established by an Act of Parliament in 1985, has continuously striven to build an inclusive knowledge society through inclusive education”).

**Equal or equality**
The words “equal” and “equality” were both deemed as keywords. “Equal” occurred 14 times while “equality” was used 4 times. These words ranked 730th and 2015th respectively. Uses of the word “equal” were related to the following:

1. **accessibility of admission** (e.g. “KKHSOU holds the promise of providing equal opportunities for higher education and bringing into its fold the deprived and denied sections of people of the North-East. Starting from its inception, KKHSOU has been formulating quality academic programmes to suit the less-educated, educated and higher-educated groups, as well as, upholding the commitment to long-term goals of providing higher education and training, at the ‘doorstep’ of the seekers of higher education. Thus, with a view towards making higher education more accessible, KKHSOU has classified its diverse academic programmes to suit the potential learners of the following target groups: People living in rural, remote, mountainous and border areas, Persons deprived of higher education in young age and desirous to improve their qualification, People engaged in different services, business, agriculture or other professions, Persons deprived of admission in conventional Universities of the State, Women, particularly housewives who desire to avail the opportunities of education. People belonging to Scheduled Tribes, Hill tribes, socially and educationally backward classes, Physically-handicapped or differently-abled persons, People engaged in arts, crafts, cottage industries, Prisoners and jail-inmates, Working people who desire to develop their professional skills”);

2. **accessibility of employment** (e.g. “As an equal opportunity employer, Wawasan Open University provides a supportive environment that helps employees attain the right balance between their working lives and their personal commitments. We recognise the right and responsibility of our employees to play an active role in their professional development as they strive for excellence. We help them in this process by creating an honest and transparent decision-making process”);

3. **equivalence in course credit** (e.g. “The graduates of the College are conferred a diploma which is equal to the completion of first two-year study at a university”);

4. **standards** (e.g. “The establishment of the Sukhothai Thammathirat Open University can be deemed the opening of a truly modern university--one that enables those with the ability to seek knowledge and expertise to step forward into bold new horizons. It is clear that Thais are an intelligent people, lacking only opportunities to expand their own knowledge and ability. They are an intelligent people who have shown that when given the chance to study at advanced levels, their accomplishments are equal to--and sometimes even surpass--the achievements of other civilized nations”).
With regard to the word “equality,” it was used to convey a goal or an aspiration (e.g. “The university holds the promise of providing equality of opportunities for higher education and bringing into its fold the deprived and denied sections along with the fresh learners”) as well as a principle that AAOU members would aim to uphold (e.g. “The OUC has established an alliance with a number of ministries and industry associations in accordance with the principles of ‘equality and mutual benefit, complementary advantages, distinctive development, resource sharing and win-win cooperation’”).

Equitable or equity
The word “equitable” was mentioned only once and was not considered as a keyword with positive or negative keyness. Meanwhile, the word “equity” appeared 4 times and ranked 2016th among the keywords with positive keyness. Unlike the words “equal” or “equality,” the discourse on equity was not as evident in the “About Us” section of AAOU members’ website. In discussing the motto that the institution had been trying to live up to, the Open University of Hong Kong reiterated about being “equitable” as an important goal of education.

“Education is a public good. Chinese educational philosophy starts with self-cultivation, managing the family, contribute to the country and then pacify the world. Integrity is the core of education. Education’s ultimate goal is to seek the truth and uphold the truth. Integrity means insistently practicing what we preach. Perseverance requires will power that makes a person resilient against adverse learning challenges. Diligence and effort can overcome any inadequacies in intellectual endowment in learning. With perseverance, education is achievable for all, and thus, education becomes equitable.”

In the use of the word “equity,” it can be observed that AAOU members considered “equity” as both a goal (e.g. “To be the premier Open and Distance Learning institution in Asia through excellence, efficiency and equity in lifelong learning” and “Specific efforts shall be made for providing access to education and equity in opportunities to women, Scheduled Castes, Scheduled Tribes, the rural population, the remote areas, tribal regions, differently-abled, and the socially and economically weaker sections of society”) and a challenge (e.g. “Provide an intelligent and flexible system of education to meet the challenges of access and equity, and work towards development of a knowledge society,” “The University shall strive to develop a national network using emerging technologies to meet the challenges of access and equity”) unlike “equality” which was deemed as a goal and a principle.

Justice
Much like the word “equity,” the word “justice” was also mentioned 4 times and ranked 2084th among the keywords with positive keyness. However, it would be important to note that the use of the word “justice” was very limited in the “About Us” section of AAOU members’ websites. In two concordance lines, the word “justice” pertained to positions taken by members of the universities. The other two concordance lines discussed “justice” as a core principle of the universities, specifically of the Open University of Hong Kong (i.e. “The motto in Latin is "Disce, Progredere, Crea." The motto encapsulates both the Chinese and Western Views of education: providing well-being, fairness and justice to all, and that all OUHK students and staff shall act with integrity and honesty, and live in harmony with the nature. They must learn, advance, and create with an open mind and strive for success with perseverance”) and the Payame Noor University
(PNU) in Iran (i.e. “PNU is a university with an Islamic-Iranian identity which makes all its efforts to strengthen its scientific-research position among the other open and distance education universities of the world by developing excellence virtue and human virtues, promoting science and research, developing software movement, giving hope to its students and broadening knowledge boundaries. It has also made learning possible for everyone, everywhere, and at every time in a safe and secure place, based on the justice, and in line with the macro-policies of the Islamic Republic of Iran in national and global level”).

Based on the concordance analysis, it can be deduced that AAOU members had been active in the discourse about accessibility, assessment, and quality. However, it remains unclear how AAOU members define openness. This is crucial since it is inherently at the core of the existence of open universities. In the same way, there isn’t much discourse on how inclusive AAOU members should be and the key measures and indicators that can aid AAOU members in determining if they are upholding and practicing the said principle. The debate between equality and equity should also become a point of discussion among AAOU members in order to clarify where the association and individual universities stand. The concordance analysis showed that AAOU members saw equality as a goal, aspiration, and principle. Meanwhile, equity was deemed as a goal and also a challenge to overcome. If the AAOU members opted to strive for equity as part of its worldview and practice, support should be in place in order to ensure that equity can be materialized. Lastly, justice seemed to be an elusive topic in the “About Us” section of AAOU members’ websites. This should be another point of discussion among AAOU members as open education could be a solution that would address the social injustice that arises out of inequalities in the distribution of access to knowledge.

CONCLUSION
The current study aimed to dissect the academic web genre as exemplified by AAOU members in their respective “About Us” sections. A three-part genre analysis was done. First, the move analysis resonated with the results previously found by scholars who also conducted similar studies of academic web genre. The 12 rhetorical moves used to achieve the communicative purpose of the “About Us” section also showed the promotional nature of university websites in a manner that was both authoritarian and inclusive (Yang, 2013; Zhang, 2017). Meanwhile, the keyword analysis revealed the use of words inherent in open and distance education. However, majority of the keywords with positive keyness were also words that characterized both residential and distance education institutions. The use of words with positive connotations was also contributory to the promotional nature of the academic web genre. Lastly, the concordance analysis conducted showed the contexts wherein words were used by AAOU members in order to make sense of social realities. It also revealed topics that should be further discussed in order to improve the sense of identities of AAOU members as well as their commitment to provide services that are in line with their academic, research, and public service thrusts. The depth of insights found in the concordance analysis echoed Caiazzo’s (2009, as cited in Yang, 2013) conviction regarding the use of corpus linguistics in the study of university web genre.

In the future, researchers are also encouraged to conduct case studies of individual university websites, but with the inclusion of all the sections and sub-sections. This would entail the support
and participation of data mining professionals who could cull large amounts of electronic texts efficiently via programming. In terms of genre analysis, researchers may also include an examination of multimodality, intertexuality, and steps in each rhetorical move of university websites. A comparison of corpora from open and distance institutions and residential universities may also be explored. Achievement of communication purpose should also be determined through evaluation of the university websites and opinion surveys with the target audience. These recommendations as well as the findings of the current study will serve as effective guides to open and distance education institutions in terms of improving and maximizing the impact of their presence online via their university websites.

REFERENCES


[38] Jimenez-Crespo, M.A. (2011). To adapt or not to adapt in web localization: a contrastive genrebased study of original and localised legal sections in corporate websites. The
Appendix 1. Top 100 Keywords with Positive Keyness in the “About Us” section of AAOU Members’ Websites

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<tr>
<td>86</td>
<td>82</td>
<td>+</td>
<td>565.01</td>
<td>president</td>
</tr>
<tr>
<td>90</td>
<td>80</td>
<td>+</td>
<td>551.22</td>
<td>council</td>
</tr>
<tr>
<td>96</td>
<td>77</td>
<td>+</td>
<td>530.55</td>
<td>business</td>
</tr>
<tr>
<td>97</td>
<td>76</td>
<td>+</td>
<td>523.66</td>
<td>department</td>
</tr>
<tr>
<td>103</td>
<td>73</td>
<td>+</td>
<td>502.98</td>
<td>memorandum</td>
</tr>
<tr>
<td>112</td>
<td>69</td>
<td>+</td>
<td>475.42</td>
<td>vice</td>
</tr>
<tr>
<td>124</td>
<td>64</td>
<td>+</td>
<td>440.97</td>
<td>control</td>
</tr>
<tr>
<td>66</td>
<td>94</td>
<td>+</td>
<td>647.7</td>
<td>training</td>
</tr>
<tr>
<td>62</td>
<td>98</td>
<td>+</td>
<td>675.27</td>
<td>online</td>
</tr>
<tr>
<td>70</td>
<td>90</td>
<td>+</td>
<td>620.14</td>
<td>face</td>
</tr>
<tr>
<td>18</td>
<td>206</td>
<td>+</td>
<td>1419.72</td>
<td>development</td>
</tr>
<tr>
<td>19</td>
<td>203</td>
<td>+</td>
<td>1399.04</td>
<td>management</td>
</tr>
<tr>
<td>42</td>
<td>138</td>
<td>+</td>
<td>950.96</td>
<td>technology</td>
</tr>
<tr>
<td>63</td>
<td>97</td>
<td>+</td>
<td>668.38</td>
<td>services</td>
</tr>
<tr>
<td>72</td>
<td>90</td>
<td>+</td>
<td>620.14</td>
<td>resources</td>
</tr>
<tr>
<td>92</td>
<td>79</td>
<td>+</td>
<td>544.33</td>
<td>activities</td>
</tr>
<tr>
<td>122</td>
<td>65</td>
<td>+</td>
<td>447.86</td>
<td>plan</td>
</tr>
<tr>
<td>52</td>
<td>118</td>
<td>+</td>
<td>813.11</td>
<td>knowledge</td>
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<tr>
<td>61</td>
<td>101</td>
<td>+</td>
<td>695.94</td>
<td>information</td>
</tr>
<tr>
<td>40</td>
<td>146</td>
<td>+</td>
<td>1006.1</td>
<td>research</td>
</tr>
<tr>
<td>81</td>
<td>83</td>
<td>+</td>
<td>571.9</td>
<td>society</td>
</tr>
<tr>
<td>82</td>
<td>83</td>
<td>+</td>
<td>571.9</td>
<td>state</td>
</tr>
<tr>
<td>93</td>
<td>79</td>
<td>+</td>
<td>544.33</td>
<td>public</td>
</tr>
<tr>
<td>95</td>
<td>78</td>
<td>+</td>
<td>537.44</td>
<td>policy</td>
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<tr>
<td>106</td>
<td>72</td>
<td>+</td>
<td>496.09</td>
<td>country</td>
</tr>
<tr>
<td>108</td>
<td>71</td>
<td>+</td>
<td>489.2</td>
<td>social</td>
</tr>
<tr>
<td>115</td>
<td>67</td>
<td>+</td>
<td>461.64</td>
<td>world</td>
</tr>
<tr>
<td>117</td>
<td>66</td>
<td>+</td>
<td>454.75</td>
<td>asia</td>
</tr>
<tr>
<td>118</td>
<td>66</td>
<td>+</td>
<td>454.75</td>
<td>general</td>
</tr>
<tr>
<td>119</td>
<td>66</td>
<td>+</td>
<td>454.75</td>
<td>government</td>
</tr>
</tbody>
</table>
A SURVEY INTO THE FLIPPED CLASSROOM IN TEACHING ENGLISH  
--A CASE STUDY OF JIANGSU OPEN UNIVERSITY  
Haixia Cao¹, Jie Xu²  
¹ Jiangsu Open University (China)  
² Jiangsu Open University (China)  

Abstract  
English is the most widely-used language in the world and College English is a compulsory course for all registered online learners in Jiangsu Open University (JSOU). The course aims to offer students with greater opportunities to access abundant learning resources and better work performances, which facilitates students’ lifelong learning and sustainable development. With the advance of modern technology and teaching methodology, flipped classroom, a new pedagogical method, has been applied to the teaching of College English since 2014. The paper first looks into the 3-year-long practice of flipped classroom in teaching English, and then analyzes the data obtained from both teachers and students by means of questionnaires and interviews. The findings show: (1) Flipped classroom caters to online learners in that the online micro-lessons are well-designed and easily accessible. (2) Flipped classroom helps teachers monitor the learning process of online learners and therefore assures the quality of online learning. (3) Flipped classroom ensures effective learning since students and teachers can communicate conveniently and instantly in online chat rooms or via instant messaging software. Flipped classroom provides a new option for online learners, which is worthy of ongoing research.  

Key words: flipped classroom, teaching English, online learners  

INTRODUCTION  
Due to Great Britain’s expansion during the colonial age, English is commonly spoken in many parts of the world, such as Britain, America, Australia, New Zealand, parts of Africa, India and many smaller island nations. English is also adopted as the second language in many European countries, like Germany, Norway and Denmark. In order to keep pace with the world development, all Chinese students are required to learn English at the third grade in their primary school by law and some kids in urban areas commence with English learning at a much earlier age. More importantly, English continues to be a compulsory course as they further their study no matter whether they are obtaining bachelors, masters or doctorates. Jay Walker [1] describes it as “English manias” and explains that Chinese learn English mainly for an opportunity for a better life and a hope for a better future, and furthermore, to actively participate in a global conversation about global problems. Nowadays, Chinese people have a greater demand for learning English and talents in various professions are in short need due to Chinese President Xi Jinping’s “the Belt and Road Initiative”[2].  

To facilitate Chinese students’ learning English, many innovative instructors have been working to apply new pedagogy with the help of modern technology. Some manage to take advantage of course websites, instructional videos, blogs, instant messages, and other means to get in touch. Others show great interests in the flipped classroom, a new pedagogy popularized and solidified as a teaching mode by Jonathan Bergmann and Aaron Sams[3] in 2007. They flipped their chemistry class by having students watch the videos at home and work on exercises and projects
in the classroom under supervision, which have revealed significant improvements in learning outcomes. From then on, flipped classroom becomes increasingly popular with both educators and students and a great number of research experiments have been conducted. Moravec et al.[4] flipped their biology class and this resulted in a performance increase by 21% on exam questions related to the topics introduced in videos outside the class. Yilmaz[5] flipped mathematics class and found that this new approach enhanced students’ understanding and retention. Wen-Chi Vivian Wu[6] created an online learning community in a flipped classroom to enhance EFL learners’ oral proficiency and research results indicated that online learning community significantly improved participants’ oral proficiency. Chinese scholars Wang Sumin[7], Ma Qingguo[8] and You Luchao[9] flipped their College English class and all their research findings showed positive influence flipped classroom had on the teaching of English.

Taking into account all potential benefits of the flipped classroom, and also the availability of online video and increasing student access to technology, Jiangsu Open University (JSOU) launched a reform by flipping classrooms in distance education in 2014. This paper first introduces the flipped college English class in distance education in JSOU, and then analyzes the data obtained from questionnaires and interviews from both teachers and students, and eventually discusses the research findings in the hope that it provides an alternative for effective English learning in distance education.

THE FLIPPED CLASSROOM IN TEACHING ENGLISH IN JSOU

As regulated in the syllabus, College English is a compulsory course for all registered students in JSOU. The majority of the students work most of the time and can only make use of their spare time to study. In this case, modern technology helps them out and enables them to log onto the Internet and complete their study.

Defining the flipped classroom

The flipped classroom is a newly rising buzzword in educational and academic circles at all levels. Lage et al.[10] give the definition as “Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa.” This definition is simple and not adequate as it only captures the terminology the flipped, but fails to represents the essence of flipped classroom which is not merely a re-arrangement of teaching events. The flipped classroom stems from the concept of student-centered learning which originates from the theories of Piaget and Vygotsky. Bergmann & Sams[11] argues that the heart of the flipped classroom is moving teachers’ knowledge delivery outside formal classroom and using formal class time for students to actively engage in knowledge construction through extensive interactions with peers and teachers. Bishop & Verleger[12] define the flipped classroom as “an educational technique that consists of two parts: interactive group learning activities inside the classroom and direct computer-based individual instruction outside the classroom.”

With the definitions as discussed above, this study focuses on the research questions as follows: (1) Does the flipped classroom cater to Chinese online learners? (2) Is the flipped classroom welcomed by teachers practicing distance education? (3) Which factor is most significant as to the learning outcome?
The teaching practice in JSOU

In the summer of 2013, Mr. Xu Depei, the former dean of English department, worked with some colleagues to produce micro-lessons and paved the way for the flipped classroom. Thanks to their joint efforts, all registered students in JSOU started to experience the flipped classroom when they began to learn *College English* in the spring of 2014.

From 2014, students can simply log onto the Internet and watch micro-lessons online whenever and wherever they are available with a computer, a pad or a smart phone on hand. After they have gained the knowledge from the micro-lessons, they are expected to finish the assigned homework and post their answers in time. Bulletin Board System (BBS) and QQ, an instant messaging software, will serve as a classroom where students post their ideas, seek and obtain help from teachers and classmates, and sometimes work in groups to complete assigned tasks. In this way, students learn the knowledge by individuals but construct and internalize knowledge by idea exchanges and group activities in class.

The adoption of the flipped classroom brings great convenience to students and helps better learning outcomes. Students in JSOU no longer need to come to face-to-face classes at weekday nights or weekends and they don’t need to hand in paper homework to teachers in person or by mail. Instead, they can now learn at their own pace, replay micro-lessons to cater to their individual needs and complete assignments online. What’s more, they can now have more meaningful contact with teachers and classmates by seeking help and viewing feedbacks in an online classroom. Well-designed and easily accessible micro-lessons outside classroom, and instant feedbacks and collaborative learning in class are assumed to help students better their learning outcomes. This is illustrated in Table 1.

<table>
<thead>
<tr>
<th>Traditional class</th>
<th>The flipped class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inside classroom</strong></td>
<td>1. face-to-face lectures at weekday nights or weekends in school.</td>
</tr>
<tr>
<td>1. assignments completion.</td>
<td></td>
</tr>
<tr>
<td>2. online discussions at a fixed time, mostly three times a semester.</td>
<td></td>
</tr>
<tr>
<td><strong>Outside classroom</strong></td>
<td>1. BBS or QQ messages anytime before the deadline.</td>
</tr>
<tr>
<td>2. group activities.</td>
<td></td>
</tr>
<tr>
<td>1. online micro-lessons at any time or place.</td>
<td></td>
</tr>
<tr>
<td>2. assignment completion.</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 Shifts in teachers’ working responsibilities in JSOU

<table>
<thead>
<tr>
<th></th>
<th>Traditional class</th>
<th>The flipped class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inside classroom</strong></td>
<td>1. deliver lectures at weekday nights or weekends in school</td>
<td>1. respond to BBS or QQ messages in time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. organize group activities</td>
</tr>
<tr>
<td><strong>Outside classroom</strong></td>
<td>1. evaluate assignments</td>
<td>1. upgrade online resources</td>
</tr>
<tr>
<td></td>
<td>2. chat online at a fixed time, mostly three times a semester</td>
<td>2. evaluate assignments</td>
</tr>
</tbody>
</table>

The application of flipped classroom in JSOU also shifts teachers’ roles and responsibilities and enables them to observe, monitor and offer specialized help for individual students. Table 2 details the shifts. In the traditional classroom, teachers were mainly responsible for giving lectures, delivering knowledge to students, evaluating students’ assignments, and providing feedbacks. In addition, teachers were scheduled to chat online with students at a fixed time, usually three times a semester, aiming to prepare students for the course study at the very beginning of the semester, help solve some learning difficulties in the middle of the semester, and help prepare students for the final exam near the end of the semester. With the flipped classroom, teachers are now mainly responsible for monitoring students’ learning progress, organizing group activities, replying students’ BBS and QQ messages, and evaluating their assignments.

