U-GOVERNMENT MODEL TECHNIQUES IMPLEMENTATION IN GOVERNMENT SCHOOL ON UBIQUITOUS LEARNING ENVIRONMENT: CASE NEPAL

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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. Because all the subjects who can be convert into a central server and all school can download the all subject's electronic lesson and can teach to students. It is a kind of distance learning method. So, all Government and Non-Government schools have prepared all courses lesson plan using U-Learning method. In the context of Nepal this project mainly focused on Government school, because all Government is very back in teaching and learning facilities.

Keywords- U-Learning, Ubiquitous-based Learning, Model, Government School, Framework, System, Connectivity

I. INTRODUCTION

U-Learning (Ubiquitous-based Learning) is an amalgam of e-Learning and m-Learning to take place independently of time and place. Increasingly powerful, handled, networked devices provide an opportunity for educators to explore and implement ubiquitous learning environments to include applications and services delivered to mobile devices. The main characteristics of U-Learning are:

(1) Permanency - (learns never lose their work unless it is powerfully deleted. So, all the learning processes are recorded continuously every time when students access to the system.) (2) Accessibility - (Learners have access to their documents and lessons, data, or videos from anywhere, anytime without internet connection. That information is provided based on their request.)

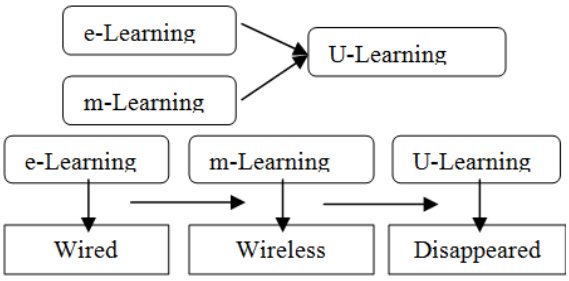
(3) Immediacy – (Learners, they can get any information or lessons immediately and can solve problems quickly. Learner can record the questions and look for the answer later.)

(4) Interactivity – (Learners can interact with experts, teachers, or peers in the form of synchronies or asynchronous communication.)

(5) Situating of instructional activities – (Problems encountered as well as the knowledge required are all presented in their natural and authentic forms; helps learners notice the features of problem situations that make particular actions relevant.)

(6) Adaptability – (Learners can get the right information at the right place with the right way.)

[Ogata & Yano (2003) on Chen (2002) and Curtis (2002)].

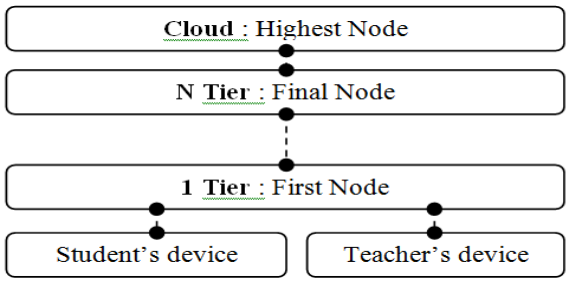


[Figure 01: Components of U-Government: Government School Learning System]

U-Learning is a very effective and strong techniques and tools for the implementation of all education system in electronic base. It provides easy techniques to the school teacher's to learn any subject's lesson through modern electronic device to school's students. The students can easily understand all subjects' lessons by these techniques/tools. This system is a kind of electronic distance learning education that provides all kinds reading materials and documents by the help of technology.

Various e-Learning Systems were developed in the past decade; but it was client-server architecture and is on centralized server based. It was client-server & centralized server approaches and was metaphors of student-teacher which reflect real word learning scenarios in which teachers act as the content producers while students act as the content customer [1]. So, m-Learning is often thought of as a form of e-Learning and it is a wireless mechanism technology. In the comparison of e-Learning & m-Learning U-Learning environment provides an interoperable,

pervasive, and seamless learning architecture to connect, integrate & share their major dimensions of learning resources: learning collaborates, learning contents, and learning services [1].



[Figure 02 : Topology of U-Learning system]

So, this system is an environment supporting students learning using digital media in geographically distributed environment. By the use of this system, a student is free to take the lesson, examination at any time within a specified time frame. This system is an environment supporting student learning using digital media.

