A STUDY ON MOBILE LEARNING AS A LEARNING STYLE IN MODERN RESEARCH PRACTICE

By

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ABSTRACT

Mobile learning is a kind of learning that takes place via a portable handheld electronic device. It also refers to learning via other kinds of mobile devices such as tablet computers, net-books and digital readers. The objective of mobile learning is to provide the learner the ability to assimilate learning anywhere and at anytime. Mobile devices can be used not only to convey information but also can be used as modern comprehension. In present day mobile learning focus on distance learning through mobile devices. Progression in mobile communication skill will push more educational atmosphere in which the interactive society is interested. The term mobile learning is a much more recent modification, motivated by mobile communications technology and modelled on expressions such as electronic learning, which refers more generally to learning and teaching supported by computers and other electronic devices. The investigator used the survey method to determine the development of global trends of mobile learning in modern research practice as a learning style. The investigator has used two tools for the present study. They are Mobile Learning Questionnaire and Personal data sheet. The major objective of this paper is to establish the progress of mobile learning as a learning style among student teachers and find the correlation between mobile learning and academic achievement among student teachers. The major hypothesis of this paper is there is no significant difference between mobile phone users and others in mobile learning as a learning style among student teachers. Also there is no significant correlation between mobile learning and academic achievement among student teachers. The major finding of this paper is there is significant difference between mobile phone users and others in mobile learning as a learning style among student teachers and there is significant correlation between mobile learning and academic achievement among student teachers. That is, the student teachers who are using mobile device are better than others in mobile learning as a learning style. Also the mobile learning and academic achievement have high correlation in the learning of student teachers. It is concluded that mobile phones increases learning paradigms and also the inventory related to learning.

Keywords: Mobile Learning, Mobile Devices, Reading Mobile Learning, Audio Mobile Learning, Electronic Books, Digital Games, Online Media, Modern Education, Online Educational Content, Professional Development, Modern Research, Learning Style.

INTRODUCTION

The evolution of handheld portable devices and wireless technology has resulted in radical changes in the social and economic lifestyles of modern people. Today, many technological devices are produced in portable form and people have become accustomed to them. These devices are reshaping user's daily lives in different ways. But the development of digital technologies has so far been limited to social communication and few people have regarded mobile learning as a core pedagogical activity in higher institutions of learning. Although this model has been used as a minor adjunct to learning activities such as lectures and assignments, it is still not the primary mode of delivery in higher education. Currently, the instructional technology transmitted by means of mobile technology is mainly social and, to a lesser extent, economic.

Evolution of new expertise and approaches will be necessitated to maximize the development of mobile learning in modern research practice as a learning style. Shifting from teacher-centered to student-centered

classroom environments, m-learning may perform a consequential role in increasing the teaching and learning process. Distance education alters the traditional e-learning to the m-learning so the learner can receive the data in any location. The lecturers will send exam schedules and important notification to their students due to reminder. As a result, the content of the SMS is very concise report but very effective. One aspect of m-learning is the opportunity to run away from classroom and to move to another location and make learners capable to join to information network when it is necessary to use portable learning device. Providing informative data such as SMS about requirement of participating in classroom has effective benefits such as experiences in taking online classes, motivation for taking the class and expectations for m-learning.

This paper helps to give comprehensive information on Global trends of mobile learning in modern research practice as a learning style. To find viable answers, the article will describe the different components of mobile learning that reflect on the increasing mobility of learners, learning and learner technology. The emergence of revolutionary technologies has had a significant impact on educational technology. It has increased the potential of m-learning as a mode of delivery in education. By definition, mobile learning is learning by means of wireless technological devices that can be pocketed and utilized. The objective of M-learning is to provide the learner the ability to assimilate learning anywhere and at any time.

Significance of this Paper

The significance of this paper is to reflect on and understand the position of mobile learning in modern research practice as a learning style. It also hopes to develop awareness in the colleges of Education. The extent of this article is, primarily analysing mobile learning. It sets out to critically examine a selection of documents that relate to mobile learning. These documents consist of conferences proceedings, journal articles, reports, projects and pilot studies of mobile learning projects. To analyse these articles, the investigator made the search and collected various study to complete this article. This approach allowed the authors to identify relationships and

connections between the ideas and information from the literature, and explicate existing relationships between theory and practice in the field of mobile learning.

Definition of Mobile-Learning

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.

Meaning of Mobile-Learning

Mobile-learning is any kind of learning that takes place via a portable handheld electronic device. It also refers to learning via other kinds of mobile devices, such as tablet computers, net-books and digital readers.

Background of Mobile-Learning

The concept of mobile-learning goes right back to the 1970s, when companies such as Lingua-phone started releasing recordings of language lessons that could be listened to at the teacher's convenience. The term mobile-learning is a much more recent modification, motivated by mobile communications technology on expressions such as e-learning, which refers more generally to learning and teaching supported by computers and other electronic devices.

Mobile-Learning

The term "mobile learning", has different meanings for different communities. Although related to e-learning, educational technology and distance education, it is distinct in its focus on learning across contexts and learning with mobile devices. As educators, we are faced with the task to educate, engage and challenge these students. Digital literacy and their digital expectancy must be incorporated within meaningful learning scenarios.

M-Learning is "personal and portable", and it is much useful for distance learners. Teacher educators have to focus on the mobile devices themselves and more particularly on the characteristics of the learning experience they facilitate and the learners who interact with them. Mobile technologies present as a means of bridging the gap between formal and informal learning. Learning is no longer limited to time spent in formal educational settings but can now be carried across to informal contexts.

Learning need not be limited to formal prescribed contexts, but can more easily take place in learner-focused contexts.