RESEARCH METHODOLOGY
In the spring semester of 2017, 2,608 students registered to learn College English and were divided into 75 separate classes. 35 teachers work together to help students improve fundamental English communicative skills, especially their listening and speaking skills, and equip students with learning strategies as well. Thanks to the joint efforts of students and teachers, 2,558 students have eventually completed the course study by the end of the semester.

Research design
This research employs questionnaires and semi-structured interviews to collect the feedbacks and comments on the implementation of the flipped classroom from both teachers and students. The questionnaire consists of types of questions to mainly investigate students’ views towards micro-lessons online, in-class activities, and communications between teachers and peers. The Cronbach’s alpha reliability coefficient for the questionnaire is 0.93. The semi-structured and in-depth interviews with teachers are expected to find out deeper understanding of the implementation of the flipped classroom from diversified angles.

Participants
Out of 2,608 students, 107 students from the authors’ 3 classes were invited to finish questionnaires and 61 valid questionnaires were eventually collected. 6 out of 35 teachers were interviewed and shared their views and gave comments. All the interviews were recorded, transcribed and coded.
Data collection and analysis
The questionnaire is composed of 19 statements which requires participants to indicate their level of agreement with each statement on a five-point Likert scale ranging from 5 = "strongly agree" to 1 = "strongly disagree", and 1 open question for them to leave their comments and suggestions upon reflection on their course study.

For investigating students' attitudes toward the flipped classroom, the questionnaire consists of 5 statements related to micro-lessons that they are expected to watch and learn individually outside the classroom and 7 statements related to assignments and learning activities that they are required to complete and get involved in class. The mean rating for each statement and the corresponding standard deviation were then calculated. Reliability statistics indicate acceptable levels of internal consistency and Fig. 1 shows the Cronbach’s alpha reliability coefficients for the total questionnaire and its subscales.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>No. of items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Motivation to learn English</td>
<td>3</td>
<td>.80</td>
</tr>
<tr>
<td>2 Micro-lessons in the flipped classroom</td>
<td>5</td>
<td>.87</td>
</tr>
<tr>
<td>3 Communication in class</td>
<td>7</td>
<td>.92</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>.93</td>
</tr>
</tbody>
</table>

Figure 1: Reliability statistics (n=61)

For investigating teachers’ perception of the flipped classroom, semi-structured interviews were conducted individually with 6 experienced teachers participating in the counseling work. The semi-structured interviews centered on three aspects, namely their preparation for online learning materials, particularly micro-lessons, their counseling work during the semester, and their comments on their own work and students’ learning outcomes. The invited teachers were also asked about their experiences, challenging issues at work and expectations for the implementation of the flipped classroom in the distance education.

RESEARCH FINDINGS AND DISCUSSION
This section reveals the research results by analyzing quantitative data from the questionnaires via SPSS 19.0 and qualitative data from interviews using Corbin & Strauss’s qualitative grounded theory method. The data collected are in agreement with the generic belief that the integration of micro-lessons in the flipped classroom facilitates students’ learning and improves their learning performance, which particularly caters for learners under distance education.

Micro-lessons outside classroom
The online learners in JSOU are highly motivated to learn English and they have benefited from online micro-lessons. All students surveyed have a strong desire to learn English well, because they have all realized that a good mastery of English will improve their job competitiveness and benefit their routine life, such as shopping and traveling. What’s more, they are all senior high school graduates and have learned English for a minimum of 9 years and have a fundamental knowledge of English. 11.48% of participants lack confidence in their English accomplishment,
however, all can easily access Internet with a computer, a pad or a smart phone and they have the ability to take advantage of the Internet resources to help them learn.

With regard to students’ attitudes towards micro-lessons, the mean score presented in Fig. 2 shows that students in JSOU speak highly of micro-lessons provided by JSOU (M=4.31, D=.77) and that students have benefited from online micro-lessons (M=4.26, D=.91) because they frequently watch micro-lessons (M=4.21, D=.92). The statistics also reveal that 81.97% of participants give favorable comments on micro-lessons in that they are well-designed, original and interesting. 78.69% of participants confess that they frequently watch micro-lessons online and 85.24% agree that micro-lessons online have helped them learn *College English*.

The remaining items fall in the moderate range. 59.02% of participants prefer to learn by means of micro-lessons online rather than go to school to have face-to-face lectures and only 11.48% disagree who are in favor of the traditional classroom lectures. As to the micro-lessons, 67.21% of students hold the view that micro-lessons should not be too long and preferably last for about 5 to 15 minutes. And what’s more inspiring is that Micro-lessons cater for the diverse needs of online learners and they can now learn independently anytime and anywhere.

Micro-lessons not only benefit students but also counselors who vote for the adoption of micro-lessons. Just as Miss Xu mentioned, “With online micro-lessons, we now focus mainly on students’ individual needs and thus we can help students learn better.”

<table>
<thead>
<tr>
<th>Items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I prefer online micro-lessons to face-to-face classes.</td>
<td>3.69</td>
<td>1.04</td>
</tr>
<tr>
<td>2 I prefer micro-lessons that don’t last too long.</td>
<td>3.93</td>
<td>.95</td>
</tr>
<tr>
<td>3 I consider online micro-lessons of JSOU well-designed and beneficial.</td>
<td>4.31</td>
<td>.77</td>
</tr>
<tr>
<td>4 I frequently watch online micro-lessons during the semester.</td>
<td>4.21</td>
<td>.92</td>
</tr>
<tr>
<td>5 I have benefited from online micro-lessons of JSOU.</td>
<td>4.26</td>
<td>.91</td>
</tr>
</tbody>
</table>

*Figure 2: Students’ general views about the micro-lessons in the flipped classroom (n=61)*

**Communications in class**

In JSOU, students and teachers keep in touch mainly via BBS and QQ which function a bit different in the process of learning. Students in each class are required to post their reflections on what they have learned after watching micro-lessons and are encouraged to share their wondering and answers via BBS. On the other hand, students use QQ for seeking timely help with their learning problems and thus they can finish assignments as required. The highest mean score (M=4.41, D=.92) in Fig. 3 indicates that students complete assignments well. Most items fall in the high range (ie, 4 = High) and item 3 is considered in the moderate range (M=3.93, D=1.01).

The questionnaire results show that most participants except 1.64% of participants post messages as required, which is almost the case in the statistics of their learning performances. Moreover, 75.41% admit that they read classmates’ and counselor’s messages and replies and
59.01% leave comments, which has definitely helped make the topic under discussion clearer. Therefore, 81.97% of participants hold the view that BBS messages better their understanding of the knowledge delivered in micro-lessons.

In addition to BBS, QQ has paved the way for instant communications, especially convenient and beneficial for those students who have difficulties in their study. 66.85% of participants have used QQ to turn to the counselor and classmates and 75.41% believe that they can obtain help they need via QQ.

With the use of BBS and QQ, more effective communications occur in class, which is widely approved of by the teachers interviewed. Counselors are quite willing to provide help for their students, which is self-evident in Mr. Zhou’s comment as follows, “I am always ready to serve my students who may raise a question even at midnight and I will give him or her reply the moment I read the message.”

<table>
<thead>
<tr>
<th>Items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use BBS to post my opinions as required.</td>
<td>4.26</td>
<td>.81</td>
</tr>
<tr>
<td>I read BBS messages posted by the counselor and classmates.</td>
<td>4.30</td>
<td>.84</td>
</tr>
<tr>
<td>I leave my comments after reading others’ BBS messages.</td>
<td>3.93</td>
<td>1.01</td>
</tr>
<tr>
<td>I would seek help from the counselor and classmates via QQ.</td>
<td>4.11</td>
<td>.95</td>
</tr>
<tr>
<td>I can obtain timely help via QQ.</td>
<td>4.34</td>
<td>.85</td>
</tr>
<tr>
<td>I agree that communication via BBS and QQ facilitates my study.</td>
<td>4.30</td>
<td>.84</td>
</tr>
<tr>
<td>I complete the assignments as required.</td>
<td>4.41</td>
<td>.92</td>
</tr>
</tbody>
</table>

Figure 3: Students’ general views about communications in class (n=61)

Learning outcomes
Students in JSOU have achieved quite promising learning outcomes in College English due to the above-mentioned factors: popular micro-lessons online and effective communications in class. 105 out of 107 students in the author’s 3 classes have successfully finished the course study and 98.08% of all 2,608 registered students in the past semester in 2017 have accomplished in the course study. 72.13% of participants agree that they have improved their English after 1-semester English learning.

Counselors are not surprised at students’ performance, since they can monitor students’ learning process. They evaluate students’ assignments, provide timely feedbacks, read the BBS posts, and reply QQ messages. In doing so, they actively participate in the students’ learning rather than focus their attention on knowledge delivery. Teachers’ active participation ensures the learning activities of students, which guarantees desired learning outcomes.

CONCLUSION
In this paper, we have introduced the application of the flipped classroom in the teaching of College English in JSOU and reported the research findings from three aspects: micro-lessons outside classroom, communication in class, and the learning outcomes. The current study has adopted an exploratory case study approach. The statistics show that students give favorable
comments on the online micro-lessons, which greatly enhances their learning. The research findings show that both the counselors and students agree there are adequate communications in class. As a result, the learning outcomes are quite satisfactory.

The flipped classroom is seemingly well received in JSOU, however, this teaching model is still in its infancy and implementing the concept may be filled with barriers. For instance, students who have a poor command of English still prefer traditional face-to-face class to the online flipped classroom. Also, some teachers complain about too much work load in that they need learn to use some software like Camtasia Studio to produce micro-lessons, and they feel nervous so much so that they keep checking their QQ messages for fear that they ignore students’ quest for help.

Flipped classroom has captured the attention of educators and learners worldwide. We believe that this study investigates this teaching model by applying it to the online learners and provides a new alternative for distance education.

REFERENCES
CREATE SUSTAINABLE EDUCATION ENVIRONMENT IN THE DEVELOPMENT COUNTRIES THROUGH UBIQUITOUS LEARNING: NEPAL CASE

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Abstract

U-Learning System is a powerful and easy handled techniques toll that provides an opportunity to all educationists to teach the entire subject in electronic process. In the context of Nepal, all Government school they are facing lots of problems for teaching and learning procedures. Information and communication technologies have been touted for their potential to contribute to education development in the developing world. Despite the large volume of effort, many contemporary approaches where the developed country leads the project rarely achieve sustainable impact on the overall education system in the developing country. We aim to expand our understanding of the socio-technological infrastructure that allows sustainable change in educational practice in developing countries. Specifically, in this project, we situated our study in English education of primary schools in Nepal and deployed portable devices and software that allowed the local teachers to create educational multimedia contents and to use them in their everyday classes. Throughout the project, we deliberately empowered local stakeholders. Our results suggest that a more macroscopic perspective to the infrastructure is necessary and that intimate involvement of local stakeholders can mobilize local movements that may lead to sustainable changes in education practice.

Keywords: ICT4D, HCI4D, Education, Developing countries, Nepal

INTRODUCTION

Aiding education development of the developing world has long been receiving significant attention from various sectors. Among many, ICT has been acknowledged as a potential means to overcome the limited infrastructure in the developing world and to increase the pace of its education development. In many cases that are discussed in the CHI community, the researchers and engineers from a developed country present a solution and deploy it in a developing country to evaluate its feasibility. Such a project often stops short at a small-scale feasibility study. In order to achieve sustainable deployment, however, it is necessary to consider beyond such limited study sites. Yet it is challenging since academic projects are often short-lived with limited budget. The differences in the socio-technological infrastructure between developing and developed countries present added challenges, and the implemented solutions may not adequately reflect the needs and the problems of the actual users. Even if the solutions match the users’ needs, the diffusion and sustainability of their use rely heavily on the active response of the local community. Non-government organizations (NGOs) and governments typically take conservative approaches and mostly focus on deploying hardware infrastructure, such as personal computers, which is against traditional warnings. They often do not adequately address the actual needs of local users or the situation of deployed sites. Indeed, despite the wide acknowledgement of the importance in embedding them in the education system, the ICT solutions often fail to be adopted into the overall education
practice. We question the prominent approach where the developed country is the origin of the ICT solution and the developing country is its destination. This naturally causes trouble since specific implementation needs to be transferred to address the differences in the socio-technological infrastructure of the developing and the developed country. What would be the underlying reason of such an approach? In this approach, how could the ICT solution implemented by the developed country place its root in the developing country? Taking this in our study design, we situated our research in English education in Nepal. We provided a software application as well as necessary hardware devices that would enable the local teachers to create multimedia contents for their everyday classes (Figure 1(a)). In order to support the actual use of the provided solution as well as the created contents (Figure 1(b)), we regularly held workshops where the local community gathered to continue their discussion and further training (Figure 2). Throughout the study, we deliberately empowered and involved local stakeholders of various sectors and investigated how they would contribute to the sustainability. Our attempt led us to frequent interactions with those who assumed different roles in education system both locally and nationally. Our results revealed that an intimate involvement of local stakeholders could fuel active local movements that may lead to sustainable changes in education development.

Figure 1. A sample of deployed solutions and an actual class

(a) The deployment package includes a portable server, a tablet PC, a speaker, a portable projector, and a tripod. The actual devices may be different depending on the time of deployment.

(b) A third grade teacher using the provided solution to teach how to tell time in English.

Figure 2. Group activities during the training workshop at the ICT Center, Institute of Engineering, TU (Pulchowk, Kathmandu).
(a) A beginner’s practices in assembling the devices and running the application. (b) An advanced group circles around to discuss and select the contents to create.

BACKGROUND

Like any other developing countries, Nepal suffers from the shortage of reliable power supply. A limited number of people have access to electricity for only a certain number of hours. For instance, electricity is available only for eleven hours a day even in Kathmandu, the capital of Nepal, and those granted access to electricity rely on solar cells and small-sized power generators. This limited supply hinders the schools from utilizing ICT. Although investment in education has significantly increased, Nepal still suffers from low pass rate and low quality education, especially in community schools. Because the government makes slow progress in the curriculum development, many schools devise their own additional curriculum, such as English education, using supplementary textbooks and spending varying amounts of resource. Often times, however, the additional curricula do not diverge much from the regular, as both are tied to the traditional means of teaching. Universities strive to enhance the quality of teaching by training their students to use ICTs so that they can integrate ICTs into their everyday classrooms at schools. For instance, collaborating with Oslo and Akershus University College (HiOA), Tribhuvan Univesity (TU) and Kathmandu University (KU) run the QUANTICT project, in which they use Moodle to manage university classes and MATLAB as a teaching tool to help math students understand abstract concepts. However, the limited infrastructure in primary schools makes it difficult for many students to make use of their training after they graduate and become teachers. The government and NGOs attempt to improve the traditional teaching pedagogy of the teachers who have not benefited from the modern education. The government runs annual teachers’ professional development (TPD) training to promote awareness in the limitations of the traditional education practice [13]. Practical Help Achieving Self Education (PHASE) and Nepal Teacher Training Innovations (NTTI), are active in teacher training. More radically, in the One Laptop Per Child (OLPC) movement, approximately six thousand XO laptops were deployed and the constructionist pedagogy was attempted. However, the movement has been receding due to the neglect of local socio-technological infrastructure.
STUDY METHODS

In order to minimize the design-actuality gaps, we took a staged approach and attempted to spend enough time to understand the challenges in the local community and to identify the local stakeholders who would support the project before making major decisions.

Table 1. The categorization of the schools that participated the study

<table>
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<tr>
<th></th>
<th>Urban</th>
<th>Suburban</th>
<th>Rural</th>
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<tbody>
<tr>
<td>Public</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Community</td>
<td>0</td>
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<td>Private</td>
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We chose Adarsha Saula Yubak Higher Secondary School (Lalitpur, Bagmati) as the initial field site since the school had a reputation for being open to foreign volunteers and supportive of their activities. In August 2014, our team of researchers and volunteer teachers visited the school for a month without any particular ICT solution in mind. After short brainstorming on potential activities together with the local teachers, our team conducted physical and language activities for students after school hours every day. Based on the observation, we decided to address English education using a portable ICT solution in which all the devices were powered by batteries (Figure 1(a)) that are similar to the ones in [12]. In a nutshell, the teachers could create their own multimedia contents using the images and the videos they filmed or downloaded from the Internet. Using a portable projector, they were able to display the contents on the whiteboard or the wall (Figure 1(b)). In August 2015, solar cell panels were installed to enable them to charge batteries, and the solution package was delivered to the two teachers recommended by the principal of the school. The teachers were given training on how to use the devices to create multimedia contents. We also started seeking collaboration with the local academics, and eventually got in touch with multiple professors in computer science and engineering from TU and KU who decided to support the project. We encouraged them to lead local activities in the presence as well as the absence of our research team. By January 2016, they successfully recruited five more study sites (Table 1). Soon after that, our team visited those schools and provided necessary infrastructural support similar to the one for the Adarsha. Despite best efforts of the local academics, it was quite challenging to provide technical and pedagogical support to the teachers located remotely through phone calls and infrequent visits. Hence, in May 2016, the local academics and our team decided to hold a 3-day workshop and invited all of the twelve teachers, two from each school (Figure 2). In this workshop, the teachers received additional training on how to operate the devices and how to create and use educational multimedia contents using the devices and the application provided. After the training, the teachers created educational contents for the rest of the semester and shared them with us. In July 2016, we held another 3-day workshop to encourage the teachers to share their teaching experience and the response of their local communities. Then, the teachers created and shared additional multimedia contents for the following semester. Throughout the project, the research team deliberately empowered the local academics as much as possible in managing the project, running the workshops, and supporting the teachers. We encouraged
the teachers to discuss together and create multimedia contents that would make their teaching more effective. Our research team would intervene only when assistance was requested explicitly. The local academics and the teachers were observed and interviewed as the project progressed. In the end, we had a total of 5 professors from TU and KU, 12 teachers and 6 principals from 6 different schools, and 2 representatives from a global NGO and a local NGO.

FINDINGS

Rich in Knowledge, Poor in Resource

An increasing number of teachers are receiving trainings from TPD and NGOs, where they are exposed to various educational methodologies and pedagogies of developed countries, including the United Kingdom and the United States. But these trainings are mostly focused on making the teachers aware of the contemporary educational issues in Nepal when compared to modern pedagogies. Although the pace of deploying computers at schools has been accelerating with the international support, the number of deployed computers is quite limited and the computer often becomes the goal of education rather than the tool to teach other subjects as the teacher J stated:

Even though we were taught about the advanced teaching methodologies and pedagogies, we had no choice but to give lectures by chalk and talk. Since I came back from the first workshop, not only my students but also the neighboring teachers were interested in the devices I brought with me. We always wanted to apply the modern pedagogies by developed countries but could not due to the lack of modern tools.

The ICT solutions that are discussed within the CHI community for developing countries are often not technically complicated. Nonetheless, due to the limited resource allotted for investigating in new ICT solutions, it is rare to witness research where the development of the solutions is initiated by the local academics as the professor R stated:

In Nepal, the highest national priority is developing agriculture and then improving education, and developing ICT has the least priority. While much investment is placed on training teachers and importing the solutions from the developed countries, there is limited resource on investigating new ICT solutions that can support and make our overall education system more effective and efficient.

Due to these reasons, the universities do not have sufficient opportunities, despite their desire in R&D, to develop and evaluate various ICT solutions that may work best for their own contemporary education system. This makes them adopt fully implemented solutions that are proposed to be effective by developed countries.