1. U-Learning System in Nepal:

Nepal is an under developing country situated in South Asian between China and India. Nepal is facing problems in the education sector about teaching learning system. Mainly, Government Schools are facing different type problems in the education system. The major problem is teaching and learning system in Nepal's Government School. Before two decades, e-Learning system were imported for the improvement of all Government and Non-Government school's study method or techniques quality education or reduced the traditional method for the development of country. But the e-Learning system cannot be implemented due to lack of awareness, political stability, and un-priority. Many school teachers and others just know how about this system. Now-a-days many schools are feeling to use electronic media device system with contents in their teaching learning approaches. The U-Learning system is a reliable system or services to achieved good results in the education sectors. Because the main aims of this system is to achieve the right time and right place with right learning services. The Government Schools and colleges are very back in education system due to lack of facilities, technologies, effective lessons contents and teaching / learning techniques. So, Government Schools and colleges' education system are very low. All students are trying to joined private (boarding) schools and private colleges. But they have no capacity to pay the tuition fees because that is not affordable. So, many students are missed by education. Quality education is necessary for the development of Nation to achieved good rank in the world. In reality U-Learning System can provide Quality education because it is an electronic education services with rich media and is affordable to get skilled education by students. So, we (Kathmandu University) planning to introduced developed U-Learning as an U-Government method as a model taking three region's districts Government Schools, one from Tarai District, one from Hill District and one for Mountain District of three Government Schools each.

II. OBJECTIVE

Main Objective

- The main objective of this U-Government Learning project is to develop and implement of U-Learning model into three districts' 9 Government Schools to enhance the innovation skills in Nepal.

Other Objective:

- To develop U-Learning System in three districts nine schools' teaching and learning method.
- To reduce traditional/old method that cannot produce quality result in education system.
- To trained each schools teacher about U-Learning System.
- To prepared instruction manual for the providing in Government Schools.
- To provide technologies and their manual to Nepal Government for the development and implementation of U-Learning system in all Government schools.

2. Statement of Need:

U-Learning Technology is very important and reliable system for the improvement of education system to develop or produce nation need quality and skilled education. It is need for the development of nation. In case of Nepal, the main issues are teaching and learning techniques. In the context of Nepal there is no technology for teaching and learning methods. Till date Nepal Government could not provide such kinds of technology following the traditional/old techniques in all Government Schools of Nepal. The following issues or problems are facing by Government Schools of Nepal.

- Lack of Trained or Qualified Teachers. (Insufficient)
- Lack of Infrastructure of Government Schools.
- Lack of Teaching and Learning Methods/Systems.
- No Modern techniques applied in Government School for education to produce the quality Leadership for development.
- Qualified Teachers are not more interested to teach in Government Schools by lack of facilities.
- No sufficient budget allocated for the development of Government School's education system.

From the mentioned issues or problems the all Government Schools of Nepal are in failure stage. Until and unless the Government Schools education could not be in strong that there is no development of the country, because all low income citizens can't take good education for development. From the above issues all children who lived in village and remote areas that they have no capacity to pay the sufficient money to private boarding schools which are situated in city or urban area because private schools charged very expensive amount which cannot afforded by poor economic condition citizen (very low income). On this research we implemented previous test as a feasibility study based on standard English exam tool for comparing the government schools with private schools and community schools. In this implementation, we can recognize difference of quality of educational condition based on results which are shown in Figure 03 (Ave. score of the exam).

No	Schools	Ave. Score		Num. of Students	Sector/ Location
1	Arunima Higher Secondary	G3	27.57	15	Private / Khathmandu (Capital city)
		G5	36.79	20	
2	Adarsha Saula Yubak Higher Secondary	G3	27.2	20	Government / Lalitpur (Near city)
		G5	35.8	20	
3	Green Field Secondary	G3	26.24	25	Private / Mugling (Remote area)
		G5	32.65	20	
4	Kamalamai Secondary	G3	23.48	25	Government / Sindhuli (Remote area)
		G5	22.93	15	
5	Shree Chilaune Secondary	G3	N/A	25	Government / Sindupalchok (Remote area)
		G5	N/A	20	
6	Netrayoti National Primary	G3	N/A	25	Government / Makwanpur (Remote area)
		G5	N/A	20	

