

# Mobile Learning Collaboration for State Universities and Colleges in the Philippines

Melvin Dela Cruz Roxas\*, Yoshiyori Urano\*

\* Graduate School of Global Information and Telecommunication Studies, Faculty of Science and Engineering, Waseda University, 1011 Nishitomida Honjo-shi, Saitama, 367-0035, Japan

melvin.dc.roxas@fuji.waseda.jp, urano@waseda.jp

**Abstract**— Education is an investment in human capital. Countries all over the world have put considerable attention to it as one of its concerns for national development. If not access for free education in all levels, governments try to subsidize cost of education through proper budget appropriation. Likewise, investment in the form of technological advancements by utilizing the efficiency of the internet is continuously being harnessed to maximize its potential in the delivery of various educational knowledge, such in the case of alternative learning systems (ALS) that does not limit the quest for information in the four corners of the classroom. With such, the proponent seeks to offer an alternative learning system that is more accessible, usable, reliable, secure and portable to learners, that is, alternative mobile learning system utilizing smart phones as means for knowledge learning. Also, it aims to provide a significant collaboration and cooperation in establishing an alternative learning system for SUCs in the country thereby; yielding a venue for educators to share scholarly resources. Collaboration and cooperation takes in the form of content management, assessment, and administration. And more importantly empower individuals especially professionals to finish their degree programs while continuously embarking on their respective careers. This paper aimed to discuss the existing scenario in the Philippines followed by related studies in comparison with some existing mobile learning systems and the methodologies applied to realize this collaboration. Finally, conclusions and recommendations are established for possible future works

**Keywords**— E-learning, Mobile learning, Learning Collaboration, Education, Alternative Learning System, Smart Phone

## I. INTRODUCTION

The advent of information technology has ushered in a great era where information is made available almost to anyone for a variety of purposes such as research and education. Information availability was due to the proliferation of a multitude of applications available on the latest gadgets such as smart phones catering to so many fields of endeavor. A testament to this is the availability of mobile learning implements beneficial to a lot of interested learners

Wikipedia defines mobile learning or M-Learning as “any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies”[1].

With this technology, educational institutions all over the world are joining the bandwagon in the furtherance of their thrust of universal accessibility in their academic programs, instructions, research undertaking, and the like.

Likewise, efforts to utilize the efficiency of this application with the existing web portals have paved the way for colleges and universities in the Philippines catering to various needs of students and teachers. But typical and individualistic to its components and substance, these existing portals provide fundamental information limited to the four corners of the academic world.

With this, the proponent seeks to provide a significant collaboration and cooperation in the academic group through the establishment of an alternative learning system for State Colleges and Universities (SUCs) in the Philippines. With considerable number of SUCs in the country totaling 110 [2], it would try to yield a venue for educators to share scholarly resources. Also, to empower individuals specially professionals who were not able to finish their degree programs by utilizing the alternative learning system of education. And to offer an alternative learning system that is accessible, usable, reliable, secure and portable to learners. That is, alternative mobile learning system utilizing smart phones.

## II. PHILIPPINE SCENARIO

The Philippines with more than 90M population takes pride of its high literacy rate of 93.4% [3]. Such is attributed to the country's investment in human capital to uplift its education system as mandated by the Philippine Constitution that education should receive the highest appropriation in the national budget [4].

In Tertiary level, the Commission on Higher Education continues to provide policies and strategies relating to the

tertiary education and accredits degree programs offered by various learning institutions. In addition, non-traditional study program has been incorporated in the undergraduate and graduate programs. As early as 1990, some universities in the country started offering alternative learning system and has incorporated e-learning technologies that progressed as the years passed.

As a result, more individuals are taking the opportunity to avail the alternative learning system brought about by reason such as:

- 1) High demand to work due to varying life difficulties causing them to stop studying. In addition, booming Business Process Outsourcing opportunities (BPO) has even encouraged students to stop studying and work instead as some BPO jobs do not require individuals to be college graduates. But despite these, the interest to finish a course is still an aspiration even while working.
- 2) Awareness on e-learning as alternative to traditional education system. – Currently, there are 96 deputized higher education institutions in the country that offers the alternative learning system of education both for undergraduate and graduate programs. 25 of which are public institutions while 71 are private [5].
- 3) Lastly, professionals who were not able to finish their degrees and even those who would want to continue their graduate studies are venturing into this system.

### III. RELATED WORKS

#### A. *Using Mobile Phones in English Education in Japan*

In the paper published on the Journal of Computer Assisted Learning, *Using Mobile Phones in English Education in Japan* presented three studies relative to mobile learning. Three underlying objectives, first of which, was to determine how many students have mobile phones and what applications they are very interested. Second, given the English lessons through electronic mail to Japanese students on their mobile phones, how would they cope up and understand the topics. And lastly, the creation of an English idiom site with corresponding animation and explanation, which by using mobile phones equipped with video functionality, how the students would perceive and evaluate the effectiveness of the site.