Full of Passion, Ready to Move

Rich in Knowledge, Poor in Resource

Throughout our project, there has been active interaction among different stakeholders as observed by other studies. The teachers, who are participating in our study, show enthusiasm not only in making use of the modern education they received in universities but also in disseminating their experience with the deployed solution through various means, from online social networks like facebook to offline events like TPD. One even brought the provided solution to a TPD and demonstrated in front of other teachers. In the past studies, researchers often faced difficulties in sustaining the engagement of the community after
the end of the project due to the lack of active individuals who were encouraging use of technologies [19]. However, the teachers in schools in Nepal have shown that, once they are given enough training and time to get used to the presented solution, they naturally become active users whose enthusiasm attracts more people to it. While the local academics were recruiting schools to participate in our studies, they were approached by many principals, teachers, and even parents from different schools who were interested in getting involved in our project. As the project proceeded, some professors started routinely interacting with various local communities at their request as the professor K stated:

They heard about our project and wanted to know more about it. I had to go to the community three times to give talks to the teachers and even to the parents in Sindhuli area for the past two months. Many of the schools in Nepal expressed their desire to take part in the studies. Some had been told the project could not afford additional hardware solutions (Figure 1(a)), but private schools still wanted to join at their own expense. Because our project was designed to support teachers with the technology, rather than each individual student, the financial burden was relatively small, and the budget of well-funded private schools was sometimes enough to cover the cost. The local academics established a research center in their institutions in order to further improve the solution, train more teachers, and evaluate its educational benefit. In addition, they started getting in touch with the government and the NGOs through the official channels, which is often beyond the reach of the foreign researchers from the developed countries, to turn our preliminary study into a project involving a larger number of study sites of varying infrastructure.

DISCUSSION

Feasibility and Practicality

Developing education through ICT solutions requires a collective effort of the entire community, during which the technical solutions that are most feasible and practical in its own society can be found. Our experience suggests that the local partners have enough knowledge and skills to develop the ICT solutions of their needs, such as those that are discussed within the CHI community. However, the low national priority in ICT and the limited resource make it difficult for the local community to execute the iterative R&D process, which forces them to adopt readily available ICT solutions that are suggested by the developed countries. Hence, it may be more feasible and practical to have developed countries investigate a variety of ICT solutions that may be executable in low-resource environments. As our findings suggest, the local communities have been exposed to the state-of-the-art ICT solutions through various channels and have been seeking feasible and yet practical solutions that they can execute by themselves without radical investment in their contemporary infrastructure. Despite the limited resource in R&D, the local community does not hesitate in garnering available resource to employ and use the ICT solutions they deem practical and feasible. Hence, when it comes to implementing new ICT solutions, it is important not only to investigate new but also to make the solutions more feasible and practical.

Process, Not Product

It is acknowledged that it is important to employ collective efforts of society at scale in order to embed the ICT solutions in the overall education system and to make a sustainable impact on the education
improvement. However, not only does the infrastructure vary among different regions and institutions, but it also evolves over time even within the same country. The scholars of the developed countries may be able to investigate and understand the status of the infrastructure of their targeted study site at a certain time, but such understanding may only apply to their particular study site at that time. Over time, as the infrastructure evolves, different implementations may be valued. Hence, it is necessary to leave it to the local community to evaluate the provided solution in different environments and to disseminate the solution to the matching users. For this reason, it may be more effective if the process as well as the product of the study is the goal of the handover in the short-lived academic project led by the developed country. Then the target of the handover may be those who are capable of conducting further R&D as well as the final end users. The intimate involvement of the local community throughout the research practice may actually trigger sustainable deployment and use of the ICT solution that is proposed by the developed country.

CONCLUSION

In this paper we observe the deployment of our ICT solution in various local communities from a macroscopic perspective. We encourage the intimate involvement of the local stake holders in the community so that they can make the best use of the provided solution and constantly train teachers until they become confident in creating their own educational contents. For the past several years, the local community has actively responded to our solution and taken the initiative to disseminate and evaluate the solution beyond the initial study site. This continued effort resulted in the establishment of the research center and project proposals to the government and NGOs. We acknowledge that, as they proceed, the local community may find our solution less optimal and may decide to improve the solution or even replace it with other solutions. Nonetheless, it will be deployed and evaluated in diverse environments where the local community deems feasible, which will be well beyond the isolated small study sites.

REFERENCES


TRENDS IN THE GOVERNANCE OF ASIAN OPEN UNIVERSITIES:
AN EXPLORATORY STUDY
Madhulika Kaushik and Gajaraj Dhanarajan, R Padmanathan
Courtesy: Wawasan Open University
Malaysia

Abstract
Like all organisations, good governance is fundamental to responsible and accountable management of universities. There have been studies on governance of universities but almost all address the conventional, face to face institutions. Open universities on account of the semi industrial managerial processes required to efficiently operate the large systems, present a very different managerial challenge as compared to conventional universities and may have evolved governance structures/processes/systems to respond to these challenges. The paper presents an attempt to explore the trends that define and exemplify governance in Asian Open universities, through a sample study of select open universities in the region, representing mega and medium sized institutions, in both public and private domains on the basis of an exploratory study.

Key words: Governance structures and patterns, Open University processes, responsible management, Faculty influence, autonomy, conflicting pressures, transparency, stakeholder accountability, good practice.

INTRODUCTION
Good governance underpins and preserves the values of higher education and also impacts on the quality of practices of the enterprise. It can be argued that the reputation of higher education institutions is dependent on good governance. How an institution is governed is generally reflected in the arrangements made through its charter or act, the degree of empowerment various levels of governance enjoy, the transparency and openness of behaviour, the layers of governance and the separation of their powers, the channels of communication, etc. Some criteria that have been frequently applied as indicators of governance include:

- Respecting autonomy as the best guarantee of quality and international reputation.
- Value accorded to academic freedom and high-quality research, scholarship and teaching.
- Protection of the collective student interest.
- The publication of accurate and transparent information that is publicly accessible.
- A recognition that accountability for funding derived directly from stakeholders requires HEIs to be clear that they are in a contract with stakeholders who pay for their service and expect clarity about what is received.
- The promotion of equality of opportunity and diversity throughout the institution.
- Openness on key aspects of practice such as admissions [access], curriculum, assessment, progressions and promotions, appointments etc.
- Full and transparent accountability for public funding.

The research study was conducted with funding support from the Institute of Research and Innovation, Wawasan Open University, Malaysia.
There are different descriptors of ‘governance’ found in literature but for the purpose of this study a very broad description used by the World Bank in 2008 is being adopted namely “The term “governance” is used to describe all those structures, processes and activities that are involved in the planning and direction of the institutions and people working in tertiary education”\(^{15}\). Another useful reference to the term university governance is one that is shared by the OUUK/Committee of University Chairs\(^{16}\) “Governance means effective stewardship of the university to secure its future, safeguarding the university’s mission and the public services it provides, securing the proper and effective use of public funds and accounting to stakeholders and society for institutional performance”. Besides these generic descriptors this study also looks at some aspects of the external influences on governance of institutions, especially the role of governments and private owners of some open universities and the extent of their involvement.

Over the last three decades a number of studies on university governance have been undertaken by scholars such as Becher &Kogan\(^{17}\), 1992; Bleiklie, 1998; Clark, 1998; Dill & Sporn, 1995; Etzkowitz&Leydesdorff, 1997; Keller, 1980\(^{18}\); Neave, 1998\(^{19}\); Neave & Van Vught, 1991\(^{20}\), 1994\(^{21}\); Olsen, 2005\(^{22}\); Slaughter & Leslie, 1997\(^{23}\); Teichler, 1988\(^{24}\). These studies, mostly centred around older classical face to face institutions on university governance largely comment around two sets of ideas which Kogan and Bleiklie, 2007\(^{25}\) refer to, Universities as either being a “republic of scholars” or as “stakeholder organizations” The interests of other stakeholders circumscribe academic freedom, and decision-making takes place within more hierarchical structures designed to provide leaders authority to make and enforce strategic decisions within the organization. The last decade has witnessed a strong move away from the republic model to the stakeholder one.

More recent studies such as Asiimwe (2013), citing Baldwin (2009), emphasise the primacy of governance in fostering quality and innovation at universities\(^{26}\). Baldwin (2009) considered


\(^{16}\) http://www.universitychairs.ac.uk/


governance to be the glue that binds the components of the university together\textsuperscript{27} while Giroux, Karmis and Rouillard try to establish the positive link between academic freedom, good governance and the distinction between the democratic university and the managerial university.\textsuperscript{28} Academics working in the area of governance research also feel that the last 2 decades have seen the successive managerialisation of the university governance.

The above-mentioned studies and many others, like these, have mostly centered around the older conventional institutions. No similar studies seem to have been carried out on the open universities, especially in Asia which is home to at least half a dozen of the world’s mega universities. Little or no studies on the governance of these institutions is evidenced in the literature. Yet as many authorities and scholars of higher education have noted, responsible governance of our universities is critically important for their well-being as institutions of higher learning. In the case of Asia, where counterbalancing forces of desire for state control of higher education and the need for autonomy on account of the very nature of a university system create interesting pulls on the governance frameworks, this study was intended to understand how a balanced steady state in governance matters is sought to be achieved in the open universities in the continent. The variation across public and private open universities was another dimension that was explored including the need to understand the measures required to be put in place for effective governance of systems involving very large and diverse learner populations, widely and unevenly dispersed in different parts of the universities’ markets.

The present study, therefore, was undertaken to address the gap in our knowledge of the governance of open distance education in the Asian continent.  

Research Objective

The main objective of the study was to capture and identify important elements of governance amongst the leading open universities in Asia and to identify variables that could help promote good practice.

Research Questions

The research questions that the study aimed to address were:

1. What instruments, patterns and practices are currently in place among dedicated single mode open universities?
2. How well aligned are governance arrangements to the fundamental ideology of openness?
3. How do open universities resolve conflicting interests between academic autonomies and stakeholder interests?
4. What factors promote or deter successful collaboration as well as,
5. What problems detract from productive engagement amongst competing stakeholder interests?


\textsuperscript{28} Giroux D, Karmis D and Rouillard C ‘Between the Managerial and the Democratic University: Governance Structure and Academic Freedom as Sites of Political Struggle, Studies in social justice Volume 9 issue 2, 142-158 2015
RESEARCH METHODOLOGY

This study was designed as an exploratory study, aimed at collecting information from select Asian open universities. The sample was selected as a stratified, purposive sample to ensure representation from mega and medium sized open universities, from South Asia and South East Asia as well as a representation from publicly funded and privately sponsored universities so as to enable a study of variation across different types of entities. The samples from each institution included the members of the Governing Board/Council, the President/CEO, the Vice Presidents/Deputy Vice Chancellors, and members of the governance bodies like Senate, Academic Councils; School boards/Faculty Boards and representatives of faculty or student associations wherever applicable.

The study was based on both primary and secondary data. Existing policy and statute documents as well as published information on governance related issues formed the sources of secondary data. The primary data comprised of data collected through interviews and focus group discussions. The methodology used included:

1. A survey of literature on the governance of higher education and. critical analysis of constitutional documents and arrangements.
2. Development of an interview instrument to guide a face to face survey of Vice Chancellors/Presidents, Board Chairs, and Chief Academic Officers and focus group interactions
3. The institutions included in the study were
   i. Universitas Terbuka : Indonesia
   ii. Indira Gandhi National Open University
   iii. Symbiosis Centre for Distance Learning[ Private]
   iv. Sukhothai Thamathirat Open University
   v. Korea Open University
   vi. Wawasan Open University[ Private]

MAJOR FINDINGS

(Tables 1,2,3 and 4 in Annexure I present the survey responses to all four of the research questions, Annexure II shows the sample constituents and the themes used to develop the interview questionnaire and guide focus group discussions

Overall Governance Arrangements

All of the institutions studied, including the two ‘private’ ones, have in place a formal governance structure as reflected by their respective Acts, Statutes or Constitutions. By and large governments have used acts and statutettes that are identical or almost similar to those used by their conventional university systems, with appropriate provisions in the Acts to recognize the special needs of open systems .. The regulatory bodies keeping an oversight on the open universities, are mostly agencies of the Ministries of Education or Higher Education., in India, where one of the universities studied was monitored by a Distance Education Council which also looks after all distance education providers in the country.. The heavy handed intrusion of
government in the affairs of privately sponsored HEIs is fairly commonplace among private universities across Asia. Open universities/institutions in the study are often subjected by the regulatory agencies for special treatment recognizing on the one hand the need to handle them differently but on the other hand expecting them to behave as per the norms designed for conventional, face to face institutions.

The universities studied derive their powers through Acts/Constitutions governing their establishment as legislated by Parliament/State government. These Acts give the institutions substantial and fairly autonomous powers to manage their academic affairs (S. Korea, Indonesia, India, Malaysia, Thailand). Despite the statutory autonomies given to HEIs under their respective acts, every now and then governments are prone to give themselves extra powers, as in the case of Thailand’s, Act 44, the permits that government to limit the powers of institutions in times, of civil strife or other national emergencies or India where the UGC under ODL guidelines regulated the type of programmes that can no longer be offered through distance education.

Almost all the Universities studied have a bi or tri cameral governance structures By and large the governance hierarchy in public institutions studied, so far, consists of a Board of Management/Board of Governors/Governing Council at the top level with oversight on broad policies and at the second level the Senate/Academic Council which has powers on all matters pertaining to academic issues. Within this broad framework some like Indonesia do not have a Governing Council. It is a unicameral arrangement where the Senate of the University functions as the highest decision making body. In such a case, as this one, governments hand is somewhat heavy on most matters relating to non academic policies.

The Governing Councils/Board of Management of the Universities in general have vested in them powers to design and make policies relating to organizational structures, finance, staff management, infrastructure management and capital investments [Table 1]. In addition private institutions may also have an additional layer in the form of trusteeships and/or Board of Directors, largely looking after the interests of the investing stakeholders, who may also have rights to sit as members of governing council of the university. In at least 50% of the institutions studied, the CEO/President also chaired the Governing Board or the Management Board to which he/she was expected to be accountable [Indonesia, India and S. Korea]. These institution wide bodies were reported to by the school or faculty boards which have the responsibility of deciding on academic programme design, curriculum, course development, and allocation of faculty workloads.

Membership of Governing Boards
The membership of governing boards in most cases is prescribed by the Act or the Constitution of the university. Half of the institutions [Malaysia, Thailand and India] studied had external members representing scholars, industry and community leaders sit as invited members. Two of the open universities (Thailand and India) also have nominees of the government sitting as statutorily members. The private universities also include representatives of their Board of Directors /Board of Trustees, sitting in Councils. In almost all institutions, other than the
Presidents, others such as Academic Heads/Deans of schools and faculties do not sit as members of the Governing Council.

Membership of Faculty/School Boards and the Senate
Faculty in almost all of the institutions studied express their views on faculty matters and exercise certain rights and privileges through two bodies viz. the faculty boards and senate. Faculty has almost automatic rights to membership of their boards. Powers of Faculty Boards are often limited and related to matters around programme and course curriculum.

The University Senate in all the institutions studied is a statutory requirement and the composition of its members reflects statutory provisions. Senate is made up of ex officio members and elected members. The ex officio members are those holding specific positions, such as the registrar, bursar, directors of libraries and learning resource centres, Deans of Faculties and in a number of Open Universities all individuals holding the rank of Professors. Senate chairmanship is, in all the institutions studied, held by the President or Vice Chancellor.

Table 2 reflects perception of faculty on their role through the Senate or their Faculty and Departmental Boards. There is an acceptance that faculties do enjoy considerable latitude on curriculum related matter other than those regulated for purposes either of quality and programme standards [Malaysia through the Malaysian Qualification Agency] or ensuring a respect for national ideology and efforts at nation building [Indonesia, Thailand, Malaysia].

In both public and private institutions studied, the power of hierarchy seemed to be fairly strong. In some cases it was attributed to the University Act by design assigning almost absolute power to the Vice Chancellor or Presidents [Indonesia, India]. Prevailing national and/or institutional cultures (Thailand, Malaysia, Indonesia) power of hierarchies also bear on daily decisions making. Refreshingly, there was greater transparency and debate at the senate and faculty/school board levels in India, Thailand and Korea and somewhat modest in Malaysia and Indonesia).

Student Representation
As a stakeholder group students of the six open universities studies do not have a role in the governance of their universities. An exception to this is in S. Korea where students sit in the finance committee of the university, which determines the levels of the tuition fees to be levied. This absence of student representation is partly a reflection of the statues which dictate membership and partly the difficulties relating to the dispersed nature of the student population. (Table 3).

Voting Status of Members of the Governing Board/Senate/Academic Council
The membership of the governing boards in the S.E. Asian institutions are not segregated into voting and non-voting members. In S. Korea there seems to be culture of healthy debate and there is wider participation of faculty in the University Council. The Indian situation is somewhat different where faculty union representation on the Board is mandated under the act, and all members have the right to vote. On the other hand, in the private institution [India] studied representatives of the faculty/deans are invited to the Council meetings but only as observers with no voting or participation privilege except when invited to contribute. The private open university’s membership in the Governing Council, in Malaysia, is made up of almost all by external persons,
Many of the faculty and board members interviewed, especially during the focus group discussions felt that the relative powers and authority of the universities over time, has been eroding simply because of leadership at the institutional level and/or increasing interference from Ministries of Education (public universities) or Board of Directors (private institutions).

Appointment of the President/Rector/Vice Chancellor

The open universities studied appoint their Vice Chancellors/Rectors/Presidents either by election or by appointment through search committees and endorsement by Ministries or Boards of Directors.

In the (public) Indian Open University the Vice Chancellor is appointed through a search conducted by a ministry appointed search committee which has representation from the university Council; in S. Korea, Thailand and Indonesia the head is identified through an election and a list of short listed names are presented to the Ministry of Education for the final selection and appointment. The Board of Governors searches and selects its Vice Chancellor through open public competition in the privately owned Malaysian Open University.

The initiation of the search process varies somewhat in all the universities. For instance, in Thailand, once the call for replacement is initiated, by the Council, nominations are invited from all segments of the university community, the nominations are forwarded to the senate and then to the council, which conducts due diligence on all the nominations. All nominated candidates are invited for a presentation to the entire university community, the short listing is done using a participative process. The council then proposes one name to the King who is the appointing authority.

In Indonesia and India for the public open universities, the ministry initiates the exercise. Names are invited from both internal and external community and based on defined criteria; a shortlisting of candidates is done at the school/faculty/departmental level and forwarded to the university Senate (Indonesia) or directly by a specific search committee appointed by the ministry (India). In this case faculty of the university seems to have little participation. In the case of Malaysia, once the governing board initiates the search, a search committee involving some members of the governing board and the chairman of the staffing committee is formed. Once a candidate is identified the Council in consultation with the Board of Directors ratifies the decision.

Appointment of Deputies to the President:

Faculty has little or no role in the appointment of the deputies to the head of institutions. It is mostly left to the prerogative of the head except in the case of Malaysia where the Council in consultation with the Vice Chancellor does the selection through open competition.

Selection, Appointment and Promotion of Academic Staff

While there are differences among the countries, in their recruitment and appointment policies, the more significant differences were actually seen between the public and private institutions. The private institutions seems to have less formalized procedures and perhaps greater degrees of freedom in recruitment and appointments while the public institutions have greater rigour in the
appointment of their staff with almost in all four public institutions with their conditions of service similar to and in some aspects identical to the civil services /conventional public universities. Except in the case of India’s public open university, no staff unions are permitted and generally remuneration schemes are rarely negotiated at the institutional levels. In other words ‘collective bargaining’ is not a part and parcel of the institutional cultures studied.

In the case of two of the public institutions studied (Thailand, Indonesia), faculty upon appointment are considered to be civil servants and governed by the service conditions of the civil service. In all of other cases, they were considered the employees of the university as an autonomous body.

In all the open universities studied, faculty remuneration and benefits were as per the regulations for civil servants (Thailand, Indonesia and S. Korea) or norms governing all universities (UGC in India). Private institutions in the sample were found to exercise discretion over the salaries determined for individual faculty members within the pay band approved by the staffing policy at the university. In these institutions while there was transparency regarding the different pay bands and faculty benefits, the actual salary determined for each faculty member was not expected to be publicly shared. Discretionary powers of the CEO to allocate remuneration/benefits were found to exist in some cases (Indonesia, Malaysia, private institution in India).