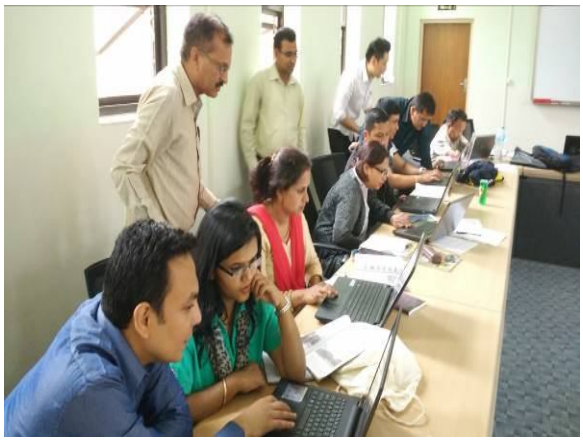
[Figure 03: Table of score of grade 3 and grade 5 students in different schools. (Pre-test)]



[Figure 04: Pre-test : Schools in Mugling and Sindhuli province]

Again all Government schools have no qualified and experience teachers to teach the different subject's lessons. So, if success to provide the U-Learning technology education mainly in Government Schools and that will be very helpful to produces the quality education for leadership in national development. And we can successes to provide the quality and effective education. So, to solve the mentioned issues or problems that we need some grants to develop the model school in government sector by the use of the U-Learning techniques and tools.

Nepal is situated in an under-developing in world list. Now-a-days Nepal is facing big problems by earthquake and has lost every thing. In this condition Nepal is not able to spend money in this model development (U-Learning). If we successes to provide this type of model to some school and very easy to development and implementation of U-Learning System in many other government schools in the time of earthquake disaster recovery by Government. So, if you provide the U-Learning model development and implementation grants to reduce these issues of selected government schools to us (Kathmandu University, Department of Computer Science and Engineering – [DoCSE]) in three districts' nine Government Schools. Kathmandu University, DoCSE is ready to design, develop and implement this model for quality and modern education as an U-Learning HUB University, And Tribhuvan University join to the project as an U-Learning training HUB university. After completion of this model project Kathmandu University handover to Government of Nepal for the implementation of this system in all Government Schools of Nepal.



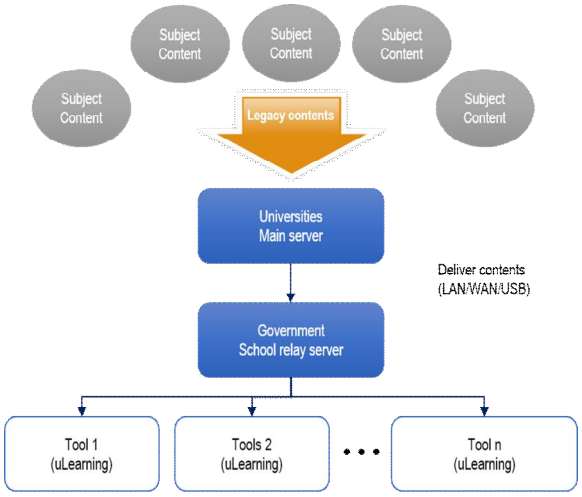
[Figure 05: Role of HUB university : ULTP (U-Learning training program) and validate contents, research & development activity]

III. METHOD

1 Step: Selection of three districts in Tarai, Hill and High Hill (Mountain).
2 step: Selection of three school of each district (from three districts).
3 Step: Develop contents of subjects to upload the U-Learning software system(platform).
4 Step: Provide the U-Learning technology tools and trained school's teacher for implementation of Teaching & Learning Methods.
5 Step: Implement U-Learning technology in full phase for three districts nine Government schools.

6 Step: Supervision and Monitoring of implementation.

7 Step: Handover the technology to the school in the presence of Government responsible organization officials.



[Figure 06 : Setup Framework for U-Learning System, Tool includes (1)relay server with u-learning software, (1)wireless AP, (1)u-learning box for educators]



[Figure 07: U-Learning equipment organized as tool ; Relay server, tablet PC, wireless AP, battery, smart beam and ETC.]

3. Result (Outcome):

Ubiquitous learning is regarded as the modern learning system. In this rapid modernization u-learning plays the vital role for the improvement of the education system. U-learning is a new learning paradigm that makes learning possible anytime, anywhere for various educational materials. U-learning is an extension of previous learning paradigm because learners are shifting from traditional to e-learning and then m-learning and then u-learning.