Given the three studies, concerns and results based on the evaluation provided significant findings that of:

- 1) Mobile phone utilization presents a positive impact [6]. Not only on the purpose of sending and receiving of messages but also on its use as a means to receive vital information related to their studies.
- 2) Positive reaction on understanding and learning the topics through the use of the medium [6].

- 3) Mobile devices can be effective tools for learning delivery [6].

#### B. *SIM University School of Science and Technology E-Learning Portal (Singapore)*

The SIM University School of Science and Technology E-Learning Portal aimed to design and develop an engaging, intuitive and reusable e-learning courseware based on existing course materials to complement existing traditional classroom style teachings, which advocates higher overall productivity of the teaching and learning process in a governmental, organizational, educator and learner prospective [7].

It utilizes Moodle for its course contents containing Instructional videos using Adobe flash that allows students to repeatedly use the video for learning; PowerPoint slides that students can download and use; Quizzes in the form of interactive games that uses animation; and Social networking tools such as Facebook, Twitter and RSS feeds, all of which are integrated into Moodle.

Its focus concentrated more on design and use of multimedia as tool for the creation of the e-learning portal. At the same time, it assists, motivates, and promotes enthusiasm in students or learners to gain better understanding on ideas and concepts through motion graphics and animated visuals, incorporated with appropriate interactions.

#### C. *A Mobile Learning Environment for Developing Countries: the Bangladesh Virtual Interactive Classroom (Bangladesh)*

The Bangladesh Virtual Interactive Classroom was developed in cooperation with the Swedish Business School, Orebro University in Sweden and the Bangladesh Open University and aimed to improve distance education in Bangladesh by means of a low-cost, large scale interactive learning environment using video, mobile phones, SMS-based tools administered in a learning management system, and innovative pedagogy based on the student-centered learning model [8].

Its concerns revolved around technical challenges which assessed if there is still a need to develop innovative and simple tools for education; provided an opportunity for educator's training and adopting to the interactive ways of learning and enabling them to measure student feedback as means of improvement for the course on a continuous basis; professional challenges to educators to interact with learners in various ways; and social challenges to learners to be independent in their quest for knowledge.

#### D. Non-Traditional Study Program (NTSP) and the Expanded Tertiary Education Equivalency and Accreditation Program (ETEEAP) (Philippines)

The Non-Traditional Study Program is a self-study program wherein the student's educational background, work experiences and achievements are evaluated and accredited through a rating system that leads to the completion of an undergraduate and graduate degree. It is self-paced where modules, independent researches and other instructional materials are laid down by the school and administered by learning facilitators who help enhance the knowledge, skills, and attitudes of the students [9].

The ETEEAP of the Commission on Higher Education is an educational assessment scheme which recognizes knowledge, skill and prior learning attained by individuals from non-formal and informal educational experiences [10].

Using competency standards and comprehensive evaluation among which include written examinations and other methodologies, a tertiary level institution may administer competency-based assessment as means of accrediting learning experiences. Also, a panel of evaluators may be used to determine the applicant's knowledge and skills pertinent to a specific discipline and at the same time equivalent credits and relevant certificates and degrees are given by the administering institution.

Applicants should be at least high school graduate and has 5 years industry related experience. If interested, the applicant submits application form and other necessary documents to the commission for proper endorsement. Upon review and evaluation, an endorsement would be issued and the applicant proceeds to the learning institution for assessment. Evaluation could be in the form of interviews, examinations, demonstration of earned knowledge and skills and among others. Then the institution determines equivalency credit. If further learning are required to pursue, online learning and contact sessions are provided. Finally, after completion, a degree is conferred (Fig. 1).

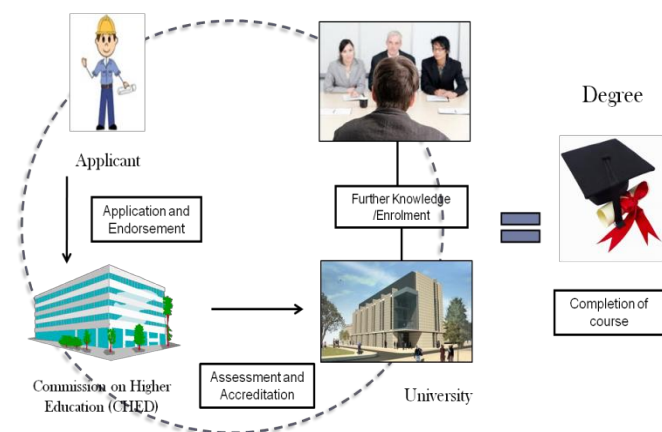


Figure 1. The NTSP/ETEEAP Program

#### IV. METHODOLOGY and IMPLEMENTATION

This section will discuss how the system works using the Mobile Learning Application using Smart Phones. It will also provide additional information on assessments of pertinent users.

