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# Educational Paradigm Shift from E-Learning to Mobile Learning Toward Ubiquitous Learning

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### *Abstract*

*The purpose of this study is to review the possible effect of the learning paradigm shift from traditional method to ubiquitous learning. What are the societal issues that need to be address in order to design a new pedagogical platform trending from e-learning to m-learning and now the u-learning? That without the proper study of how learning environment may affect the learning process of an individual will lead to poor quality of education. This new era of learning environment offer a big opportunity for "anytime, anywhere" learning. Thus, Lifelong learning is at hand of everyone. Maximizing the benefit of new trend will be a great help and addressing the limitations will lead to quality education.*

*Keywords: Educational Paradigm Shift, E-Learning, M-Learning, U-Learning*

## 1. Introduction

With the emergence of increasingly robust connectivity infrastructure and cheaper computers, school systems around the world are developing the ability to provide learning opportunities to students "anytime, anywhere". This trend requires a rethinking of the traditional 1 hour lesson. In addition to hardware and Internet access, it requires the availability of virtual mentors or teachers, and/or opportunities for peer to peer and self-paced, deeper learning.

A ubiquitous learning environment is any setting in which students can become totally immersed in the learning process. So, a ubiquitous learning environment (ULE) [1] is a situation or setting of pervasive or omnipresent education or learning. Education is happening all around the student but the student may not even be conscious of the learning process. Source data is present in the embedded objects and students do not have to DO anything in order to learn.

The advances in information and communication technology brought societal change and along with these changes the demand for more optimized learning avenue become options to many. Ubiquitous learning or u-learning is equivalent to some form of simple mobile learning that learning environments can be accessed in various contexts and

situations. The ubiquitous learning environment (ULE) may detect more context data than e-learning. Besides the domains of e- Learning, u-learning may use more context awareness to provide most adaptive contents for learners [1]. New advances in hardware and software are making mobile "smart phones" indispensible tools. Just as cell phones have leapfrogged fixed line technology in the telecommunications industry, it is likely that mobile devices with internet access and computing capabilities will soon overtake personal computers as the information appliance of choice in the classroom.

## 2. Background

Learning can, of course, take place in the classroom, but most of it doesn't. Today's learners are not just students; learning has suddenly become everybody's business. In fact, learning "how to learn" may now be your most critical survival skill. -Jensen, E. Super Teaching. 1995.

Despite the great potential mobile learning has and the innovative development of mobile technologies, a theoretical framework in which to review diverse mobile learning projects in the context of distance learning has been lacking. The framework for this analysis was adopted from transactional distance theory and modified by adding a new dimension to reflect the characteristics of mobile technologies that support both individual and social aspects of learning. Previous studies dealing with mobile learning were reviewed and categorized into four types based on transactional distance and individualized versus socialized learning. [7]

Joung-Souk Sung, in her paper "U-Learning Model Design Based on Ubiquitous Environment" stated that the establishment of Ubiquitous learning (U-learning) based synchronous, asynchronous and hybrid mode. This paper proposed the implementation of learning between student and teacher of service provider in u-space, which is not limited to traditional e-learning system. Student-focused testing services include: excellent test paper creation/deletion/registration; 7 phase framework; database development; and PDA page design. This system allows students to be supported with an electronic input, authentication, distribution, monitor, gathering, grading and inquiring phase and supports learning session dependent multicasting. The devices used include PDAs, mobile phones, portable computers and tablet PDAs. This system is to become a more capable student learning environment so that student can get student's learning done more efficiently. The development of a ubiquitous learning environment combines the advantages of an adaptive learning environment with the benefits of ubiquitous computing and the flexibility of mobile devices [8].

