Application and Impacts of Mobile Learning: A Case Study in Technology for Sustainable Distance Learning

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Abstract: This paper examines the application and impacts of Mobile learning in providing sustainable distance learning in the case of developing countries having multiethnic social environment. The sustainability is conditioned by the structure of learners and well as the teaching community. This paper explains these issues among the distance learners who hailed from multiethnic background. The different strata of distance learners received these two modes of instruction, namely, conventional and mobile. The impact of mobile learning is visible on different learner groups having multiethnic social environment and the performance of the mobile learners is higher than the conventional learners.

Keywords: Distance Education, Mobile Learning, Sustainability, Technology

1 Mobile Learning in Distance Education

Mobile learning is increasingly applied in distance education. It focuses on learning across contexts. Studies have been conducted mostly in developed countries in this case [AS03, KT05]. The relevance of mobile learning in developing countries is also as significant as in developed countries [PS09]. There is an increasing and unprecedented adoption of wireless technologies in developed and developing countries alike [Ke03, Be04]. In developed as well as developing countries of Asia, cell-phone usage for learning has proved to be beneficial for both instructors and learners [Mo08]. Studies have also been undertaken to reveal the problems in e-learning initiatives [BB07]. An effective application of mobile learning in developing countries has yet to materialize. Distance education in India had its genesis in the early 1960s. It tries to meet the growing demand for higher education [Ag06]. Since then it has expanded rapidly and provides higher education to over 2.8 million students. The introduction of 3G services further facilitates mobile learning in Indian universities.

2 Technology for Sustainable Distance Learning

Sustainable distance learning can be gradually achieved by expanding mobile learning. Mobile technology greatly influences human interaction in general. It facilitates and carries communication of human voice with ideas, emotion, feeling and knowledge. It binds human beings transcending place. It gives freedom from inter-subjective inhibitions that normally occur during face-to-face in-person communication. It provides an expansion of two different worlds at a time. An individual may plunge into subjective world through the entertainments provided by the mobile device. Or an individual can use it for effective inter-subjective communication. But the latter occupies more space in contemporary civil society. People want to talk or communicate more with fellow beings. The geographical limits do not adversely affect their aspirations. The technology for human interaction also facilitates learning process. The students of open learning and distance education are in this context greatly benefited. This case study examines these issues of applications and impacts of mobile learning in a multiethnic context.

3 Study Setting

This experimental study has been conducted among the distant learners of the Vinayaka Missions University located at Salem in India. This study examines the impacts of mobile learning on such group who hails from multiethnic environment and different places of India. This experimental study was conducted on the third year students studying HEP (History, Economics and Political Science). The age-group of students ranged from 21 to 26. There were 568 students enrolled in the program. They had multi-ethnic and multilinguistic background. The rural and urban ratio of the students was 40 and 60 respectively. Among the 568 students 120 students were selected for the experiment. The 120 students were selected in terms of representing different states of India. Among the 120 students 12 students were selected for mobile learning experiment. The duration of experimental study continued for six months. The profile of the study group is as follows:

S.No	Particulars	Numbers
1	Number of students	120
2	Male	60
3	Female	60
4	Rural	48
5	Urban	52
6	Age Group (Below 21)	20
7	Age Group (21 – 26)	90
8	Age Group (Above 26)	10
9	Mobile holders (general)	82
10	Mobile holders (with internet facility)	18
11	SMS sent per day (average)	6
12	SMS received per day (average)	3

Table 1: Profile of the study group

4 Steps in m-Learning

This study followed successive steps m-Learning, viz., content preparation, delivery, answering questions and discussions. The graduate program of HEP is an abbreviated form of History, Economics and Political Science. The third year program consists of five courses, namely, namely, History of Europe, History of China and Japan, Economic Thought, Public Policy, and Local Governments in India. Among the five courses, one course, namely, public policy was selected for this experiment. The self-learning material of this course had twelve lessons. The task of each learner was to prepare question-answer format of content for one lesson only. In other words, each learner had to prepare one lesson and to receive eleven lessons from other learners. In this way, all the twelve learners prepared and sent the contents. A teacher facilitated the students in preparing the question-answer format.

Smartphones and iPhones were used for delivering the content preparation. They were sent as SMSs and attached files in document format. Discussion forum was envisaged after sending the content preparation. The student who prepared the content also responsible to test the other learners by asking questions and to evaluate the answers received from others. It had a double function. The student not only learned but also taught and examined the fellow learners. Official instructions and formal messages were not used in the discussion forum. The discussion and chats were voluntarily envisaged by students themselves with an informal mode of approach.

5 Study Impact

Among the 120 students, 12 students were experimented with mobile learning practice. The remaining 108 students were trained in conventional teaching methods. The average score of the study groups in the previous examination was 62 percent. After the experiment of m-Learning, the score of the experimental group was increased to 72 percent. By the time, the average score of other group who followed the conventional counselling sessions was increased to 64 percent only. The following table shows the impact of the study.

S.No	Particulars	Numbers
1	Total number of students	120
2	Conventional Learners	108
3	Mobile Learners	12
4	Total lessons	12
5	Content sent by each mobile learner	1
6	Content received by each mobile learner	11
7	Average score of the m-learners before experiment	62
8	Average score of the m-learners after experiment	72
9	Average score of the control group before experiment	62
10	Average score of the control group after experiment	64

Table 2: Impact of the Study

There were failures in the process of preparation of content, delivering the content, discussion forum and answering the questions. The following table explains the scenario.

S.No.	Exercises	Prepared	Delivered	Failures
1	Content Preparation	12	12	Nil
2	SMS notification	120	102	18 not reached
3	Questions	120	114	6 not reached
4	Answers	104	104	16 not prepared
5	Discussion	3 rounds	10 participated	2 not participated

Table 3: Success and failures

6 Conclusion

This study reveals that mobile learners scored higher than the conventional learners. Initiatives and enthusiasm are higher in mobile learners. This study also confirmed that mobile learning is more suitable and fitting for the distance learners who are divided geographically and ethnically. Uniformity in the usage of spelling and grammar seems to be unresolved. Currently, mobile learners are using both American and British spelling inconsistently. The default mode accepts the American spelling. But, in India, students were accustomed with British usage due to colonial heritage. Network failures are frequent in some areas. Some of the rural areas are yet to be networked. The 3G services have just begun in India and the wider coverage will be materialized in future.

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