The system works to create a solution in the higher education system that would benefit and harness cooperation among State Universities and Colleges (SUCs) through content management, assessment, and administration. At the same time, it aims to provide an alternative system of learning for learners specifically professionals to finish their undergraduate/graduate programs while continuously embarking on their respective careers and utilize mobile application as means for knowledge learning that is effective and usable.

In consonance with the policies set forth by the Commission on Higher Education (CHED), all course contents, curriculum offerings and programs should be approved and accredited by the commission.

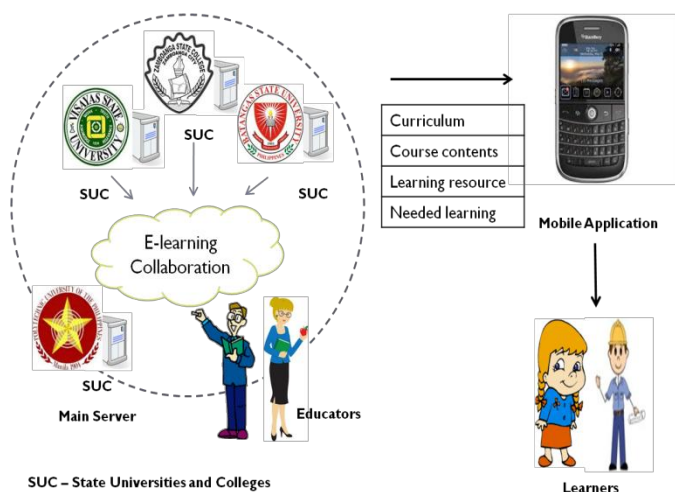
As such, the commission provides policies and guidelines on open learning and distance education that requires delivery of programs using variety of media such as print, radio, computer software, on-line delivery, face to face, etc. ensuring that quality delivery of non-formal educational system is regarded [11].

In addition, concerns on matters such as the process of collaboration, target and focus of implementation, and platform was considered in the conduct of this study as it plays a crucial role in the determination of its expected output and how it will be beneficial on a long term basis in the Philippine set-up particularly that of the State Universities and Colleges (SUCs) in the country.

In terms of collaboration, since there is a major organization of State Universities and Colleges (SUCs) in the country, a technical working group represented by respective members could address this need of providing the necessary knowledge learning, content management and administration.

As for the target, focus is on the non-traditional study program catering to professionals who were not able to finish their undergraduate/graduate programs and provide an alternative learning system to them. A data on the number of ETEEAP graduates from 1999 to 2010 provided by the Commission on Higher Education shows that a total of 7,240 students who have completed the system signifying a continuing boost in the utilization of the alternative learning system.

Platform concerns the utilization of smart phones as an effective tool as it continuously progresses its capabilities and functionalities and has been penetrating the local market scene as evident on the increasing number of subscribers in the country and is expected to rise in the succeeding years



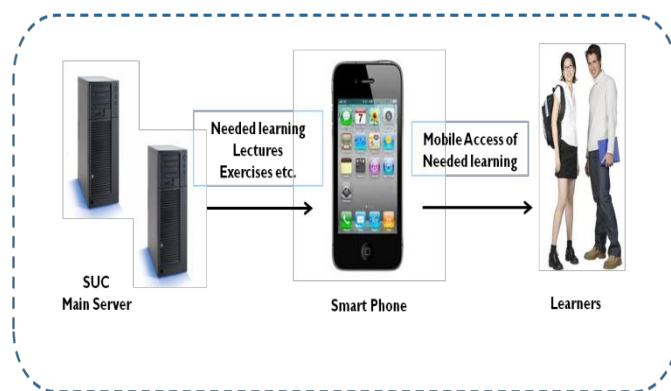
**Figure 2.** Mobile Learning Collaboration

Mobile Learning Collaboration works when State Universities and Colleges (SUCs) through its partner organization coordinates and collaborates course contents, curriculum, learning resources, needed learning and among others. Each SUC with its respective representative works with other representative from other SUCs in the aforementioned tasks and other pertinent functions.

A dedicated server acts as the central repository of all the relative collaboration ensuring security, integrity and reliability of all information.

Learners, on their part, upon compliance with all the necessary requirements, assessments and evaluations, and upon acceptance of a learning institution, will access the needed learning through the use of smart phone (Fig.2).