Financial Freedoms
A university’s freedoms to control fully and allocate its budget internally are important aspects of institutional autonomy. It is unlikely that there is any university in the region that enjoys this privilege, to its full extent

Budgetary Allocations: All the publicly supported open universities studied receive their grants as ‘block’ grants or planwise budget grants, through negotiations, with their respective Ministry of Education. In the study, both the private institutions were found to have a strict budget control exercised by the owners. The public universities, by and large have a greater degree of freedom, on receipt of the grants, to allocate and distribute the funds in accordance with the approved budget heads.

Tuition Fees
All the institutions studied levied tuition fees. The private institutions exercised discretion in setting up fees to manage revenue targets but were obliged to keep fee levels within the limits prescribed by the regulatory agencies. The public universities in the study enjoyed funding support and fee levels were designed to enable access to large sections of population. Almost all public open universities are permitted to retain their surplus tuition fees, over which they have a great degree of autonomy of use.

Ownership of Assets [Buildings and other properties]: In most Asian countries, though public university constitutions permit them to own land, buildings and other assets they rarely have total freedom to buy additional assets or sell owned assets without government oversight or control. Private institutions are always subject to the control of their boards to either add to dispose of their assets without the consent of their boards.
The four public open universities in this study own their properties but their right to dispose them is highly regulated.

Academic Autonomy
This study chose to see the issue of academic autonomy from the perspective of the academiccs themselves by studying their perceptions on roles in decision making across a range of institutional choices. (Table 2) The major conflict that seems to permeate most universities in the sample regarding academic is on account of the managerialisation of operations required on for operational efficiencies in large distributed multiplication systems that impart a semi industrial character to most open universities. Faculty autonomy was found to be high in all decisions regarding undergraduate and graduate education policy choice of programmes and courses to offer, design and development processes, course delivery and learner support, choice of pedagogy and regions where the programmes would be offered, standards for evaluation of programme quality Life Long Learning for faculty and faculty mobility. Faculty influence was found to be low in decisions on deadlines for course presentations and those for assessments and results, tenure track policies, faculty related personnel policies, standards for evaluating teaching or evaluating the President’s performance, Selection of the Vice President, choice of collaborating partners, policies regarding intellectual property and investment choices. Faculty were found to have medium influence on institution choice of technology and that for instructional design (except for S Korea and Thailand).

Faculty Empowerment
A number of indices were used to gauge faculty perception of their role both as decision makers and influencers on institutional policy. Across Asia, there is a culture of reverence of leadership and age and respect for hierarchy is fairly deep rooted, though changes are slowly becoming apparent, while institutional administrations seemed to value of open debate and discussion, faculty participation, even in their own forums such as the Senate, Faculty and Departmental Boards and select, standing and adhoc committees was found to be at best modest. At higher level forums even departmental heads and deans are not enthusiastic contributors to dialogues and decision making. This is not due to lack of opportunity to air views but to reticence for a number of reasons, including very high faculty workloads to general apathy as well as the very nature of the open university system where the faculty domain of influence was largely confined to programme related decisions. Related to this reticence but contrary to modest participation, both the senior management and the faculty groups themselves, however, rated the faculty attitudes towards governance decisions as being cooperative rather than being contentious or adversarial.

Patterns of Communication and Sharing
The sample universities showed a large variety of mechanisms and processes for sharing information and important governance communication. Despite a wealth of channels for effective communication, conversations with focal groups (Indonesia, Thailand, Malaysia) gave the impression that these channels mostly serve administration to transmit information one way and mechanisms to receive feedback and engage faculty in open discussions on issues that matter to them, is often poorly developed or not there,
at all. This may be a reflection of cultural norms or a generic apathy on part of faculty to respond back on all matters of institutional governance specially those that may not directly concern their own interests.

Executive Power and Public Accountability
The tri or bicameral nature of governance in all the universities studied, with their committee structures and reporting protocols do provide an effective check on any unfettered exercise of power by senior executives of the institutions. For institutional decisions especially those with financial implications a strong element of internal audit (Thailand, Indonesia, Malaysia) coupled with annual external audit (Malaysia, India) is in place to exercise checks on executive power.

In institutions where faculty unions exist [only in India], issues impacting academic freedom or accountabilities are often challenged through collective bargaining. This may at times have negative consequences

CONCLUDING REMARKS
On account of resource constraints and also being the first foray into governance studies on open universities, this study was designed as no more than an exploratory ones aimed at identifying broad patterns and trends across identified governance indicators through a sample study of 6 open universities/ institutions in Asia. To make a definitive comment on such a complex issue as governance, the research team believes that much more exhaustive and in-depth research studies involving a much larger sample need to be undertaken. Some of the issues that we inferred from the extensive focus group sessions and the interviews need to be highlighted as those requiring attention from both policy makers and governance stakeholders as well as researchers who wish to explore the connect between good governance and institutional effectiveness are shared below

- Significant autonomies have been provided for through the instrumentality of the University acts and charters in the case of all open universities studied. However, the evolving scenario of technology supported delivery of programmes and courses, coupled with developments like OER and MOOCs have created a different dynamic at Open universities in Asia, with attendant flexibilities needed to be allowed. It is therefore important timely that the Acts and Constitutions of Open Universities evolved in response to their special needs and character rather than be modeled on the Acts of conventional public universities as was found in the study
- There is a natural tension between demands of academic autonomy and operational efficiencies in case of large, distributed educational systems catering to huge and diversified learning populations, that open universities represent. While areas requiring academic dominance are still seen as having a high role of faculty, the same cannot be said for decisions which have major operational implications, as shared in the paper. A keen oversight through governance processes may be required to ensure that apathy from the academics does not set in to make such decisions the domain of just operational managers
- The overriding powers accorded to the Chief executives and their chairing of most governance bodies as a trend may create tendencies towards centralization of power,
which, in very large systems that open universities tend to be, may be counterbalance
good governance. The role of leadership in such situation can be a critical determinant of
the way transparency, accountability, shared communications and checks on executive
power will work.

- Role of students in governance bodies was found to be minimal except in the case of S
  Korea where some representation is required in bodies deciding on fee levels. In the
  changing scenario where participation and sharing inputs is not really affected by
distributed status of learner population, Open universities may have to reassess if learner
participation in their governance systems would add significant value, as there may be a
strong case for such inclusion given the philosophies of openness of open universities..

- The autonomies provided to open universities have on occasion and over time been
  eroded by pressures on their decision making by related ministries or the accrediting
  agencies under the pretext of changing policy, safeguarding public interest or simply
  regulating what can or cannot be done through open learning. It is felt that the role of
  institutional leadership is critical to safeguarding and underlining the autonomies accorded
to the institution by their respective charters

- The incidence of academic apathy towards an active participation in good governance
  seems to be a trend largely on account of the workloads and the deadline driven nature
  of work at the open universities. The involvement or lack of it needs to be studied further
to identify ways of ensuring that it does not grow further.

It is hoped that the issues raised will encourage deeper exploration into the theme of governance
challenges and approaches in open universities in Asia.

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Annexure 1 Survey responses to Research Questions
Table 1 Key Features of Governance in the universities studied

<table>
<thead>
<tr>
<th>TRAITS</th>
<th>INDIA</th>
<th>MALAYSIA</th>
<th>INDONESIA</th>
<th>THAILAND</th>
<th>S. KOREA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIVATE</td>
<td>PUBLIC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levels of Control by External Authority</td>
<td>High [BOD]</td>
<td>Moderate</td>
<td>High [BOD]</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest level of Authority</td>
<td>BOD</td>
<td>Board of Management</td>
<td>BOD/BOG</td>
<td>Senate [Council]</td>
<td>Council [External]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td>Sole Proprietors</td>
<td>Federal Government</td>
<td>Charitable Foundation and University</td>
<td>MONE and University</td>
<td>MONE and University</td>
</tr>
<tr>
<td>Strategic Objectives</td>
<td>Developed Internally</td>
<td>Derived from Act and endorsed by MHRD</td>
<td>Developed internally and approved by BOD/BOG</td>
<td>Developed Internally and endorsed by MONE</td>
<td>Developed Internally &amp; approved by MOE</td>
</tr>
<tr>
<td>Selection of CEO</td>
<td>BOD</td>
<td>Search committee appointed by BOG/BOD</td>
<td>Appointed by MONE following</td>
<td>Appointed by MONE following search and</td>
<td>Appointed by MONE following search and</td>
</tr>
<tr>
<td>Selection of Governors</td>
<td>BOD</td>
<td>BOM</td>
<td>BOD</td>
<td>University Staff both Faculty and Administrative</td>
<td>MOHE</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----------------------------------------------</td>
<td>------</td>
</tr>
</tbody>
</table>
| Employment Status     | Contract with the institution | University employment safeguarded by UGC terms of contract (tenure appointment) | University Employment contract | • Civil Service  
  • Uni. Contract | MOHE | Faculty |
| Staff Remuneration    | Institution management decision | UGC Scales valid for all public universities | BOD | Civil Service Conditions | Civil Service Conditions | Civil Service Conditions |
| Tuition Fees and      | Institution decides but maximum limit regulated | University decides | University decides and approved by MOHE | MOHE | MOHE | University proposes and Ministry decides |
| Revenue Surpluses     | Institution retains | University retains, can be applied for prescribed uses | University retains | University retains | University retains | University retains |
### Table 2: Faculty Perception of Autonomy

<table>
<thead>
<tr>
<th></th>
<th>PUBLIC</th>
<th>PRIVATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate educational policy (e.g. admission standards)</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Graduate education policy</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Undergraduate curriculum (e.g. general education)</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Deadlines for course presentation</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Deadlines for course assessment and results</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Instructional design</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Choices of technology for delivery</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td>Regions where the programme would be offered</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Choice of collaborating partners/overseas alliances</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>General standards and issues concerning promotion and tenure (e.g. tenure clock policies)</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Standards for post-tenure review</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Standards for evaluating teaching</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Evaluation of the performance of the President</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Evaluation of the performance of the Academic Vice President</td>
<td>*</td>
<td>n/a</td>
</tr>
<tr>
<td>Evaluation of the quality of academic programs</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Selection of the President</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Selection of the Academic Vice President</td>
<td>*</td>
<td>n/a</td>
</tr>
<tr>
<td>Institutional choice of mode of learning</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>
### Institutional use/choice of Technology

<table>
<thead>
<tr>
<th>Policy Area</th>
<th>Strong</th>
<th>Moderate</th>
<th>Weak</th>
<th>Strong</th>
<th>Moderate</th>
<th>Weak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies pertaining to intellectual property</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Faculty-related personnel policies (e.g.</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<td>**</td>
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<tr>
<td>merit pay, health care, retirement benefits,</td>
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<td></td>
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<td></td>
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<tr>
<td>grievance policies</td>
<td></td>
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<tr>
<td>Policies related to Learner support</td>
<td>***</td>
<td>***</td>
<td>***</td>
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<td>**</td>
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<tr>
<td>Policies related to LLL for faculty</td>
<td>***</td>
<td>*</td>
<td>***</td>
<td>**</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Faculty mobility</td>
<td>***</td>
<td>n/a</td>
<td>***</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Investment priorities and choices</td>
<td>*</td>
<td>n/a</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>Allocation of budgets</td>
<td>*</td>
<td>*</td>
<td>***</td>
<td>*</td>
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<td>**</td>
</tr>
</tbody>
</table>

** Strong; ** Modest; * Weak

---

### Table 3: Student Engagement in Decision Making

<table>
<thead>
<tr>
<th>Elements of Influence</th>
<th>India-Private</th>
<th>Malaysia-Public</th>
<th>Malaysia-Private</th>
<th>Indonesia-Public</th>
<th>Indonesia-Private</th>
<th>Thailand-Public</th>
<th>S. Korea-Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs from the student councils</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Student representation on university senate / councils</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Feedback collated year wise by schools</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y**</td>
<td></td>
</tr>
<tr>
<td>Invited comments</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>X</td>
<td>Occasionally</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Student demands through union activity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

X= No; Y= YES; * only on matters concerning fees; ** Course evaluation
Table 4: Faculty Perception of their role in decision making

<table>
<thead>
<tr>
<th>Perceptions of Faculty Role</th>
<th>INDIA PUBLIC</th>
<th>INDIA PRIVATE</th>
<th>MALAYSIA</th>
<th>INDONESIA</th>
<th>THAILAND</th>
<th>S. KOREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointments of full-time faculty</td>
<td>**</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>***</td>
</tr>
<tr>
<td>Tenure promotions for faculty</td>
<td>*</td>
<td>*</td>
<td>*</td>
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</tr>
<tr>
<td>Decisions about the content of the curriculum</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
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<td>***</td>
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<tr>
<td>Setting degree requirements</td>
<td>***</td>
<td>*</td>
<td>*</td>
<td>***</td>
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<td>***</td>
</tr>
<tr>
<td>Types of degrees offered</td>
<td>**</td>
<td>*</td>
<td>***</td>
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</tr>
<tr>
<td>Relative sizes of the Faculty of various Disciplines</td>
<td>**</td>
<td>**</td>
<td>**</td>
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<tr>
<td>Construction programs for buildings and other facilities</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
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<td>**</td>
</tr>
<tr>
<td>Setting of the average teaching loads</td>
<td>**</td>
<td>**</td>
<td>*</td>
<td>***</td>
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<td>***</td>
</tr>
<tr>
<td>Appointing the academic Dean</td>
<td>***</td>
<td>*</td>
<td>*</td>
<td>***</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Appointing department chairs or heads</td>
<td>**</td>
<td>*</td>
<td>*</td>
<td>***</td>
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<td>***</td>
</tr>
<tr>
<td>Setting faculty salary Scales</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Decisions about individual faculty salaries (refer to dept. chairs in glossary)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<tr>
<td>Short range budgetary planning</td>
<td>**</td>
<td>**</td>
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</tr>
<tr>
<td>Decisions that establish the authority of faculty</td>
<td>**</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>***</td>
</tr>
<tr>
<td>In campus governance</td>
<td>**</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>***</td>
</tr>
<tr>
<td>Selecting members for Institution-wide Committees, senate and similar agencies</td>
<td>**</td>
<td>*</td>
<td>**</td>
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<td>***</td>
</tr>
</tbody>
</table>

* No role; ** Some modest role; *** Active role
Annexure II
Themes Included In the instrument used to guide Interviews /Focus group discussions

1. Governance structure and hierarchy at the university
2. Status of faculty employment
3. Membership of governing boards /selection /well-being status
4. Collective bargaining if any
5 Patterns of Communication and transparency
6. Selection of the president
7. Checks and balances on executive power
8. Faculty participation in governance decisions and domains of faculty influence
9. Faculty perception of their own role in governance processes and institutional decision making
10. Organization of budgetary and administrative authority . financial autonomy

Sample Profile from Institutions studied

<table>
<thead>
<tr>
<th>number of institutions</th>
<th>VCs/Rector</th>
<th>Members of the Governing Board other than VCs</th>
<th>Focus group members:DVC/Vice Rectors</th>
<th>Focus group members: Deans/ Directors</th>
<th>Focus group members: other faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6</td>
<td>18</td>
<td>13</td>
<td>26</td>
<td>29</td>
</tr>
</tbody>
</table>
RESEARCH ON THE CONSTRUCTION OF SEAMLESS LEARNING PLATFORM
BASED ON OPEN EDUCATION
Yong Rong Xin
Jiangsu Open University, China

Abstract
The implementation of the national education and lifelong education should break through the traditional learning mode in the digital era. Seamless learning environment is the intelligent form of deep integration of digital learning environment and physical learning environment. Development and construction of seamless learning space and platform is a new trend of international mobile learning research and practice. Firstly, this paper, improves and expanses the connotation and extension of seamless learning. Then, it builds a Seamless Learning Platform based on the theory of mobile learning, ubiquitous learning and open education, combining with the characteristics of the era of big data. This platform includes five parts: personal information database module (including mining and coupling potential learners), educational resources of open education system and social individual resources integration module, open education system's teachers and social professional teachers' integration module, management module and vector fusion module. This platform not only can eliminate the information asymmetry between the learning demanders and the educational administrators, through the effective management of the carrier fusion module, but also can integrate learning resources and teachers in open education system and social individual education system effectively. And finally, to provide high-quality sharing of learning resources and diverse layered teacher to students and social staff through the PPP (Public-Private Partnership) project cooperation. So as to promote the sustainable learning of the whole people in an accurate and effective way, and provide a model reference for the realization of the EFA (Education for All).

Keywords: Seamless learning platform, open education, mobile learning, ubiquitous learning, etc.

INTRODUCTION
With the further development of Social informatization, ever-changing technologies such as Internet and cloud platforms change people’s thinking, learning, production and life style profoundly. While the mobile technology and the rapid development of the change of people's lifestyle, various teaching mode taking the network as the platform is becoming popular in the world and has gradually become an important means for people to obtain instant fragmentation based on knowledge, which has become a new hotspot in the direction of the development of education teaching. At present, education, economic and social development is more closely related, and the concept of people’s study, lifelong learning and individualized learning is becoming more and more popular. In the "development" of national education in 13th Five-Year "plan" in 2017 the State Council pointed out that will actively promote the development of "Internet plus education" to promote the digital educational resources generally open and to share digital educational resources to public services[^1]. At present, the learner's education mode, form, content and way of learning is undergoing profound changes, education governance presents a multi-party cooperation, broad participation, hundred flowers of the unprecedented event[^ii]. How to integrate the current social education and learning resources effectively, eliminate information asymmetry, to build a lifelong learning platform to provide seamless, ladder civilian progress, is
the key to enrich themselves and enhance the power of the depot. Therefore, it is profound how to build a lifelong learning platform for seamless construction of the open education system.

RELATED LITERATURE REVIEW

Seamless learning has evolved from mobile learning to ubiquitous learning. It is an intelligent learning state which is based on the integration of information technology means and equipment, physics learning environment and digital learning resources. Therefore, the construction of technology and platform is the foundation, the development of seamless learning requires close integration and integration with related technologies.

The authors of this literature are mostly researchers and technicians in Computer Engineering and information engineering\[iii\]. Duo Zhao Jun, Zhao Yu et al. Learning from the seamless learning mode in the teacher-student interaction, the contents of the two aspects of the cognitive interaction, design Interactive PC and Android mobile phone terminal system based on feedback, using the technology acceptance model to design the questionnaire, and using the questionnaire survey and interviews to collect data [iv]. This technology design has a higher acceptance level in students' learning and Application. It has a positive effect on the effect of learning; Dong Yushuang, Liu Yingqun and Han Xibin of Tsinghua University have constructed a seamless learning model supporting the conceptual framework and software architecture of the environment, And applied the system architecture to "Tsinghua Education Online" (THEOL). And found that seamless learning model required seamless switching between fixed scene learning terminal devices and terminal devices that support mobile scene learning [v]; The construction of a seamless learning environment requires an organic integration of a fixed learning platform and a mobile learning platform environment, and seamless integrated with third mainstream mobile applications (such as WeChat public number). It can be realized that after seamless integration, seamless switching between platforms, sharing of resources and data synchronization between learning process and behavior. In the teaching application, it is proved that the conceptual framework and the software architecture of the seamless learning environment are effective and feasible; Lu Fang, Yin Xuesong, Zhang Jixian propose the seamless learning design model based on it is the foundation of freedom, the development of learner, learning resources center, service center, assessment center and cultural center; Kinshuk proposed the 5R Adaptation Framework (5R adaptive framework): at the right time, at the right place, through proper mobile devices, to provide the right learners with the right content; Tan et al. Constructed a context aware adaptive seamless learning system framework based on the 5R adaptive framework, for learners to carry out personalized mobile learning. This seamless learning system architecture they proposed, provides a standardized basis and important reference for the construction of seamless learning platform in the future [vi].