## 3. Societal Issues

"Quality education for students". This is not a new idea; this is not something someone just dreamed up. This is a reality, and it's becoming more complex by the day. There is currently a technological revolution in higher education: E-learning is its name. The growth of e-learning is explosive, it's unprecedented, it's exciting, it's disruptive. We must understand the complexities of e-learning—advantages, disadvantages, examples, and promises—in order to identify and address the many social implications. [4]

There are a number of advantages of e-learning. First, we are using state-of-the-art technology and instructional strategies; or at least we should be. Cultures can be shared through e-learning, if participants wish to share cultures. Disabilities can be accommodated, with or without the knowledge of other participants. Gender may not be an issue, because in many situations, gender is unknown—or it can be. Because of global access, the classroom may be the world. So many more advantages, so little time to discuss them all, but we should. E-learning gives us the opportunity to use state-of-the-art instructional strategies. It can also be an "equalizer," whether we are talking about cultures, gender, geography, etc. [4]

Though cited that e-learning, m-learning and now ubiquitous learning has many advantages from social, technical to personal point of view, there are still disadvantages out of the whole thing. Just a as glass may be half full, it may also be half empty. This means if there are advantages, there are also disadvantages. Some of the disadvantages are: Class members with disabilities maybe will have difficulties for a number of reasons.

Some maybe technologically challenged and are hesitant to participate at all. Some would encourage banter. Also some would have difficulty in language communication since other used their native language. [4]

To address such issues, ideas come up that to cope with such limitations; some institutions had to offer different e-learning strategies with those who have disabilities and technology challenge individuals. Nevertheless, the shift in learning paradigm is unstoppable; it goes with the technological advances.

## 4. Pedagogical Change

Integration of information and communication technologies into everyday practice, including teaching and learning in countries across the world have different stages. The issues over the true value of e-learning over face-to-face delivery of instruction and training content still a point to be considered, we all seem to agree that there is a tremendous opportunity for technology to revolutionalized learning. Table1 Show the comparison between the Traditional Learning vs. Lifelong Learning Model.

**Table 1. Traditional Learning Model vs. U-Learning Model**

| Traditional Learning Model | Lifelong Learning Model |
| --- | --- |
| Teachers serve as the **primary sources of knowledge**<br>• planning for teaching<br>• rigid | Educators serve as guides, **facilitators**, catalysts of learning<br>• designing for learning<br>• flexible |
| **Teacher-centered**: learners conform to / receive knowledge from teacher<br>• chalk & talk<br>• rote-learning & repetition<br>• textbook-based<br>• exam-driven | **Student-centered**: learners learn by asking/inquiring, doing, and authentic learning<br>• life skills, competency-based, multiple intelligences & learning styles<br>• vast information resources are recognized and made available, if possible |
| Learners work quietly by **themselves** (Quiet = Discipline) | People learn in groups and from each other – productive noise; **collaborative learning** is valued |
| All learners do **the same thing**; same outputs | Educators develop **individualized** learning plans; varied outputs (based on standards) |
| Tests are given to prevent a learner to progress until complete **mastery** of facts/skills is attained, used as culminating activity<br>• **recall of facts and mastery of routine skills** assessed<br>• used to ration access to further learning<br>• tests are **separate** from the lesson | Assessment is **regular and integrated** into the lesson proper, rather than an afterthought<br>• 21st century skills assessed<br>• guides learning strategies and identifies pathways for future learning<br>• integrated with the lesson<br>• rapid/immediate feedback |
| Grades are used to establish **ranking** | **Rubrics** with clear indicators are used to check if **learning** has taken place and 21st Century Skills are observed |
| "Good" learners are identified and **permitted** to continue their education | People have access to learning **opportunities** over a **lifetime** |
| Teachers receive initial training plus ad hoc in-service training (**extrinsically motivated**) | Educators are lifelong **learners**: initial training and on-going professional development are linked and intrinsically motivated |

The comparison is clearly presented that pedagogical change is a challenge in part of educators as well as on the student. The change in perspective of learning has changed and the opportunities become wider. Almost lifelong as what they have said. Educators are aware of this but face the enormous task of making it happen. Such a shift does not happen overnight. It requires time, conscious effort, commitment, and persistence on the part of the teachers and the administration.

The shift of educational paradigm from traditional learning to u-learning had brought many questions and considerations among teacher educators and institutions. Since this new idea is being adopted, questions arising from different point of views. There must be standards that will govern in proper practice of u-learning to make sure that learning process really effective. The need for pedagogy suitable for u-learning was being asked, there must be proper approach to optimize u-learning. With the rapid advancement in

information and communication technologies everyone has easier access to learning resources. Different modalities are being used in asynchronous or synchronous learning. The following questions are to be considered.

1. What are the impacts of u-learning to the developing countries?
2. How can we optimize the influence of information and communication media on learning?
3. Can we differentiate the unique influences of media on learning from the influences of instructional method?
4. Do we need new pedagogical for e-learning for effective learning?
5. What is the source of the demand for a fundamental change from traditional instruction and learning methodologies to digital-based education such as e-learning, m-learning and u-learning?