It should be noted that having their respective IT infrastructure, each SUCs' formulation of collaborative learning, lectures, presentations, and among others, initially takes place in its respective institution. Upon which, representatives from each institution would determine which among the learning materials, evaluation and assessment contents, course contents etc., would comprise the central repository of the e-learning collaboration. Finally, a lead state university would be responsible for managing the entire procedure and processes that would send all the needed learning and assessment to the learners.



**Figure 3.** Mobile Access

Needed learning will be provided depending on the learner's needs. The basis of which is dependent on the learner's skills, work experiences as assessed by a particular learning institution. Furthermore, learning resources vary for each learner (Fig.3).

Another thing, the process of learning varies with respect to the traditional system for some reasons that, for one, it does not focus only on the utilization of smart phones as technological advancement and mobile accessibility but rather to promote a means for more interactivity. And second, learning is not limited, like in the case of textbooks, as both educators and learners can share additional information. Though textbooks could still be utilized, other scholarly and online resources can serve as supplemental learning to the ones provided by the collaboration which in turn would be more beneficial to both educators and learners.

In the process of utilization of needed learning via smart phone, an open source course management system for e-learning platform was used. That is, Moodle for Mobile version 1.0.2. It was used as a platform interface to assess its effectiveness and usability. At the same time to address issues and concerns brought about by user interaction and utilization.

During its preliminary evaluation, non-traditional study programs students who have been assessed and qualified for the program, utilized the platform interface that is connected to a learning institution's open university system enabling them to access the needed learning, course offerings and other requirements in their own convenient time. Each of them, having their respective accounts in the system, must supply their respective username and password. Upon which, they can access their respective courses and needed learning. At the same time, requirements given by their respective educator or facilitator will also be given for them to comply.

After which, feedbacks were asked from the respondents to determine its usefulness and effectiveness and whether the method could be an acceptable one. Also, suggestions and recommendations were solicited for the purpose of

understanding further user perception or additional enhancements that could be put to the application.

Majority of the respondents gave positive feedbacks on the application as it gave them the opportunity to try to utilize the application using a different interface. At the same time, ease of use since most have smart phones, that to them, using the system is like using the smart phone in a conventional way. Another thing, convenience mattered to them as it could be utilized in their own pacing and wherever they may be.

## V. LIMITATION OF THE STUDY

It should be noted however, that during the course of the conduct of the study, certain considerations limited the system to some specific items for inclusion. First, the preliminary focus concerns the non-traditional study programs catering to professionals who were not able to finish their undergraduate/graduate programs and provide an alternative learning system to them. It was initially conceived to be applicable to State Universities and Colleges in the country for the market on the non-traditional study is increasing. At the same time, sufficient sample population is already covered by the given subject. Second, application interface focused on smart phones brought about by concerns on graphical user interface, high-end technology and platform considerations, that with the aforementioned reasons, more effective implementation of the course management system, that is Moodle for mobile, would be more operational and attainable.

## VI. CONCLUSION AND FUTURE WORK

This study aims to provide a consolidated collaboration among State Universities and Colleges in the country in increasing the potential of alternative learning system and that a new interface of access that of mobility, can deliver education to its clients in a more portable, useful, effective and reliable way. In effect, the research offered a promising opportunity to users that a new medium of access to education is worthwhile.

The collaboration process is a very tedious endeavor to account for. But with the fervor and commitment of educators in the country particularly that of State Universities and Colleges, difficulties to work together can be mitigated. At the same time, even if educators belong to different learning institutions and that delivery of education varies, the core structure are anchored based on the policies and guidelines set forth by the Commission on Higher Education, thereby providing a somewhat similar atmosphere for learning. Though it should also be noted that in order to address the issue on raising matters on differences in approach, content, methods of learning and among others, State Universities and Colleges must continue to promulgate a more standardized approach to all of these, so that a more beneficial course of action takes place in the coming years.

For mobility access, smart phones showed a potential means for education, thus the term mobile learning. Evidenced on the feedbacks given by the respondents, mobile learning ascertains its function of mobility as new access to learning. Though it could also be surmised that its effectiveness based on evaluation depends on user's adaptability to a given platform and how user interface contributes a major significance to learner's acceptance of a new application. Adaptability factors include screen size, resolution, readability, and user appreciation of multimedia and/or graphics. It is also interesting to observe that varying concerns are also part of the assessment as evidenced on the differences on the utilization of smart phones, its accompanying costs and demand for access.

Finally, it is envisioned on this research study that more similar or advanced application based mobile learning systems be developed in the future taking into consideration its ease of use, effectiveness and efficiency and that it would cater not only on the non-traditional study program but also to other beneficiaries ensuring that delivery of education and its accompanying learning and knowledge is continuously attained.

Also, apart from the new concept of delivery, new concepts on architecture and or design of alternative learning system in terms of epistemologies of mobile learning, learning theories and approaches for e-learning, e-learning models, pedagogical models and strategies be continuously developed and harnessed.

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