From the related literature review, the study of seamless learning is still in the initial stage and exploration stage. However, it is developed on the basis of mobile learning and extensive learning, there is a certain research basis. Related technologies, such as sensor networks and Internet of things, are being applied to the construction of platform and space, which verifies the feasibility of the technology. The research of technology support and design, model and resource construction are developing constantly, so the factor system of seamless learning platform is becoming more and more perfect in research and practice. From the above research review, there
are still some key aspects which have not been paid attention to: First, more research has focused on the exploration of norms, techniques, and patterns. No research has been done on effective integration and seamless docking of existing resource systems, management systems, Faculty systems, and learner needs libraries; Second, the research on the construction of seamless learning platform is more limited to the construction of technology platform, and the resource utilization is mainly based on the independent resource pool built by a single educational institution. Because learning is seamless in ubiquitous learning and mobile learning based on function and strive to achieve the purpose of improving the effect of derivative [], so whether it is teachers, resources, management, demand and ubiquitous elements of learning, mobile learning have the same characteristics to a certain extent. Especially as the Internet of things, big data era characteristics, social power presents a self-ignition state in the process of specialized teaching and learning resources, the main body of education is no longer confined to educational institutions such as schools [vii]. Therefore, It has important practical significance how to effectively integrate the scattered educational resources in the society and regulate them through the government and educational institutions, to reduce the asymmetry between resource supply side and demand side, Constructing a truly seamless lifelong education learning platform.

On the basis of the above review and theoretical analysis, this paper attempts to break through the following two aspects: First, It will construct a platform conceptual framework of "seamless learning" through the development and improvement of the connotation and scope of the seamless learning platform. In addition to the traditional teachers, learners, technology and resources, the framework focuses on the expansion and management of teachers and resources, and the construction of learners' needs database. Innovatively, we attach importance to the role of management function in the whole framework; Second, it will construct the conceptual model of seamless learning platform and attempts to realize the application of seamless learning platform in open education through the strategic path of PPP: Public-Private and Partnership.

MODEL CONSTRUCTION
The connotation development of Seamless Learning
From the existing literature research, the concept of "seamless" in seamless learning is mainly reflected in the seamless integration of the three latitudes of time, space and mode, including the integration of classroom learning and extracurricular learning integration, instant communication and non instant communication, cross fusion space physical state of learning, the real world and virtual reality, formal learning and informal learning, integration of a variety of teaching methods and activities of the fusion [viii].

From the above three aspects of integration, we can see that the original "seamless" concept only focuses on the docking and diversification of learning methods, without taking into account the seamless integration of resources supplies and demand, seamless integration of teachers and learners. Thus exposing the connotation of seamless learning, there are still some shortcomings: The limitation of resource supply and the asymmetry of resource supply and search. The social elite builds course on the web, but fails to track down target customers. While it is difficult for people who have learning needs to match their high quality resources in the vast amount of information resources [ix].
Starting from increasing the quality and diversity of the supply of resources and reducing the information asymmetry of the supply side of demand, this paper integrates the learner needs module and the management support module into the seamless learning platform. Education and learning resources are no longer merely provided by school teachers, but expand the scope of teachers. It is no longer limited to school teachers, but consists of teachers from various institutions in the community and industry elite teachers. School is as a bypass of the three: platform, teachers, resources. Build a bridge between social teachers and learning needs, and the introduction of demand database can eliminate the information asymmetry between supply and demand from the information supply of demand side. The elements and connotations of the seamless learning platform before and after the expansion are shown in figure 1 and figure 2.

**Basic Assumptions of the Model**

The reasonable hypothesis is the basis and premise of the analysis model formation. The model of seamless learning platform based on open education perspective is mainly based on the following basic assumptions:

Assumption 1: Participants in Education (educators and learners) conform to Smith's hypothesis of economic man and the hypothesis of rational man to some extent. Both educators and learners expect to pursue and maximize economic benefits at the lowest cost. The effective way to
maximize social benefits is exchanging resources and exchanging resources under the background of "Internet +" open education.

Assumption 2: Knowledge field is efficient, and the allocation and implementation follow the scientific management theory. The process of learning seamless is consistent with the management of Taylor proposed management assumptions. Taylor put forwarded the interests of both parties are consistent. Labor productivity can be increased by increasing worker income, thereby reducing unit time costs. It's a win-win process.

Assumption 3: Open education field also has information asymmetry.

Assumption 4: Government and schools are the people and the watcher of open education, promotion and promotion of educational equity.

Construction of Seamless Learning Platform Model

Based on the above theoretical analysis and hypothesis, this study constructs a seamless learning platform including five modules: resource module, demand module, teacher integration module, carrier module and management module. The construction process is as follows:

**Resource Integration Module**

At present, sharing economy has become China’s new economic model, such as sharing bicycles, sharing charging treasure, sharing cars and so on. The application of shared mode is more and more extensive, permeating into the educational field, such as sharing courses, sharing books, sharing educational resources and so on. The introduction of shared education concept has important practical significance for the advancement of open education for all. In a person’s life, formal education takes up about 20% of the time, mainly in school and professional skills, the remaining 80% hours are in the informal learning state. The purpose of later learning is diversity, including all aspects of human life, work needs, etc. In formal education, the educational resources are mainly provided by the relevant teachers in the school. While in the informal education, the sources of educational resources are very rich. As a result of the diversity of the learning purpose, a large quantity, diversity and inclusiveness of the demand resources are derived. At this point, if the educational resources are still supplied by the school teachers, it is obviously impossible to meet the needs of the open learners, especially the diversity. At the same time, it will also increase the pressure of school teachers' resources supply, and reduce the quality of curriculum resources. In fact, the supply of educational resources is not limited to school teachers. At the moment when mobile terminals are widely used, open education learners can also be the designers and providers of educational resources. But their learning and education are separated into different fields. Person A, a learner with flower arranging learning needs, is also an English speaking practitioner. She is also a teacher of spoken English while seeking and using flower arranging learning resources. At the same time, there is always such a flower arranging teacher, person B in a corner of the world, she has spoken English learning needs for various reasons. These elites, both of them, are scattered in all walks of life. Because they have many years of experience and industry background, it is the most suitable for them to provide learning resources for their industry and occupation, so as to realize the sharing and dissemination of resources. Such resources are what we call social personal resources.

In the resource integration module, three party resources are mainly integrated: school resources, training institutions resources and social personal resources. we can provide the shared resource
platform and entrance for the open education needs, through the integration of these three types of resources. So as to realize the socialized organization of the open education resources, and keep the dynamic, generative, continuous development and evolution ability of the learning resources.

In the process of resource integration and socialization, the school identity which has undertaken most of the functions of open education has changed to a certain extent: In addition to continuing to take part in the provision and guidance of educational resources, we also need to undertake the screening and screening of the other two types of resources. Resource access standards need to be set for the newly integrated resources, thus ensuring the quality of the shared resources on the seamless learning platform. In addition, the integration of social curriculum resources is a huge process, therefore, the strong support of the local government education authorities in policy and finance is a strong guarantee for the smooth integration of open education resources.

![Resource integration and sharing module](image)

**Figure 3 Resource integration and sharing module**

**Requirement Module**

Demand module is the foundation of open education seamless learning platform. Effective individual demand defines the direction for the provision of open educational resources, therefore, the purpose of the demand module construction is to tap the learning needs of people's open education, let these implicit demands be dominant, and keep links with these potential needs learners, so as to realize the matching of supply and demand of curriculum resources.
Brindley (1989) argues that demand includes both objective and subjective needs. The learner's personal information, such as age, sex, nationality, marriage, educational background, or the occupation to be engaged in, are objective requirements, while learners are concerned with cognitive and emotional needs, such as self-confidence, attitudes, and expectations, they are summed up as subjective needs. At the same time, he also refines the target requirements into necessities, lack of knowledge and wants. Learning needs include learning conditions, learner knowledge, learner skills and strategies, and learner motivation. The construction of demand database is the basis of matching educational resources. And perfect personal data information is helpful to construct learner's personalized learning model, effective analysis and prediction of learners' learning performance also provides the best reference data for personalized learning support services. At the same time, the high matching of resource supply and demand is also an effective guarantee for the late learning effect of seamless learning platform.

In this way, we construct the Requirement database of learners in open education according to the construction goal of the demand module and the classification of learners' needs, the learners' objective needs, subjective needs, and target requirements are discussed. There are many ways to obtain personal information and learning needs, such as interviews, registration, surveys, etc... Combined with the widespread use of mobile phone terminals, the most effective way is through the investigation of electronic questionnaires, such as questionnaires, Stars online survey.

**Teacher Integration Module**

In the current open education system, the responsibilities of education lie mainly in open education, community education and training institutions, and the Open University has undertaken most of the pre job and post career education needs. The majority of other non-academic education needs tend to search the Internet for educational resources that fit their needs. In the process of building a seamless learning platform, the integration of resources and the integration of teachers are also processed at the same time, therefore, the process of resource screening...
and screening is also the process of selecting and integrating teachers. Because of the seamless learning platform, most of the functions of school teachers are not limited to the construction and supply of teaching resources, more is the transformation of functions, assume most of the management function of the platform\textsuperscript{[\textit{viii}]). Therefore, it is necessary to constantly expand the Faculty of open education. Similar to the integration and expansion of curriculum resources, teachers module is mainly to integrate school teachers, institutions, teachers and social individual teachers three parts.

School teachers mainly shoulder the management functions of curriculum resources and teachers. And social individual teachers have become an important role of teachers in open education, thus completing the transformation of the role of teachers in schools. At the same time, the open education has also been pushed into the society, completed by individual teachers and learners. Some elite individuals tend to play both parts. Not only can we get the further expansion of knowledge from the open education wave, but also get additional knowledge gains from the role of teachers. Appreciate the sacred personal mission in promoting the open education, teaching and learning promote each other and form a virtuous circle.

![Figure 5 Composition of teacher module](image)

**Figure 5 Composition of teacher module**

**Management Module**

The management module is an important factor in the seamless learning platform. This module carries the management of teachers, platforms, students and resources. It also bears the formulation of resource standards and teacher standards, as well as the bridge between supply and demand. In the module of teacher integration, we refer to a partial change in the functions of school teachers, from learning designers, students and resource supply functions, into management functions. They are the builders, implementers, drivers, managers, and supervisors of the entire platform. The government's related education sector is a strong support and booster, they help to promote the road of open education based on the policy and finance. The management module mainly includes: user management system, platform management system, curriculum resource management system and teacher management system. Its functions and functions are shown in figure 6.
Effective seamless learning relies on the construction of intelligent platform space, that is, the physical support space that combines the above four modules into a whole. The key to the carrier module is to build the platform, post technical support and update the system, including intelligent learning terminals, storage cloud, education cloud computing center, etc. At present, the architecture of learning platform space is becoming more and more mature, and widely used in a variety of learning organizations, the difference lies in the functional design of perfection, ease of operation, and system compatibility. Once the platform is built, it is not for once and for all, need constant updates and maintenance, compatibility continues to expand. Technical support is needed at the same time, in order to cope with the technical difficulties encountered in the use of teachers and students, and improve of the system. according to the problems encountered continuously.

**Open Education seamless learning platform system based on PPP model**

We integrated the teacher module, demand module, resource module and management module in the platform space supported by third party technologies. So far, the module construction of the seamless learning platform has been completed, forming a physical sense of seamless learning platform. Data flow process in platform space:

The third party technical support team maintains and updates the existing integration platform, and keep the dynamic extensibility of curriculum resource data; The backstage management system carries on the cloud computation to the demand module's demand data, then the curriculum resources and requirements information in the resource module are dynamically matched. At the same time, the teacher information is also matched. Next, a series of courses that match the needs of learners should be ranked according to the degree of matching, pushing the curriculum to the persons who need for decision-making through the information and communication channels. Finally, the user learns the courses of interest at the user terminal interface.
Figure 7 Seamless learning platform system based on PPP mechanism

Throughout the process, there are still some unanswered questions: the attribution of curriculum resources, the commitment of operating expenses, the ownership of tuition fees and the way of dealing with the supply and demand sides. It can be seen that school teachers will eventually slowly change from the resource supply side into a platform operation management from the whole process; Social individual will be the main force of curriculum resource supply and student support, and also the dual identity of learning needs; The government's relevant education departments provide policy and financial support to schools that bear management functions; The learners can learn courses by way of purchase, which will be shared by management and teachers.

In this mode of operation, there will easily arise the following problems: As the school has become the main body of the seamless learning platform, the operating costs are all over the backlog. It is difficult for teachers to go back to similar employed parties to exert their initiative and initiative, and even if the income is very small, it is easy to cause the teachers to quit, therefore, the employers consider sending troops in addition to another role as resource provider and student's identity: the main investment abroad. Because the service supply of seamless learning platform is to promote the development of open education, it is determined that its nature is not simply a profit-making product, but a similar public product and service. Therefore, we consider the introduction of government and social capital cooperation (PPP) model.

PPP model, which in the field of public services, the government has investment, operation and management capacity of social capital in a competitive way, the two sides in accordance with the principle of equal consultation contract, by the social capital to provide public services. The government pays the consideration to the social capital according to the performance evaluation result of public service\(^{[xiv]}\). It can promote the social individual teachers' enthusiasm to let them become investment and income side to a certain extent in the operation of the seamless learning platform system. The government, the school, the society, the individual, the teachers, the three parties participate in the whole process, and the teachers have a deeper participation, it helps to eliminate the asymmetry of information. And to achieve more favorable results than expected to act alone.
Throughout the process, PPP is not only a means of financing to promote diversification of the investment body, to solve the school to bear the full cost of pressure, and sharing the operational risks of the government and the school, it improves the participation and master role of the teachers, more conducive to the whole seamless learning platform model running. However, the implementation of the PPP model is a complex system engineering, involving the cooperation and agreement between the school and the teachers, it is a system mechanism change, involving administrative system reform, financial system reform, investment and financing system reform and so on. As space is limited, this is no longer explained here.

CONCLUSIONS
This paper constructs a seamless learning platform model including teacher integration module, demand module, resource integration module and management module based on the existing theories of mobile learning, ubiquitous learning and open education. And obtained the following conclusions: First, we build a platform element concept framework which can truly realize "seamless learning", by expanding and improving the connotation and scope of the seamless learning platform. The framework especially focuses on the expansion and management of teachers and resources, and the construction of learners' needs database, except including traditional teachers, learners, technology and resources. And innovatively, we attach importance to the role of management function in the whole framework; Second, the model integrates school, social and institutional three types of teacher resources. It effectively solves the problems of insufficient teacher resources and excessive teaching pressure in the existing platforms; Third, the model integrates the curriculum resources of school, social, personal and institutional courses from three sides. And solves the shortcoming: In the original platform, the school teachers are busy with the construction of curriculum resources all day long, and the quantity and quality cannot be taken into account. It can not meet the shortcomings of the diversified needs of open education; Fourth, the model provides a matching basis for the supply and demand of resources through the construction of personal learning needs database, reducing the asymmetry of information, improve the efficiency and effectiveness of lifelong career construction effectively; Fifth, it proposes to operate seamless learning platform through the PPP model, which will promote the diversification of investors. Besides, the participation and spirit of the teachers in the whole process have been improved that can reduce the running risk of the seamless learning platform. At the same time, it improves the supply quality and efficiency of the open education. It provides the basic guarantee for the lifelong sustainable learning of the whole people and provides a model reference for the realization of education for all.

However, due to limited space, there are still some problems unsolved, such as it needs to provide learners with seamless learning strategies, learning model, learner learning process, tracking and control, and related data analysis, the rights and obligations between the management and the teachers in the PPP model, rules of cooperation, reform of administrative system, reform of financial system, reform of investment and financing system, etc.; The key technologies in the platform construction, such as sensor networks, Internet of things, and the application of emotion sensing technology, etc.. and these deficiencies also pointed out the direction for follow-up research. In a word, the application of seamless learning model in the development of open
education involves multidisciplinary collaboration, multi industry collaboration, multi synergy, cross technical collaboration, etc., the road ahead is still a long way to go.

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Abstract
Laboratory practical is an essential component in Engineering and Technical education. The students can obtain better understanding about the theories through them. The Open University of Sri Lanka (OUSL) and the students who are following different subjects face challenges while performing these practicals.

Even though a considerable amount of students who register for a particular subject in an academic year, a less number of students will follow the 2nd year. Non attending lab practical is identified as one of the main reasons for this problem. Most of the lab practicals are available only at the central campus and the students have to be present at the campus.

By introducing the new remote laboratory setup to carry out the experiments through internet to the Open Distance Learning (ODL) system, the problem would solve up to a greater level. This setup provides one essential fact, which is the hands on experience.

For the prototype, Arduino practical which is under Mechatronics Program was selected. The new laboratory setup is provided by the OUSL and the students are provided with the necessary equipment in order to carry out the practical. The remote laboratory setup website provides guidelines and necessary instructions. A camera provides visual communication between student and lab setup and used for the recording purposes. After the practical the students' knowledge is assessed through a questionnaire.

The system was implemented and the results clearly show that it reduces the number of drop outs and allows the students to obtain a similar knowledge as the students who performed the face to face laboratory (FFL) practical.

Keywords: Remote Laboratory, Hands on Experience, Open Distance Learning (ODL)
1. INTRODUCTION

Open Distance Learning (ODL) is an educational mode that employs pedagogical, technological and instructional design strategies to promote a blended learning environment to those who miss opportunities for higher education on account of employment, time, space, income and other obstacles [1].

Distance education is nothing new the earliest mentions of distance education activities dated back to end of the 18th century and the first half of the 19th century. But however it was established firmly towards the end of the 19th century [2]. At the beginning the only media available for distance education was printed and written words and this situation continued till early stage of the 20th century. At the beginning of the third millennium the development of the information and communication technologies strongly influences the open distance learning and provides many benefits for the educational process.

Laboratory practical is an essential component even in the ODL mode and considered as the heart of engineering education. The students can obtain better understanding about the theories as well as gain hands on experience through them. However conducting a laboratory practical is not an easy task, institutions such as the Open University of Sri Lanka (OUSL) which provides ODL facility as well as the students who are following different subjects face challenges while performing these practicals.

2. REMOTE LABORATORY SYSTEM

There are three types of laboratories. They are; Real laboratories which are also known as Fact to Face Laboratories (FFL) and traditional laboratories, Virtual laboratories and Remote laboratories. Remote laboratory is a newly developed learning tool which makes learning process easier to those who want to learn in distance by the rapid development of internet. It can be defined as network based laboratories where the user and the real laboratory equipment are geographically separated from one another.

Most of the present remote laboratories are based on quite expensive tools such as data acquisition cards (DAQs), general purpose interface bus (GBIP) modules, field programmable gate array (FPGA) kits and others [3]. This leads to high development and installation costs which would be major drawbacks of existing remote laboratories. On the other hand the present remote laboratory systems do not provide the hands on experience for the students. Which would be a considerable fact.

But the Extended Remote Laboratory (ERL) system does not require expensive devices and development cost is low. In addition to that this system would provide hands on experience.

3. PROBLEM STATEMENT

Problems which encounter when performing face to face laboratory practicals can be divided in to two sections. Those are;

- Problems related with the university.
- Problems related with the student.

In OUSL most of the laboratory facilities are available only at the central campus in Colombo and the FFL sessions in the present open and distance system do not help very much to achieve the objectives of the ODL system [4]. One primary aim of the OUSL is to provide educational opportunities to employed students. Among dropouts there are employed students and one major reason for the employed student dropout to record a high number is their workplace commitments. Another reason was the lack of facilities mainly laboratory facilities for outstation students. The distance from home to the institution influence on student drop out from the OUSL [5].

When considering the Open University of Sri Lanka the distance learning education is delivered through printed course materials, day schools, Compact Disc (CD), Digital Versatile Disc (DVD)
lecture series, assignments, examinations and laboratory practical sessions. The OUSL consists of 8 regional centres and 18 study centers scattered all over the island [6].

The 8 regional centers are; Colombo, Anuradhapura, Baticaloa, Jaffna, Kandy, Matara, Badulla and Kurunegala. The 18 study centers are; Ambalantota, Ampara, Bandarawela, Galle, Gampaha, Hatton, Kalutara, Kegalle, Killinochchi, Kuliyapitiya, Monaragala, Polonnaruwa, Puttalam, Ratnapura, Trincomalee, Vauniya, Ambalangoda and Mullaitivu.

The distribution of those regional and study centers are shown in the Figure 1 [6].

Figure 1: Regional and study centres of the OUSL

There is a few number of lectures which is also known as day schools for a particular subject. The schedule of the day schools as well as all of the necessary information for a particular subject such as examination days, assignment due dates, laboratory practical days, etc. are provided to the student at the beginning of the academic year.