## 5. Trends in U-Learning

Learning that happens across locations, offered by portable technologies. Is convenient in the sense that it is accessible virtually from anywhere, it brings strong portability by replacing books and notes. As technology becomes more and more ubiquitous and affordable, e-learning carries the greatest potential to train masses in the developing world in anything and everything.

As mobile devices are becoming increasingly ubiquitous, many researchers and practitioners have incorporated the technology into their teaching and learning environments. [7] Figure1 show the comparison of the three (3) learning trends in terms of information and communication media and learning environment and opportunities. The learning concepts shift as fast as we could ever imagine before.

### Figure 1. Comparison and flow of e-learning, m-learning to u-learning

| | E- Learning (Electronic Learning) | M-Learning (Mobile Learning) | U-Learning (Ubiquitous Learning) |
|---|---|---|---|
| **Information and Communication media** | • Hardware oriented<br>• Physical location based *(Wired)* | • Portable<br>• need only mobile phone, need not much electronic devices *(wireless)* | • Portable *(Disappeared)*<br>• anytime, anywhere |
| **Learning environment and learning opportunities** | • need to be in physical location *(present)* | • Accessible anytime | • Anytime, Anywhere, just like in the cloud *(omnipresent)*<br>• Vast, dynamic |

Issues to be address in designing a u-learning environment:
1. The physical attribute of the mobile devices, such as small display screen, inadequate memory, and short battery life.
2. Limitation on software applications
3. Lack of built-in functions
4. Radiation exposure of the user that can lead to health treat.

But with this rapid change in technology, this concern is merely temporary. Surely, new mobile accessories will be invented to cope with these physical limitations.

## 6. Conclusion

In this paper, we weigh the current educational paradigm shift by presenting the previous learning method until this present paradigm. The pros and cons of the changes and the possible societal issues that need to be considered for quality learning where presented. Though ubiquitous learning has some limitations, it brought convenience to distance learning and in general point of view, it could be a great help in various areas of learning. The key for the success of this new trend is to have a learning paradigm that could address such limitations and maximize the benefit of ubiquitous learning environment that is "anytime, anywhere".

## References

[1]   Zhao, Xinyou, Wan Xin, Okamoto Toshio (2010-4-16). "Adaptive Content Delivery in Ubiquitous Learning Environment" (PDF). The 6th IEEE International Conference on Wireless, Mobile and Ubiquitous Technologies in Education (IEEE WMUTE 2010). Kaohsiung, TAIWAN. Retrieved 2010-07-22.

[2]   B. Guo, D. Zhang, M. Imai. Prompting Lifecycle-Oriented Learning of Ubicomp Applications Leveraging Distributed Wisdom. IEEE Learning Technology Newsletter, Vol.12, No.4, 2010.

[3]   Maria Melizza D. Tan, "Harnessing ICTs for Philippine Basic Education", iSchools Computer & Internet Literacy Course for Teachers Harnessing ICTs in Philippine Basic Education Karen Jarrett

[4]   Thoms, Ph.D.. "A Technological Revolution: Social Implications of E-Learning", 13th Annual Instructional Technology Conference Middle Tennessee State UniversityMurfreeesboro, Tennessee April 6-8, 200.

[5]   Monica Vladoiu, Zoran Constantinescu, "u-learning within a context-aware Multiagent environment", International Journal of Computer Networks & Communications (IJCNC) Vol.3, No.1, January 2011

[6]   http://www.calvin.edu/~dsc8/mobile-learning.htm

[7]   Yeonjeong Park, "A Pedagogical Framework for Mobile Learning: Categorizing Educational Applications of Mobile Technologies into Four Types", International Review of Research in Open and Distance Learning Vol. 12.2 February –2011.Virginia Tech, USA

[8]   Joung-Souk Sung, "U-Learning Model Design Based on Ubiquitous Environment", International Journal Advanced Science and Technology Volume 13, December, 2009

[9]   Saadiah Yahya, Erny Arniza Ahmad and Kamularifin Abd Jalil, "The definition and characteristics of ubiquitous learning: A discussion". International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2010, Vol. 6, Issue 1.