As the context of Nepal there is traditional style of teaching and learning which have negative outcomes and less expected results. At this modern era learning through the modern technology is becoming for essential part. The whole world is becoming modernized and competitive; to compete with the modern world the education system should also be the modern. Through the help of u-learning the education system can be uplifted.

In Nepal the learners or students are not aware about the modern learning system. They are less capable of affording the modern technology. Most of the students are far from the reach of modern teaching system, so first of all there should be the awareness about the digital learning and teaching style and its advantages in this modern world.

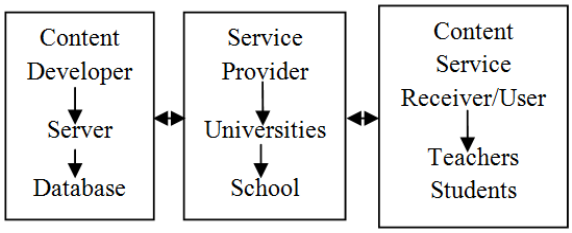
In the traditional style of teaching and learning students, may not be interested towards learning, there may be lack of understanding of teaching. New emerging educational technologies are changing the way we learn. Education has become too flexible and fan. Technology for education is promoting individual learning and mobile learning, both teachers and students are benefiting from this new technologies for education. Some of the barriers in education have been broken down by this new technology for education; students can learn from anywhere, teachers can easily reach their students from anywhere. Technology is helping to change education in a positive way; it is part of the modern world. Technology for education is improving grades for students and it prepares them for the future.

U-learning system for education provides us with tools which can allow us to learn on our own. Individual learning is good, because a student will not feel shy or embarrassed when they fail to learn something. It also promotes individual research and this helps students to deeply learn about a specific topic of interest. Since this new technology of u-learning makes education fan, students do not get bored while learning.

Tomorrow job market will require applicants to have technological skills. So it is of great benefit if we use new technology for education in schools. Using of computers in the classroom helps students learn how to type and spell, these two basic computer skills will be required tomorrow. Technology increases the chance of students to get well – paying jobs in the future.

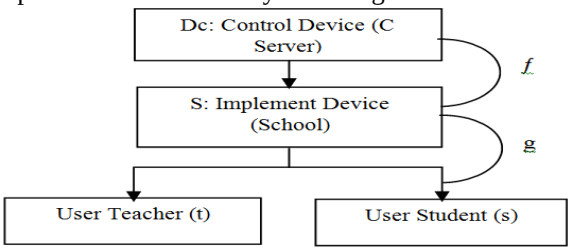
So that the expectation outcome come is that the u-learning helps the skill development of the students and overcome the traditional ways of teaching and learning. It makes the students interested learning and makes the high attendance in the classroom. And also improves student attitude towards learning which may outcome the modernization on the education system.

Connectivity from Content Developer, Central Server to School's Service Receiver [Framework]



[Figure 08: Connectivity from Content Developer, Central Server to School's Service Receiver (Framework)]

Upload and Download System Diagram



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CONCLUSION

Through the u-learning the students can be attracted towards the learning and gaining knowledge. They can motivate towards the learning and the u-learning system can empower and uplift the learning capacity of the students. It can increase the dealing power of the students. If the u-learning will be developed then the attendance of students also will be increased and they became interested in the new style of learning.

Ubiquitous learning is an emerging and promising research field, which can benefit strongly by considering personalization and adaptively aspects, making the support provided to the learners more convenient and effective. As can be seen from the proposed research works, many areas such as mobile learning, ambient assisted living, human-computer interaction, and adaptive hypermedia need to contribute in the development and effective usage of adaptive and personalized u-learning system.

Ubiquitous learning will develop the traditional learning style to modern techniques of learning. U-learning will reduce the physical constraints of students and make them understand properly. Government has invested huge amount for the improvement of the education system so that they should also now focus on the modern style of learning systems.

A ubiquitous learning system supports learners through embedded and invisible computers in everyday life. Such environments allow students to learn at any time and any place, encouraging them to more experiential learning such as learning by doing, interacting and sharing, and facilitate on-demand learning, hand-son or minds-on learning and authentic learning.

So that u-learning should be given more priorities for the improvement of modern education system. In this modern age learning and teaching should also be modern, so the students became more capable on decision making and dealing with modern age.

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