Day schools which are not compulsory to be conducted mainly at regional centers and some study centers. Assignment submission and collection can be done through postal service or by person. Even the lecture notes can be delivered through virtual classes. But unfortunately the laboratory practical cannot be delivered by neither of these methods, the student has to be present at the university in order to perform the practical. This causes problems and would prevent OUSL from obtaining complete success of achieving the goals of distance education. As most of the students are working while studying they face a lot of difficulties when attending laboratory sessions. The allocated time period for laboratory sessions is very limited that is an average of 3 days per subject, this makes it even more difficult for students to study further about experiments before or after the scheduled practical session preventing the student to obtain a better understanding about the theories and to obtain hands on experience. Even though the study centers are used for the purpose of studies the resources to carry out the laboratory practical are centralized to central campus which is located at Nawala making the students who are working even more frustrated.
A feasibility survey had been carried out in order to investigate the students’ attitudes towards the new remote laboratory system and the current laboratory system.

For the sample the students who registered for the subject MEX4273-Mechatronics Product Design were selected. Students of the academic years of 2016/2017 and 2015/2016 were chosen for this purpose. Forty seven students were registered for MEX4273 in 2016/2017 academic year and thirty eight students were registered in 2015/2016 academic year.

The survey results show that the students are willing to use the ERL along with the traditional FFL which is shown in the Figure 2. The complete replacement of the traditional laboratory from the ERL is not suggested by the students. The first stage would be the introduction of the remote laboratory to the traditional system as an additional educational tool which will enhance the learning process of student. The current laboratory session duration would be reduced with the introduction of the ERL which causes a positive impact on the students. This is mostly preferred by the students who are employed.

![Figure 2: Selection of laboratory methods by students](image)

The results of the students who are employed are crucial in order to understand the need of the students who have less amount of time and shown in the Figure 3. That result also reflects the previous observations. That is majority of the working students also prefer the combination of traditional FFL and ERL setup the most.

![Figure 3: Selection of laboratory methods by employed students](image)

The aim of the laboratory session itself is to provide the student hands on experience and provide better understanding but unfortunately the university processes limited amount of resources to carry...
out a laboratory practical. Due to this reason each and every student may not have the opportunity to actively participate for the practical. This situation become more severe as time passes because there would be more number of students for a practical making the lab more crowded. The Figure 4 shows the rapid increment of the enrolment for the course MEX4273-Mechatronics Product Design and the student expectation for the next academic year.

![Figure 4: Students enrolment for the subject MEX4273](image)

4. PROTOTYPE EXPERIMENT

The Open University of Sri Lanka provides Bachelor of Technology Honours degree in an approved technology discipline. The minimum duration of the honours degree program starting from level 3 is 4 years. It is also possible for a student to obtain a Higher Diploma in an approved technology discipline after successful completion of the requirements. The higher diploma is one of the main paths to enter middle level technical grades within the Engineering disciplines. Student can obtain the higher diploma within two years time, it includes level 3 and level 4. The number of students studying in the higher diploma program is greater than that of degree program and hence the course MEX4273-Mechatronics Product Design which is in the level 4 was selected for this purpose. In addition to that this particular lab consists of 5 days. Which would badly impact on students who are employed.

The laboratory session consists of several practicals and the set of Arduino practical is one of them and runs for two days. Arduino is an open source electronics prototyping platform based on flexible, easy to use hardware and software. It is extremely accessible and very flexible to be customized and extended. Most importantly it is inexpensive [7]. The intended purpose of this set of practical is to familiarize the student with the Arduino platform both in software and hardware.

5. EXTENDED REMOTE LABORATORY SYSTEM ARCHITECTURE

The student will be provided with the necessary components which are required to perform the practical such as Arduino platform and other equipment. The general architecture of the remote lab consists of two main sides,

- **Client side**
- **Server side**

The client side is mainly a website which helps the student to connect the experiment using database. The server side is a web server which needs to be programmed using web development technologies.
The ERL system architecture is shown in the Figure 5. The server side is considered as the heart of the system. A camera and an Arduino platform is connected to the server. The student can go to the website and login using a login system. Using this webpage the student can connect to the practical. All the necessary information which is relevant to the practical is given in the web page.

The student then writes the program and uploads to the university PC where the programs will be checked and verified. After checking the program the server would display a message mentioning whether the program is correct or not through the web browser. Then that program is executed in the server side Arduino board, through this step the student's programming skills are assessed and developed. Finally the student can run the program in student's machine and programs can be uploaded to the student's practical setup which is in the student's vicinity after making necessary circuit connections. All of the necessary circuit diagrams will be provided in the university web site, though this step the student can obtain hands on experience. The camera is provided so that the student can observe the university side Arduino. In addition to that the video can be recorded and can be used later. ERL physical setup is shown in the Figure 6.

The student then writes the program and uploads to the university PC where the programs will be checked and verified. After checking the program the server would display a message mentioning whether the program is correct or not through the web browser. Then that program is executed in the server side Arduino board, through this step the student's programming skills are assessed and developed. Finally the student can run the program in student's machine and programs can be uploaded to the student's practical setup which is in the student's vicinity after making necessary circuit connections. All of the necessary circuit diagrams will be provided in the university web site, though this step the student can obtain hands on experience. The camera is provided so that the student can observe the university side Arduino. In addition to that the video can be recorded and can be used later. ERL physical setup is shown in the Figure 6.

**6. EVALUATION**

Students are divided into two set of groups set A and set B. Both the sets are again divided in to sub groups A1 to A4 and B1 to B4. Group A was undergone through the traditional FFL session and the group B through the ERL. After completing the laboratory session the students are provided with a questionnaire and the knowledge was assessed. The marks were recorded and plotted. Both of the groups got the nearest average marks which reflect both of the groups absorb the same amount of knowledge. Figure 7 shows the evaluation results of group A and the Figure 8 shows the evaluation results of group B.
7. CONCLUSION

The results clearly show that there is no significant difference between the FFL and ERL. The knowledge transferred through both FFL and ERL is averagely the same. The problems encountered by the university and the student when performing laboratory practical can be minimized through the ERL system. Most importantly the student can obtain hands on experience through this new system which would not have been possible by remote laboratory systems. One of the main goals of both ODL and ERL is to provide the learning facility for those who missed the opportunity for higher education due to unavoidable circumstances such as employment, time limitation, family issues and other obstacles. This new ERL system is a useful tool in order to achieve those objectives.
8. REFERENCES


AN INTERACTIVE VIDEO INTEGRATED IN ONLINE TUTORIAL FOR INCREASING STUDENT ACHIEVEMENT
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Abstract
Since issued circulars Directorate General of Higher Education (Directorate of Higher Education) Ministry of Education and Culture, dated January 27, 2012 with the number 152 / E / T / 2012 on the publication of scientific works (Scientific paper) which is required to pass for students of S-1, S-2 and S-3, UT as a higher education institution start enforcing the terms collate and upload Scientific paper in the journal UT for undergraduates 1. To assist in preparing scientific papers, UT provide learning support services in the form of an online tutorial programs (Tuton) Scientific paper. Tutorial online scientific paper through , students can have a consultation draft Scientific paper that they should develop to the tutor, with the hope after they followed Tutorial online scientific paper they have the ability to draw up Scientific paper properly and correctly according to the standard of writing Scientific paper. In practice, many complaints submitted by the tutor linked to the low ability students in preparing Scientific paper. Students have not been able to practice the feedback from tutors submitted in writing via Tuton associated with the draft Scientific paper they make. tutors say many mistakes repeatedly done by the students, even if they had consulted with the tutor. Efforts to overcome the difficulties students in understanding what the tutor has been done by developing a prototype interactive video Scientific paper writing, in which visually teaches how to prepare Scientific paper is good and right. Prototype This interactive video if it has, improvements will be integrated into the Tutorial online scientific paper. Therefore, this article aims to look at the effectiveness of interactive video. But earlier, will be seen first what mistakes often made by students in preparing Scientific paper. Because it is the focus of discussion in the interactive video. The method used for data collection is content analysis and quasi experiment, with respondents as many as 16 students Study Program S1 Communication Studies participants Tuton of 2 class registration period 2014 and 2015. From the collection of data obtained information that a student common mistakes made in writing Scientific paper is writing abstracts, keywords, writing Scientific paper goal setting, how citations, manufacture formulation of the problem and writing a bibliography. The trial of the effectiveness of interactive video Scientific paper, data showed that the interactive video effectively to improve students' ability in preparing the scientific work is good and right.

Keywords: scientific work, scientific work based online tutorials, interactive video

INTRODUCTION
Since the issuance of a letter from the Directorate General of Higher Education (Directorate of Higher Education) of the Ministry of Education and Culture dated January 27, 2012 with the number 152 / E / T / 2012 on the publication of scientific papers that are a requirement for the S-1, S-2 and S-3, the college that has the education level Strata 1 (S1) up to Strata 3 (S3) begins to require students to create and publish scientific papers. UT as other higher education institute of higher education also began to apply the making and publishing of scientific papers for learners who take the S1 degree. But since UT is a college with distance learning system, then in the implementation of the regulation. It's as easy as college face-to-face. According to Aslichati and Kuncoro (2014), the absence of graduation requirements in the form of a decent thesis of students doing research and writing alternative research report writing of scientific articles in journal format, and the absence of a program of training of scientific papers planned and controlled that allows students to hone his scientific writing skills, Writing and scientific skills. Therefore, to overcome
this, UT then create a form of study aid scientific papers correctly and correctly through the online program tutorial. Through this program, students may be in writing on how to put together an article that can be published in the journal.

The online scientific paper tutorial has the same rules as the tuton for other courses which is delivered in 8 meetings. Only difference, for the other courses at each meeting delivered an initiation that contains a summary or essence of the existing material on BMP related, while online tutorials scientific paper prioritize on the discussion and consultation draft scientific paper. Initiation should not be delivered in eight meetings. The number of initiates submitted by the tutor depends on the tutor's policy as needed. But usually the tutor never missed an incision that contains information about the general rationale of the publication of scientific paper, which contains about the technique of writing scientific paper and ban plagiarism.

In the implementation, although the tutor has initiated and provided guidance on the technique of writing scientific paper and the prohibition of plagization, but in the implementation there are still many students who have not been able to write the scientific paper properly and correctly according to the standard of writing of scientific paper. Previous research conducted by Aslichati et al. (2014) on the effectiveness of car tutorials shows that the majority of students’ ability in online writing scientific paper to write scientific paper is still less (47%), while 29% have medium ability, and 24% have good ability. The results of interviews while the author conducted directly with some tutors, also obtained information that students of the participants of scientific paper tutorials do not have the ability to make scientific paper properly and correctly. According to tutors, there are still many tutorial online scientific paper participants who make mistakes in writing scientific papers, such as the writing of quotations and bibliography. Many students cite opinions from other sources without writing a citation source. They also sometimes do not include citation sources in the bibliography or vice versa. Several times the tutor has reminded and provided a sample in writing but still the student repeats the same mistake. If this condition is not corrected, it is feared they will get sanction of plagiarism, that is one of disqualification from student examiner team.

The conditions experienced by UT Strata S1 students are quite delimatis, on the one hand UT students do not have the ability to write scientific papers properly and correctly, even though they have been given guidance through online tutorials. While on the other hand, looking at these conditions, then in 2015 the author tries the development of interactive video model integrated online tutorials scientific paper, in which teach the technique of writing scientific paper well and correctly supported by visual examples. The reason for choosing the media because of its ability to display learning materials that require a visual explanation, so that students are expected to understand easily. As Rao (2001) says, videos can accommodate important data efficiently in various forms, students can use as a learning resource for special purposes, and lecturers can use video programs to show specific sections or sequences of images that students need. The video program is also capable of providing various experiences to learners, for example demonstrating practicum activities, experiments or skill lesson materials; Providing information based on real life sources or realities; And replaces fieldwork (Andriani, 2003). The results of research conducted by Windrati, Irsanti and Arifah (2004) related to the use of interactive video
in tutorial activity also shows that the media is able to improve students' ability to achieve practical subject competence.

Prior to the development of interactive video model integrated tutorial online scientific paper, the writer first conducted a content analysis on the scientific paper created by students through online tutorials, to find out what mistakes are often done by students in writing scientific paper. The findings of this content analysis are then used as a reference for developing interactive video models

Furthermore, to find out whether the interactive video program is integrated online tutorials scientific paper developed effectively to teach how to arrange scientific paper properly and correctly, the authors conducted a model test of 15 students of Faculty of Communication Science FISIP-UT online tutorial participants write scientific paper on Registration period 2014.2. The experiments were carried out using pure experimental method with the following stages: 1). Pre-test, which is a questionnaire to the respondent which contains questions about scientific paper writing techniques properly and correctly, to be done by students; 2). After the pre-test, then the respondent is played an interactive video developed for students to see and learn; 3). After the model test, students are then given post-test, which fills the same questionnaire as during the pre-test; 4). Furthermore, the pre-test and post-test results are compared to find out the change of score score to the students' ability to write scientific paper properly and correctly.

Content analysis of Mistakes Students Make Often In Making Scientific paper
From the previous chapter it has been said that in preparing the scientific paper, especially the scientific articles, there are certain standards that must be followed by the students, the standard in the form of stages which include: 1). Title, 2). Abstract and keyword, 3). Introduction case containing background of problem, problem problem and purpose of writing scientific paper; 4) the discussion, in which it explores the theory used, how to cite people's opinions; 5). Concluding remarks, consisting of conclusions and suggestions; 6). Bibliography, which refers to the bibliography standard and written in accordance with the quotation in the previous chapters. In implementation

<table>
<thead>
<tr>
<th>No</th>
<th>Variabel</th>
<th>Indicator</th>
<th>Student Making Error (Σ)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title</td>
<td>Title</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>2</td>
<td>Abstract</td>
<td>Completeness of abstract</td>
<td>1</td>
<td>0,75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contents</td>
<td>2</td>
<td>0,13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>keywords</td>
<td>10</td>
<td>0,63</td>
</tr>
<tr>
<td>3</td>
<td>Introduction</td>
<td>background</td>
<td>6</td>
<td>0,38</td>
</tr>
<tr>
<td></td>
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<td>Formulation of the problem</td>
<td>9</td>
<td>0,56</td>
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<tr>
<td></td>
<td></td>
<td>Research purposes</td>
<td>10</td>
<td>0,63</td>
</tr>
<tr>
<td>4</td>
<td>Contents / Discussion</td>
<td>Answer research purposes</td>
<td>2</td>
<td>0,12</td>
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<tr>
<td></td>
<td></td>
<td>Supporting theory</td>
<td>7</td>
<td>0,44</td>
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</tbody>
</table>
From table 1 it appears that the errors that students often make are in terms of abstract writing, then keyword writing, the purpose of writing a scientific paper and how to quote, as well as making the formulation of problems and writing a bibliography. In writing abstract errors are mostly done by students when they do not write completely what should be in the abstract. Abstract is the overall description of the contents of the scientific paper from the introduction to the concluding chapter written briefly. In practice, majority students (75%) do not write complete abstracts. Errors in general occur in the form of inclusion of scientific paper writing purposes and findings and conclusions from the scientific paper that they write.

Keywords as abstract completeness are also written a lot less precisely. The selection of words or phrases is important for many keywords that do not match what is discussed in the contents of the scientific paper. As examples of keywords made by student scientific paper participants are less precise are as follows:

Keywords: “Communication technology, utilization, self-development”, Keywords: Internet, Mass Media, Company"

If we look at the meaning of keywords as the words that contain the basic concepts discussed in the article that can help the accessibility of an article to the reader through the scanning of computers on the internet, so that if someone wants to find an article by reading the keyword then one of the keywords written can open the article (Santoso, 2009), then it seems that keywords written by students like the example above is less precise or less focus. In this example, the student writes one of the keywords in the form of "exploiting", if then someone reads the article and then wants to find a similar article by using the keyword "exploiting" then the person will have difficulty determining which article is appropriate, because with The word "utilization" is very common nature would certainly bring up a lot of articles that use the word utilization, so the result is less focus as desired by the reader.

**Effectiveness of Integrated Interactive Video Online Scientific paper tutorial In Improving Student’s Ability In Preparing The Carp Well And True**

From the results of model development, the model is then tested on student participants of registration scientific paper 2015.2. At UPBJJ Jakarta and Bandung. To the students are done the first test related to their ability to arrange the scientific paper well and correctly. After the first test, then the students played an interactive video about scientific paper writing techniques are good and true. After watching the video, the students were re-tested with the same question to see the effectiveness of the interactive video (model developed) in improving the students’ ability to write a scientific paper. In this case the question posed in the test related to the most
mistakes made by students in preparing scientific paper as the data contained in table 1, namely the abstract contents, keywords, problem formulation, research objectives, how to quote and techniques of writing the bibliography. The findings from the trial results can be seen in table 2 below.

Table 2. The Effectiveness of Integrated Interactive Video Online Scientific Paper Tutorial In Improving Student's Ability In Preparing Scientific Paper

<table>
<thead>
<tr>
<th>No</th>
<th>Variabel</th>
<th>Indikator</th>
<th>Pre-Test</th>
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<td>Benar</td>
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<tr>
<td>1</td>
<td>Abstrac</td>
<td>Completeness of abstract contents</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Keywords of abstract</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Introduction</td>
<td>Formulation of the problem</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reseach purposes</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>Content</td>
<td>How to quote</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Bibliografi</td>
<td>Writing tekniques</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consistent with quotation</td>
<td>5</td>
<td>30</td>
</tr>
</tbody>
</table>

From table 2 it appears that significant changes occurred on the technique of writing bibliography and kesesuan writing bibliography with quotations. Furthermore, quoting citation sources has also shown significant changes. Related to the citation, the writer gives question to the student as the research respondent as follows:

"How do you quote Calver's writing in the book "Cyber Media" by Yanuar Luqman, et al, published by Publisher of the Open University in 2014, with the following inscription:" Internet users, especially teens, often experiment with their identities In communicating and interacting online "?"

Before the model is shown to the students, most students, among others, answer as follows:

- "according to Calver (2014) internet users ...."
- "Yanuar lukman 2014 says internet users ...
- "Internet Users ...... (Calver) (Yanuar Lukman, 2014)"
- "Internet entrepreneurs (Calver in Cyber Media, 2014)"
- "According to Yanuar, et al. Lukman 2014 internet users ...

But after an interactive video was played, the majority of the students were able to follow correctly, which is as follows: "Calver in Yanuar (2014) says that ..."

CONCLUSIONS AND SUGGESTIONS
From the results of research conducted can be concluded that

1. Errors that students often make in writing scientific paper are abstract, keywords, problem formulation and research purposes, as well as citation techniques.
2. Furthermore, the results of the trial show that the model developed effectively to improve students' ability in writing scientific paper

Given that the developed model is effective for improving students' skills in writing writing, it should be:

1. The developed model is used to complete the online scientific paper tutorial on the S1 program of Komunikas Science
2. Tuton for other study programs, should also develop such a model with a focus of discussion related to the field that became the concentration of related courses

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IMPLEMENTATION OF GUIDANCE PATTERN CONSOLIDATION PROFESSIONAL COMPETENCIES BASED ON LESSON STUDY FOR IMPROVING PERFORMANCE OF STUDENTS PGSD-UT

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Abstract
An effort to improve the quality of teachers in Indonesia was in line with the emergence of new challenges based on the need of the nation and an educational policy. In accordance with a regulation of a ministry of national education of Indonesia in 2007, the standards of academic qualifications and competencies of teachers in Indonesia should be up-graded. As Universitas Terbuka (UT) was appointed by the Indonesian government to up-grade primary teacher qualification, the study program of Primary School Teacher Training (for classroom teachers) has been the biggest program with a total student body of almost 150 thousand students (52.45% of the total 286.757 UT’s student body) in 2017. Research and development studies have been conducted from 2015-2017. Based on the findings in the field and the results of monitoring the evaluation of PKP guidance implementation in 2015 shows that the limited understanding in studying the rules of classroom action research as the most important component in making the PKP report becomes an obstacle for most students. While in 2016, we built a learning community through the development of a lesson study based PKP guideline based on the “sharing” of professional knowledge based on practice and learning outcomes. In 2017 the research focuses on the implementation of guidelines in 14 pokjar in Indonesia, namely Palembang (pokjar Lahat), Surakarta (pokjar Solo), Pontianak (pokjar Singkawang), Jakarta (pokjar Pondok cabe), Bandung (pokjar Indramayu), Balikpapan (pokjar West Balikpapan), Tangerang (pokjar Cikokol), Bogor (pokjar Cianjuk), Malang (pokjar Batu), Semarang (pokjar Pemalang), Purwokerto (pokjar Kebumen), Ternate (pokjar Ternate), Makassar (pokjar Palopo) and Medan (pokjar Teluk Dalam Nias). In the implementation of the guide there are 210 student respondents and 16 tutors/mentors who participated in the study. Instruments in the study consisted of a list of questions relating to the use of practical guidance lesson-based PKP guidance and guidance documents. In addition to the questionnaires, the study also used focus group discussions to collect information on the use of guidelines in depth. The results showed that the majority of respondents (94%) used a lesson-based PKP guideline to improve their knowledge of implementing improved learning through collaborative and sustainable learning based on the principles of collegality and mutual learning. The results also show that 90% of respondents stated that lesson study based PKP guidelines can train to discuss, cooperate, and communicate ideas and 86% of participants agree to be very helpful in independent task activities. In general, the results show a positive attitude toward the use of PKP guidelines based on lesson study, and the majority of respondents said they can get used to self-evaluate independently and sustainably.

Keywords: guidance pattern, consolidation professional competencies performance, lesson study

Open Educational Resources: Global Trends in Education
In the last decade, development of information and communication technology (ICT) is remarkable, dissemination of information and knowledge and the search becomes easier. The sophistication of information on Internet search engines like Google helps in finding information needed easily. Within seconds, we will be able to obtain information about certain things. This condition also triggers various global movements (global movement) that significantly affect the open as open education movement. Global movement that is currently growing rapidly covers the movement of open-source software, open content, open license, and open educational resources. Atkins, Brown and Hammond (2004) define OER as: “… teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.”

With these definitions then all forms of learning materials and software that can be used freely has opened more opportunities for everyone to get better learning. There are many open educational resources (OER) that can be searched in the Internet. One of specialized websites is MERLOT which stands for Multimedia Education resource for Learning and Online Teaching. Through MERLOT site, we can find a variety of learning
materials from a variety of disciplines. The Open University also provide learning materials that can be obtained for free (open educational resources) by the public through Internet access, such as material enrichment lectures (www.ut.ac.id.) There are number of very good learning materials on the Internet which not fully utilizing the capability of the technology. The Internet is only used as a tool to distribute learning materials. There are a lot of materials do not include or provide a facility of communication between learners or between learners with tutors/instructors. However, Allen (2003) states that the quality of learning materials using technology cannot be judged only by the used of the advanced technology but it will also depend on the quality of its content.

The role of elementary school teachers as Agent of Changes in the Era of Globalization

The quality of education in Indonesia is significantly lower in terms of its level of competition and relevance (Parawansa, 2001). Report of the United Nations Development Program (UNDP) in 2005 revealed that the quality of education in Indonesia ranks 110th out of 117 countries. The UNDP report indicates that the quality of education in Indonesia is relatively low. Aware of the results of inadequate education, many attempts have been made by Indonesian government to make improvements. These efforts include making curriculum changes or revisions on an ongoing basis, Congress Subject Teacher program (MGMPs), Teacher Upgrading Work (PKG), a partnership program between the schools with the Institute of Workforce Education, a project to increase the qualifications of teachers and lecturers, and many other programs for the improvement of educational outcomes. These efforts have been intensified, but the packaging is often not in line with the educational nature of teaching and learning. In other words, education reform in Indonesia is still not fully pay attention to the conception of teaching and learning. Education reform should start from how students and teachers learn and how teachers teach, not solely on learning outcomes (Brook & Brook, 1993). Podhorsky, C., & Fisher, D., (2007) stated that education reform should be interpreted as an effort to create programs that focus on improving the practice of teaching and learning, not solely focused on designing classes with teacher proof curriculum. Thus, instructional practices actually intended to overcome the failure of students' learning. Instructional practices can only be changed through the examination of the ways teachers learn and teach and analyze their impact on student learning gains.

In relation to PKP practice guidance that must be taken by PGSD undergraduate students as a condition of graduation of the courses, the student in this case as well as the status of elementary school teachers implements an instructional improvement targeted, effective and began to leave the routine ways of learning, namely creating programs of professional development. Such efforts are the implications of education reform with the aim to be able to achieve an improvement in student learning gains adequately. Programs of teacher professional development require a facility that can provide opportunities for them learning how to learn and to learn about teaching. The intended facility, for example lesson study (assess learning). Lesson Study (LS) or Assess Learning is an approach to the learning improvement. LS provides a process to collaborate and design a lesson (learning) and evaluate the success of teaching strategies that have been implemented as an effort to enhance the student learning process and acquisition (Lewis, 2002; Lewis, et al., 2006). In the LS processes, teachers work together to plan, teach, and observe the development of a learning cooperatively. Meanwhile, a teacher implements the learning in the classroom, others observe, and record the questions and the students' understanding. The use of the LS process with professional development programs is a vehicle to restore teachers to the culture of proportional teaching (Lewis & Tsuchida, 1998). By considering the background of the problem and the meaningfulness of lesson study as a way, then the formulation of the problem in this research is how big the effective use of lesson study in modeling practice
guidance on the consolidation of the Professional Capabilities of PGSD-UT undergraduate student?. Specifically, it focused on the following research questions:

1. How to develop a modeling lesson study as an effective approach to PKP guiding practice?

2. How the results of testing the use of lesson study as an effective model for PKP guiding practices?

3. What are the characteristics, advantages and limitations of lesson study as an effective approach to PKP guiding practice?

In general, this research aims to generate an effective means of PKP guiding practices and can be used to improve the ability of students in PGSD undergraduate students learning refinement, i.e. through modeling lesson study. Specifically, it aims to:

a. Digging the development of modeling lesson study as an effective approach to PKP guiding practice.

b. Knowing the results of testing the use of lesson study as an effective model for PKP guiding practices.

c. Identifying the characteristics, advantages and limitations of lesson study as an effective approach to PKP guiding practice.

Benefits of the Research

By generating a modeling lesson study in guiding practice consolidation professional competencies of PGSD-UT undergraduate students as an effort to improve the effectiveness of the ability to do action research to improve learning, this study is expected to be useful both theoretically and practically. Theoretically, it is expected to generate the principles of lesson study as a model of supervision that can improve the ability of primary school teachers in practice teaching improvement through action research, so that it can enrich the theory of lesson study in the existing PKP guiding. Practically, the results of the study are expected to be useful as input for:

1. PGSD-UT Undergraduate Program in carrying out preparatory education (pre-service) to prepare students to be more qualified and professional doing their duties as an elementary school teacher in the development of action research to improve learning.

2. Faculty (lecturers) of PGSD undergraduate program, especially first Supervisor in PKP guiding PFM to develop and implement their duties as a supervisor.

3. PGSD Undergraduate Students/ Primary Teachers to be more prepared with reflective capabilities and carry out the duties in a professional manner. Teachers have competence in dealing with the problem and improve the quality of learning in primary school.

4. The other researchers who are interested to add insight and knowledge on the concept of lesson study of teaching guiding practice model.
Phase Activity of Lesson Study

In broad outline, 'lesson study' includes three (3) stages: planning activities (planing), learning implementation (action) and observation as well as reflection (reflection), the details of the three phases as follows:

Figure 1. The Review Learning Cycle Lesson Study Oriented

2. Research Lesson
One of the teachers implement learning based on the design that has been prepared, while other teachers observe and collect data on learning, student behavior, and others.

1. Goal-setting and Planning
Identify student’s goals and long-term development. Plan instructional design, which includes the “research” that is observed collaboratively.

3. Lesson Discussion
Analyse the data which conducted when reasearch lesson jointly.

4. Consolidation of Learning
Write a report that includes lesson planning, student data observations and do some reflection on the learning undertaken if necessary teachers revise and and repeat the learning.

Lesson Study Activity to the Teacher Teaching Cultural Changes

The implementation of lesson study was able to create a positive impact on teachers' teaching culture change. Namely, they are:

1) Establishment of communication between fellow teachers. Lesson study encourages collegial interaction and communication. It creates a sense of shared responsibility in solving the problem of the difficulty of learning.

2) The ability of the teacher to make a more detailed learning plan and oriented on the attempt of the student’s guiding.

3) Position or classroom setting is no longer a conventional pattern. Lesson study learning pattern affects the way classroom management towards the group learning models. Seating arrangements with the model group almost become the teacher teaching characteristics and culture.

4) The opening insight of the teachers explores various methods and techniques in the classroom learning. In lesson study, teachers are more understanding about their duties to enable the students dare to try a variety of learning methods and techniques. It changes the teachers' culture which is tends to speak in lectured mode to adjust into the classroom situation and familiarize the students to begin bold presentation in front of the class.

5) The teachers' development in the creation and creating instructional media. Before the open class teachers prepare learning media as optimally as possible in order to
increase attention, understanding and participation of students in learning. The more teachers can create and innovate to provide a unique, exciting and challenging media; it will trigger the students in learning and facilitate students in classroom management.

6) Availability of database of students who often have learning difficulties and require special management. When open class, the teachers can be more optimized to observe the students who encounter the trouble.

Lesson Study Activities Against Teacher Attitude Change

The impact of lesson study execution will form the attitudes of teachers as follows (Susilo, 2009):

1) The spirit of self-criticism is one of the values developed in lesson study, which is an honest reflection to correct deficiencies of themselves. Self-reflection is done at the end of each hour of learning or the end of the school, the end of the week, and the end of the semester. Teacher do the reflection by asking questions, such as: “Do I have tried with all my mind in teaching the students?”, “Do I remember what material should I bring to school all this week?”, “What do I still need to improve?”. Implementation of reflection conducted by learners and teachers is contagious. People who listen to the reflections of others will also ultimately begin to ask about themselves, whether he has done his best. The habit of self-reflection is one of the key supporters of the implementation of lesson study.

2) Openness to feedback given by others. Various experiences through lesson study are a matter that needs to be studied because teachers usually feel embarrassed when the learning process is seen by others. In fact, there was a teacher fell sick because of the need to conduct peer teaching. Therefore, teachers who are able to implement lesson study is the teacher who wants to "lifelong learning" and want to get some input from others.

3) The teachers implementing lesson study emphasize the attitude of willingness to admit mistakes. Changes will happen when people want to take the time and effort to make changes because might be there will be a mistake. As humans are not infallible, teachers rarely implement learning perfectly. Through lesson study teachers had the opportunity to slowly improve and enhance their lessons and at the same time building a school culture that is tended at the inquiry and improvement stages. Thus, teachers can learn from imperfect learning after designing, implementing and discussing the learning.

4) Be open to others' ideas, not trying to find the "authentic" or "pure" ideas, because the important thing is the result of thinking that can encourage learners to learn. The key relies on how to help the students to learn rather than looking for "the pure idea (the idea itself)" of the implementation of learning that may be less precise learners study. Therefore, in the lesson study teachers do not start from zero, but the start of an existing, committed people and maximizing themselves on how to improve on an ongoing basis and the content of the learning process.

5) The teacher would provide feedback honestly and respectfully. This attitude needs to be developed by teachers who involved in lesson study. Together they have to find a way to avoid the two extreme thing, namely the “happy talk” (where people are embarrassed to disagree or to criticize) and “harping” (where people feel and act in a way as if they are dependent on the ego or will go up if they can drop or embarrass another person). According to the teachers in Japan, the critical feedback indicating that teachers whom give it respect for their lessons. With criticism given it is expected that we can thrive because in learning there must be something to refine. Conversely, it would be very disappointing if the colleague who observed the learning do not declare something.
Methodology

Studies using a qualitative research approach designed to interpret the use of lesson study in modeling practice guidance on the consolidation of the Professional Capabilities PGSD-UT Undergraduate student. The study was conducted using a participatory or emancipatory paradigm as a basic concept that departs from participatory action research (Mac Taggart, 1988, Carr and Kemmis, 1990, Connole, 1993).

Qualitative research used by researchers is descriptive qualitative. The aim of this descriptive study was to describe systematically and accurately facts and characteristics about the population or about a particular field. This study sought to describe a situation or event. Data collected is purely descriptive, so it does not mean to seek clarification, test hypotheses, make predictions, and study the implications.

The research approaches based on the preliminary study are:

a. The initial concept of lesson study, includes: (1) the components of lesson study as a means, (2) the study of the theory of reflective thinking and attitude, ability, and (3) the condition of the implementation of the PKP modeling guidance.

b. The design, implementation and reflection of lesson study.

c. Lesson study design validation using stages: (1) technically reflective, (2) reflective contextual, and (3) the critical, reflective applied in 210 elementary teachers/student PKP guidance. This stage can be visualized in the following chart.

Chart 2. Systematics Flow Visualization Design Validation Stages of Lesson Study

<table>
<thead>
<tr>
<th>Procedure</th>
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<tbody>
<tr>
<td>Technical Reflective Phase</td>
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<tr>
<td>Using variety of techniques (methods/media/example), so PKP guidance students is understand the concept of lesson study as a PKP guiding model.</td>
</tr>
<tr>
<td>Contextual Reflective Phase</td>
</tr>
<tr>
<td>• Exploring thematic lesson plans and subjects.</td>
</tr>
<tr>
<td>• Linking the material being studied with knowledge/experience of PKP guiding students.</td>
</tr>
<tr>
<td>• Sharing/discussion experience/problems of teaching and routine work related to the administration of the class.</td>
</tr>
<tr>
<td>• Self-reflection and raise issues that will be practiced in the lesson study.</td>
</tr>
<tr>
<td>Critical Reflective Phase</td>
</tr>
<tr>
<td>- Discussion of questions/problems, causes and solution alternatives in the PKP modeling guidance with lesson study.</td>
</tr>
<tr>
<td>- Analyze the feasibility of PKP modeling guidance, establish criteria and indicators.</td>
</tr>
<tr>
<td>PKP Modeling Guiding Test Phase</td>
</tr>
<tr>
<td>(goal-setting and planning, research lesson, lesson discussion, and consolidation of learning)</td>
</tr>
<tr>
<td>PKP Modeling Guiding Result through (Lesson Study)</td>
</tr>
</tbody>
</table>
Collecting data in the study conducted by observation techniques, learning journals, interviews, and documentaries. An observation technique made with observations on the application process started from the preparatory stage to the development stage of the modeling PKP consolidating guidance with lesson study. Techniques and data collection tools include the search of (a) documents to obtain accurate data on the condition of the teacher partners and students, (b) interviews and questionnaires to explore the understanding of lesson study in PKP practices, (c) observation execution/implementation of lesson study in the application to determine the ability of reflective thinking and attitude of students towards learning. Analysis of the data is adjusted to the data collected, which were analyzed by descriptive qualitative, and quantitative as supporting data. Interview guide used to conduct interviews as an additional data source.

Triangulation used in this study is the triangulation method, which compares the research findings obtained from multiple data collection techniques. The study findings are compared include (a) the findings of the observations with the results of the interview, (b) the findings of the observations with documentation of activities, and (c) the findings of interviews with documentation of activities.

The data was collected using a questionnaire, out of the 250 questionnaires filled out there were 210 questionnaires could analyze properly. Data collection was conducted through interviews as well. The interviews’ data included in interpreting the results. The respondents were from 14 cities in Indonesia that representing the urban and rural areas. Those cities were: Palembang (pokjar Lahat), Surakarta (pokjar Solo), Pontianak (pokjar Singkawang), Jakarta (pokjar Pondok cabe), Bandung (pokjar Indramayu), Balikpapan (pokjar Balikpapan Barat), Tangerang (pokjar Cikokol), Bogor (pokjar Cinangka), Malang (pokjar Batu), Semarang (pokjar Pemalang), Purwokerto (pokjar Kebumen), Ternate (pokjar Ternate), Makassar (pokjar Palopo) and Medan (pokjar Teluk Dalam Nias).

Table 1. Respondents quantity

<table>
<thead>
<tr>
<th>No.</th>
<th>UPBJJ</th>
<th>Pokjar</th>
<th>Respondents quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Palembang</td>
<td>Lahat</td>
<td>26</td>
</tr>
<tr>
<td>2.</td>
<td>Surakarta</td>
<td>Solo</td>
<td>20</td>
</tr>
<tr>
<td>3.</td>
<td>Pontianak</td>
<td>Singkawang</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>Jakarta</td>
<td>Pondok cabe</td>
<td>15</td>
</tr>
<tr>
<td>5.</td>
<td>Bandung</td>
<td>Indramayu</td>
<td>30</td>
</tr>
<tr>
<td>6.</td>
<td>Balikpapan</td>
<td>Balikpapan Barat</td>
<td>28</td>
</tr>
<tr>
<td>7.</td>
<td>Tangerang</td>
<td>Cikokol</td>
<td>14</td>
</tr>
<tr>
<td>8.</td>
<td>Bogor</td>
<td>Cinangka</td>
<td>15</td>
</tr>
<tr>
<td>9.</td>
<td>Malang</td>
<td>Batu</td>
<td>25</td>
</tr>
<tr>
<td>10.</td>
<td>Semarang</td>
<td>Pemalang</td>
<td>15</td>
</tr>
<tr>
<td>11.</td>
<td>Purwokerto</td>
<td>Kebumen</td>
<td>14</td>
</tr>
<tr>
<td>12.</td>
<td>Ternate</td>
<td>Ternate</td>
<td>12</td>
</tr>
<tr>
<td>13.</td>
<td>Makassar</td>
<td>Palopo</td>
<td>14</td>
</tr>
<tr>
<td>14.</td>
<td>Medan</td>
<td>Teluk Dalam Nias</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>Jumlah</strong></td>
<td><strong>250</strong></td>
<td></td>
</tr>
</tbody>
</table>

In relation to the background of respondents, based on gender 51.3% male and 48.7% female. Respondents were married 64%. Minimum age 28 years old and maximum 55 years old, with 42 year old students as much as 15.4%. While the minimum number of dependents 1 person and maximum 9 people. Almost 32.3% have an average dependent of 3 people. The background of the students who completed the study of non-educational S1 programs.
ranged from the year 2008 that is 44.6% completed his studies (already graduated) in 2012. Meanwhile, to continue the program (S1 BI) in 2015.

The respondents’ occupation is a teacher consisting of 197 elementary school teachers (75.4%), 42 private elementary school teachers (18.5%), and 11 Madarasah primary school teachers (6.2%). 98.5% of tuition fees are sourced from own expenses. Judging from their objectives and their willingness to proceed to the (S1 BI) UT program, data were obtained showing 90.8% to meet the regulatory obligations of the education office, to improve teachers' knowledge and ability, 6.2% to improve careers 3.1%

The submitted questionnaires were used to collect the data, supplemented by observations and interviews on selected students. Data collection through this activity attempted to explore the indicators in support of implementation and experience in the students. From 250 questionnaires given to the respondents, received back by a valid researcher to processed as many as 210 pieces of questionnaires. Thus the rate of return (rate of return) of 85%.

The variables measured using Likert scale instrument with 4 scale statements namely, scale 1 to express strongly disagree, scale 2 disagree, scale 3 agree, and scale 4 strongly agree. The Indicators are as follows.

1. Students' understanding of the lesson study based PKP guidance is measured using statements such as: I am enthusiastic about following PKP guidance activities in tutorial class with Lesson Study PKP-based guidance, I try to actively participate in PKP guidance activity in tutorial class with Lesson Study-based PKP guide. I can focus my attention on PKP guidance activities with the help of Lesson Study's PKP-based guidance, The learning atmosphere developed with the Lesson Study-based PKP guidelines supports my understanding of performance in the process of preparing the PKP report. Indicator of understanding variable to the program has a level of reliability = 0.73.

2. The students' responses to the benefits of lesson study based PKP guidance are measured by the following statements: The way the lecturer / Supervisor 1 in the PKP guidance helps my understanding of performance in the process of preparing the PKP report, The steps in doing the PTK in the Lesson Study based PKP I am in the process of preparing the PKP report, the Internet utilization step as a Learning Resource in the Lesson Study based PKP guide helped me in the process of developing the PKP report. The Scientific Work of PKP report results in Lesson Study-based PKP guidance helped me in the process of preparing the PKP report, I was very helpful in the Task Mandiri activities in PKP with Lesson Study. Indicator of program benefit variable has reliability level = 0.84.

3. Confidence and independence in learning are expressed in statements such as: PFM counseling with developed Lesson Study can foster my learning independence in the process of preparing PKP reports, the developed Lesson Study PKP Counseling Design can train me to discuss, cooperate, and communicate ideas. Indicator of self-confidence variable and independence in learning has a level of reliability = 0.72.

4. Involvement in study groups is reflected in statements such as: I am happy with the coaching process involving colleagues in Lesson Study, I am interested in following PKP coaching in Lesson Study as it has been done Indicator of involvement variables in learning group has reliability level = 0.83.
Internal consistency of variable items, as measured using Cronbach Alpha, is reflected in table 2. The items of each variable are at an acceptable level, greater than 0.70.

<table>
<thead>
<tr>
<th>Variabel</th>
<th>Item Quantity</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of students on the guidance of PKP-based lesson study</td>
<td>4</td>
<td>0.73</td>
</tr>
<tr>
<td>Student response to the benefits of PKP-based guidance lesson study</td>
<td>6</td>
<td>0.84</td>
</tr>
<tr>
<td>Confidence and independence in learning</td>
<td>2</td>
<td>0.72</td>
</tr>
<tr>
<td>Involvement in study groups</td>
<td>2</td>
<td>0.83</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>0.78</strong></td>
</tr>
</tbody>
</table>

Table 3. Evaluation Analysis of Pattern Format of PKP Guidelines Based on Lesson Study

<table>
<thead>
<tr>
<th>No</th>
<th>Material</th>
<th>Respondents Respond</th>
<th>Prosentase</th>
<th>Analisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vocabulary</td>
<td>Not so difficult</td>
<td>92%</td>
<td>Vocabulary simple and understandable intentions by the user</td>
</tr>
<tr>
<td>2</td>
<td>Statement or guidance as a guideline for charging</td>
<td>Appropriate or sufficient.</td>
<td>84%</td>
<td>Instructions need to be associated with the user's understanding</td>
</tr>
<tr>
<td>3</td>
<td>Presentation of form format</td>
<td>Interesting form</td>
<td>84%</td>
<td>Form of format is the core of journal utilization and implementation realization in PTK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simple</td>
<td>94%</td>
<td>Perception is required in understanding the format</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effectively used</td>
<td>84%</td>
<td>The effectiveness of the format relates to the level of simplicity</td>
</tr>
<tr>
<td>4</td>
<td>Picture illustration</td>
<td>Pulling</td>
<td>76%</td>
<td>Format has user appeal indispensable in improving understanding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Informative</td>
<td>92%</td>
<td>Formats should be able to talk as well as provide information with users</td>
</tr>
<tr>
<td>5</td>
<td>Display of subject matter or title name</td>
<td>Not so difficult</td>
<td>74%</td>
<td>The subject matter or title in the format as identity gives direction in usage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having relevance or relevance between one format and another.</td>
<td>84%</td>
<td>The format of the journal needs to be integrated and systematic interconnectedness</td>
</tr>
<tr>
<td>6</td>
<td>Material (contents) The</td>
<td>Complete enough to be practiced</td>
<td>66%</td>
<td>Material is closely related to the level of user understanding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only partially practiced</td>
<td>34%</td>
<td>Uncertainty in the material contributes greatly to the use of journals</td>
</tr>
<tr>
<td>7</td>
<td>Size of the format</td>
<td>Adequate and standard format is commonly used.</td>
<td>74%</td>
<td>The size of the format can be adjusted to the available sheets of paper</td>
</tr>
<tr>
<td>8</td>
<td>Characteristics of</td>
<td>The format can be</td>
<td>80%</td>
<td>Understanding as a learning</td>
</tr>
<tr>
<td>No</td>
<td>Material</td>
<td>Respondents Respon</td>
<td>Prosentase</td>
<td>Analisis</td>
</tr>
<tr>
<td>----</td>
<td>-----------</td>
<td>--------------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>10.</td>
<td>Calendar Format Teachers Daily Student</td>
<td>Notes Little understood</td>
<td>52%</td>
<td>Notes with calendar-shaped format need deeper understanding as it digs the process of occurrence and time</td>
</tr>
<tr>
<td>11.</td>
<td>Note Master Format</td>
<td>Understandable</td>
<td>82%</td>
<td>Needed to understand the character of the student</td>
</tr>
<tr>
<td>12.</td>
<td>Student Master's Observation Checklist Format of Students</td>
<td>Sufficiently understood</td>
<td>62%</td>
<td>The format with complex sections is very difficult to use by users with regards to checklists</td>
</tr>
<tr>
<td>13.</td>
<td>Behavioral Behavior 68% Simple with integrated benefits</td>
<td>Can be understood</td>
<td>80%</td>
<td>Easy to understand with regards to simple formats</td>
</tr>
<tr>
<td>14.</td>
<td>Note Card Format to observe Master's Performance</td>
<td>Can be understood</td>
<td>94%</td>
<td>Interactive format with interesting image illustrations</td>
</tr>
<tr>
<td>15.</td>
<td>Formats Student The Self-Evaluation Note Form for Teachers is quite</td>
<td>Understandable</td>
<td>68%</td>
<td>Simple with integrated benefits</td>
</tr>
<tr>
<td>16.</td>
<td>Messages that respondents can receive from the content of the format</td>
<td>As knowledge</td>
<td>16%</td>
<td>As knowledge of teachers to add insight into performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a learning</td>
<td>14%</td>
<td>As a form of learning there needs to be a gradual process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a competence increase</td>
<td>60%</td>
<td>Increased competence gives a big influence on teacher performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a media PTK</td>
<td>10%</td>
<td>As one of the media in PTK</td>
</tr>
<tr>
<td>17.</td>
<td>Learning Journals in the form of lesson study based PPA guidance make it easier to collect observation data on PTK</td>
<td>Agreements</td>
<td>82%</td>
<td>Teachers can take advantage gradually in accordance with the understanding and knowledge gained during the learning process.</td>
</tr>
<tr>
<td>18.</td>
<td>The lesson study PKP counseling format can be modified in accordance with the needs and conditions of the class.</td>
<td>Learning Journals can be modified according to classroom conditions and existing learning</td>
<td>86%</td>
<td>Simple and flexible format simplify teachers in modifying the journal.</td>
</tr>
</tbody>
</table>
Table 4. Student Response to Independent Tasks Based on Lesson Study

<table>
<thead>
<tr>
<th>No</th>
<th>Statements</th>
<th>Category response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Practicable</td>
</tr>
<tr>
<td>1</td>
<td>I understand the essence of Lesson Study for guidance of PKP after reading the overall guide</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>In implementing the Lesson Study teachers collaboratively build a college (colleague)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>In LS activities in self-help I can study the curriculum and formulate learning objectives and development goals</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Learners (development of life skills) with peers</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>In an LS activity in self-help I can design learning to achieve goals with colleagues</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>In an LS activity in self-help I can do reflections to discuss the lessons being reviewed and refine and plan the next lesson with peers</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>With LS, I can improve my ability in choosing the right learning method</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>With LS, I can improve my skills in media usage.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>With LS, I can improve my skills in managing classes</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>With LS, I can improve my skills in evaluating</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>With LS my mastery of material increases</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>LS can improve my skills in delivering the subject matter</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>With LS my insights are increasing in using contextual issues</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>LS can improve my skills in developing evaluation instruments</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>LS can improve my skills in communicating orally and gesturing</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>LS can improve my skills in communicating in writing</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>With LS I am increasingly accustomed to utilizing ICT as a means of communicating</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>With LS I became more focused in behaving and speaking</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>With LS I am more often to evaluate myself and develop myself independently and sustainably</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>With LS my insights as educators are growing</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>With LS I get lots of feedback</td>
<td></td>
</tr>
</tbody>
</table>

Based on the above data shows the responses of respondents to the independent tasks in the guidance of PKP indicates that in general the implementation of lesson study-based PKP guidelines can be practiced in the independent task. As for certain parts of the implementation of lesson study guidance lesson-based PKP guidance that can not be practicable, especially related to the development of evaluation and learning media. This is because students are less accustomed to applying evaluation studies to actual assessment-oriented learning. While in the category of less once can be practiced with regard to the utilization of ICT as a means of communicating, this is reasonable because students are less utilizing ICT to support learning.

Discussion

The result of the researchers’ interviews with PKP guidance student indicates that in general administratively they have never done PTK in the school and merely perform the
PTK practice activity as the assignment of the lectures. So in this case the PKP guidance student wishes to perform the better and optimized PTK with the hope of a change in the pattern of learning which have been less meaningful in results. However, the biggest obstacle faced regarding the implementation of the PTK on PKP guidance student begins from the incomprehension to design a study in the class in accordance with the existing problems.

The Learning Review Cycle Oriented on PKP Practice

1. Forming Lesson Study Group
At least there are four activities that need to be done in the form of lesson study groups. These four activities are (1) recruiting the members of the group, (2) develop a commitment on the tasks to be performed, (3) develop a meeting schedule, and (4) make the group rules. Lesson study group members basically can recruit from teacher colleagues (Supervisor 2), lecturer (Supervisor 1), education officials, and/or education observers. The most important is they have a commitment, interest, and willingness to innovate and improve the quality of education. Each lesson study group member must be committed, so he/she set up a special time to realize or implement the lesson study. In addition, they can also act as a teacher to conduct a research lesson.

As noted above, members of the group meetings are necessary to schedule and must be adhered by every member of the group. The schedule, organizes all tasks related to the activities of the group members, including regular teaching duties. Members of the group who served as a teacher certainly should not leave the classroom teaching, so that lesson study activities do not interfere with the basic tasks of teaching. Therefore, in preparing the schedule of meetings, consider the principal task of teaching, so that the principal task is not left out.

2. Focusing the Lesson Study
At this step there are three activities to do, namely agree on the theme issues, focus issues, or primary purposes of troubleshooting, select subfields of study, as well as select topics and units of study. Related to the determination of problem theme of a lesson study, we need to consider three things. First, how is the actual quality of the students now? Second, how the desired of ideal quality of the students in the future? Third, is there a gap between the ideal and the quality of the actual quality of the students who were subjected to the lesson study? This discrepancy can be appointed as the theme problem material.

Subjects used for lesson study determined by members of the lesson study group. Group members can choose, for example, science, English, or mathematics subjects, and so on according to the interest of the members. As a guide to selecting the subjects, we can use the following three questions. First, what subjects are most difficult for students? Second, what is the hardest subject for teacher to teach? Third, what subjects in the new curriculum that want to be controlled and understood by the teacher?

After determining the subject, the next step is to choose a topic and learning. The selected topic is a topic that should be the basis for the next topics, topics that are always difficult for a student or unpreferred by the students, difficult topics are taught or not liked by the teacher, or a new topic in the curriculum. The topics chosen should match to the basic competencies that need to be owned by the student. Based on these basic competencies we structure the learning that will support the achievement of these outcomes.

3. Planning the Lesson Plan
In the planning of learning (instructional improvement), besides to reviewing the learnings that are taking place, we need to develop a plan to guide learning. The plan will guide the learning process, observation, and discussion of the study as well as reveals the finding that will arise during the progressing lesson study. Plans to guide learning are a complex thing. A lesson plan is expected to answer a very important question, namely "what changes will happen to the students during the lesson and what will motivate them".
Data collected during the lesson study in the PKP guidance typically contains evidence of the activity of learning, motivation, and social climate. Although data collection is more focused on the students, it also can be made to record the speech, teacher’s movement, and the time teachers spent on each element of learning. One important part and that should be considered in planning the lesson study is the presence of experts/specialists from the outside. They can come from a senior teacher or lecturer who has knowledge of the subject areas being studied and/or how to teach those subjects. The involvement of experts/specialists from the outside will be more effective if it occurs from the beginning. In this way, the expert/specialist has the opportunity to help design the learning, giving advice on curriculum resources, and act as a commentator and a motivator towards the implementation of lesson study.

4. Learning Practices and Observation

Lesson plans that have been prepared jointly is implemented by the appointed teacher (approved) by the group and observed by other teachers and expert specialists from the outside. Observers will collect the necessary data during the lesson. To document the implementation of the learning process usually it can be done using audiotapes, videotapes, camcorders, cameras, student work, and narrative observations note. The role of observer during the lesson study is to collect data and is not helping or distract the students. The students should be informed in advance that the observer or other teachers in their classrooms only served to study the learning that takes place and not to assist or assess them.

5. Reflection and Analyzing the Learning that has been done

Lesson plans that have been implemented needs to be reflected and analyzed. This is necessary to do, because the result of reflection and analysis can be used as input for improvement or revision of lesson plans. Thus the next course is expected to be more perfect, effective and efficient. Reflections on the implementation of learning should include these bullet points: (1) reflection from the practitioner of learning teacher, (2) the general response of the observer/supervisor, (3) a presentation and discussion of the data processing of the observer, (4) feedback and suggestions from experts/specialist.

Some of the important part which is useful as an implementation of learning reflection guide is as follows.

First, the PKP guidance students who carry out the learning is given the opportunity to speak first to express all the difficulties in learning, the mistakes that had been made during the learning, or other things that occur in learning and should be mentioned in the reflection.

Second, the study presented is the property of all members of the lesson study group. It is the “we” learning not the “my” learning or the “you” learning, so that it is reflected in every member of the group. Members of the group are responsible for explaining the thinking and planning that have been compiled with.

Third, the PKP guidance students who are planning the learning should tell why they planned it, the difference between what they want and what actually happens in the implementation, as well as aspects of the lessons they want in order to be evaluated by the Supervisor 1 and 2.

Fourth, the discussion which focuses on the data collected by the Supervisor 1 and 2. Supervisors discuss the specifics of practical activities and recorded report of the PKP guidance students through mentoring journals.

Reflection on the implementation of learning can be implemented immediately, on the same day, after learning plan is implemented. It is as it has been stated previously that the results of the discussion and analysis can be used as a consideration to revise the subject matter, approach to learning, and the media used.

6. Planned the Next Stages
In reflecting the lesson study, the thing that has to do is to think about what is already going well, according to the plan and what is still needed to be improved. Now it is time to think about what to do next by lesson study groups. Do members of the group want to make improvements in order to make a better learning? Are other members of the lesson study group is eager to try out this lesson in their own class? Is the lesson studying group members are satisfied with the implementation and operation of lesson study groups?

The lesson study approach applied to the implementation of the PKP guidance, primarily for the student PGSD study program, is a problem-based learning approach. With this approach, each practical activity (each cycle) performed through the 4 steps of activities, which include: (1) observation. This activity aims to find the next problem that will be solved through learning programs to be implemented, (2) the forming repair lesson plan activities. After the observation is completed, the results of these observations serve as the basis for the preparation of lesson plans. The fixed RPP is expected as the result of collaboration and discussion between the practitioner with peers and with the teacher tutors and/or lecturers, (3) teaching and training activities. At this stage the student performs the learning activities, while mentors and colleagues observe and record events that are considered necessary to serve as a reflection. One of the characteristics of "lesson study" approach is it is always involved colleagues in observing the learning practice activity. The results of these observations will be used as a material in a feedback, discussion and reflection, and (4) Reflection activity. At this stage, students with mentors and peer do the discussion to discuss the practical activities that have been implemented. Here discussed supremacy, weakness and at the same time improvement for the future practice. The basis of this reflection is the result of the reconstruction of the practitioner in implementing the learning activities and observations from peers, teachers tutor (Supervisor 2) and/or supervisor (Supervisor 1) on the implementation of learning practices performed by the practitioner.

Based on research evidence shows that with the approach the improvement of students' teaching skills can be achieved effectively, although it is recognized that the approach has a disadvantage of requiring more time and student teaching experience can not evenly distributed in each class, because the practitioner students will be bound on the certain class during the practice rounds in order to recycle its activity cycle.

The implementation of lesson study in the PKP guidance model must be prepared properly, should not be arbitrary. Preparation is the main form of the knowledge of lesson study on PKP guidance, lectures (Supervisor 1), and teacher tutors (Supervisor 2). The third group should be given a briefing carefully before the PKP guidance starting. If there is no adequate debriefing, it is feared there was a misunderstanding between the students with a Supervisor 2 and /or with the Supervisor 1. According to the recorded experience in the field, it is true that misunderstanding between supervisor 2 and the PKP guidance students is often occurs during the implementation of the guidance. Supervisor 2 or the school where students practice often requires the PKP guidance students to teach in accordance with the custom of the teachers, including lesson plans and models of various other learning tools. In fact, there is the school parties that requested any practical activity conducted to move in order to gain experience evenly. Upon further examination, it turns out that the emergence of these problems is caused because of the lack of the concept of the school towards lesson study, lesson study philosophy has not really understood. Field experience also shows that the dissemination of the written concept of lesson study through the PKP guidance book or written circulars found to be ineffective, because most of the schools did not have time or reluctant to read it. Therefore, it is recommended that the dissemination of the concept and perception of PKP guidance to lesson study conducted through a joint workshop between the parties involved in the PKP guidance. Furthermore, to reduce the drawbacks associated with the unequal distribution of the PKP guidance student teaching experience, it should be done at least two cycles, with the varied selection of classes.
Conclusion
Based on the discussions that have been described, the following conclusions can be drawn.

1. Lesson study is a coaching model for teacher through collaborative learning and continuous assessment based on the principles of collegiality and mutual learning to build a learning community.
2. Lesson study is a comprehensive approach towards professional learning and support teachers become lifelong learners in an effort to develop and improve the quality of learning in the classroom.
3. The implementation of lesson study in the PKP guidance model should be prepared systematically and well-planned. The preparation is in the debriefing knowledge of lesson study on PKP guidance student, lectures (Supervisor 1), and teacher tutors (Supervisor 2). All the third implementer in PKP program should be given a briefing before PKP guidance with interactive video lesson study.
4. The lesson study approach in PKP guiding provides enhanced teaching skills of students, although it is recognized that the approach has the disadvantage that is needed of a relatively long time (it is not enough with 8 times of guidance and seven times of independent guidance) that had been available.
5. Students teaching experiences cannot be evenly distributed in each class, as a student, practitioner will be tied to a particular class during a practice round 2 cycles of activity.
6. Student’s teaching competence is limited to its own conditions, thus it is less varied.
7. The implementation of lesson study consists of six stages, namely (1) form a group lesson study, (2) determines the focus of study, (3) plan the research lesson, (4) the implementation of learning and observation of learning activities, (5) discuss and analyze the results observation, and (6) reflection and refinement.
8. Six stages are implemented in the form of a cycle plan -do -see (reflection).
9. PKP Guidance with lesson study through two phases, namely the PKP practice phase and the PKP report preparation phase.
10. Through lesson study under the guidance of the PKP program improved teaching skills of teachers, quality improvement processes and learning outcomes, development of a democratic learning paradigm based on constructivism to build a scientific mindset.
11. Based on the above data shows the responses of respondents to the independent tasks in the guidance of PKP indicates that in general the implementation of lesson study-based PKP guidelines can be practiced in the independent task. As for certain parts of the implementation of lesson study guidance lesson-based PKP guidance that can not be practicable, especially related to the development of evaluation and learning media.
12. This is because students are less accustomed to applying evaluation studies to actual assessment-oriented learning. While in the category of less once can be practiced with regard to the utilization of ICT as a means of communicating, this is reasonable because students are less utilizing ICT to support learning.

Suggestion
1. In participatory action research, collaborative role between Supervisor 1, Supervisor 2 and PKP guidance student become a power in the PKP guidance program. So that the role of the early aligned established the partnerships.
2. In the nature of collaborative in PKP guidance it is necessary to attempt collegiality work between students with Supervisor 1 and 2, between Supervisor 1 with Supervisor 2 as well as headmasters and partnership between teachers working groups in each rayon district.
3. Video recording (visual) of the activities undertaken by the model teacher and practicisionstudent performance in teaching group become the source of meaningfulness of lesson study on PKP guidance, so the availability is necessary.

4. It can be followed up through deeper phenomenological research regarding the performance Supervisor 1 and 2 in exploring the role and functions in respect of competence and pedagogical.

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