Mobile Learning Practice as A Learning Style

- Mobile devices
- Mobile learning website
- Class blogs and wikis for mobile-learning
- Wireless classroom microphones
- Online media
- Digital Games
- Electronic books
- Pod-casts

Mobile Learning in Modern Education

- Continuous learning
- Educational leapfrogging
- A new crop of older, lifelong learners (and educators)
- Breaking gender boundaries, reducing physical borders
- A new literacy emerges: software literacy
- Education's long tail
- Teacher's and pupil's trade roles
- Synergies with mobile banking and mobile health initiatives
- New opportunities for traditional educational institutions
- A revolution leading to customized education

Emerging Informal Mobile Learning

Mobile learning devices also have the capacity to enhance a learner's sense of individuality and community as well as his or her motivation to learn through participation in collaborative learning. These devices stimulate a learner's sense of ownership of the content as he/she participates actively in a variety of social, collaborative and cooperative activities - all of which are centred on the mobile learning device. The most important one is the learner emerging with his learning with the help of mobile learning material as informal mobile technology such as portable devices. It also involves identifying learners who are nomadic and able to understand and interpret learning materials in an informal way. According to Alexander (2004), in general, mobile learning or m-learning can be viewed as any form of learning that happens when mediated through a mobile device, and a form of learning that establish the legitimacy of 'nomadic' learners.

Online Educational Content

Today rich repositories of lesson plans and educational content are freely available online. Teachers without computers had trouble accessing this material in the past, but much of it can now be downloaded, reviewed, and even projected or printed using mobile devices like smart-phones. More recently, digital platforms like Cousera and Udacity have put entire courses online as well as systems for testing, grading, providing student-to-student assistance and awarding certificates of completion. Far from being educational outliers, these projects are supported by some of the most prestigious universities in the world, including Stanford, Harvard and the Massachusetts Institute of Technology (MIT). Teachers can use these online tools to brush up on their own content knowledge and better support students who might be falling behind or, conversely, challenge those who are excelling. Because a great deal of this educational material is accessible from mobile devices both online and offline, teachers can browse repositories at times best suited to their schedules.

Professional Development

Mobile phones, especially larger-screen smart-phones, can assist more complex tasks as well. As detailed in the regional papers, they provide a cost-effective avenue for supporting the professional development and pre-service training of teachers, mainly by facilitating mentoring and participation in professional communities. One of the most effective types of professional development is mentoring. This process generally calls for a master teacher to observe the practice of less experienced educators and provide constructive feedback. Mobile phones may be able to alleviate some of the costs associated with mentoring by increasing the number of teachers. A mentor can support and reducing the time required for observations and meetings.

Method Used

The investigator used the survey method to determine the development of mobile learning as a learning style.

Protocol of this Paper

This paper helped to identify the present situation of mobile learning and the modern trends. Here the investigator used survey method to fulfill the study. For that the researcher visited many websites which provide the result related to mobile learning and gathered lot of information about mobile learning. The investigator prepared a mobile learning questionnaire to find the learning done through mobile phone. After collecting the information the investigator made required analysis and gave the interpretation, findings and recommendations related to the result. Also the investigator was correlating the mobile learning and the academic achievement of the student - teachers in a College of Education in Kanyakumari District, Tamilnadu, India.

Objectives

The major objectives of this paper are

- To study the difference between mobile phone users and others in mobile learning as a learning style among student teachers.

- To study the difference between mobile phone users and others in academic achievement among student teachers.

- To find the correlation between mobile learning and academic achievement among student teachers in mobile learning as a learning style.

- To find the correlation between mobile learning and academic achievement of mobile users among student teachers in mobile learning as a learning style.

- To find the correlation between mobile learning and academic achievement of others among student teachers in mobile learning as a learning style.

Hypothesis

The major hypotheses of this paper are:

- There is no significant difference between mobile phone users and others in mobile learning as a learning style among student teachers.

- There is no significant difference between mobile phone users and others in academic achievement among student teachers.

- There is no significant correlation between mobile learning and academic achievement among student teachers in mobile learning as a learning style.

- There is no significant correlation between mobile learning and academic achievement of mobile users among student teachers in mobile learning as a learning style.

- There is no significant correlation between mobile learning and academic achievement of others among student teachers in mobile learning as a learning style.

Population

The population for the present study was the student teachers who are studying in B.Ed. colleges of Kanyakumari District, Tamilnadu, India.

Sample

The sample for the present investigation consisted of 100 student teachers selected from a College of Education in Kanyakumari district.

Tools Used

A tool is a data gathering device or procedure used for research investigation (Best & Kahn, 2005). Tools are used to collect relevant information of a research problem. They can be used for gathering both quantitative as well as qualitative data. Different kinds of tools whether self-made ones or standardized ones can be used for measuring the variables involved in the study. A research tool should have the characteristics such as validity and reliability.

The investigator has used two tools they are Mobile Learning Questionnaire and Personal data sheet.

Statistical Techniques Used

The following statistical techniques were used to test hypotheses.

- Mean

- Standard deviation

- t-test

- Correlation

Tool Construction

The collection of data is an important part of research. For collecting the data, the investigator needs a tool.

Validity

Validity is defined as the extent to which a test measures what it is intended to measure. It is used to determine whether the inferences about test scores are accurate (Santrock, 2006).

Content Validity

What has been called as "content validity" is employed in the selection of items in educational achievements and in many trade tests (Garrett, 2005). For establishing the content validity of the tool, it was given to three experienced professors. With the help of them, the coverage of the content was checked.

Then it was given to two senior professors. On the basis of their suggestions, corrections and modifications were made in the tool in the construction of questions. Thus the content validity of the tool was established.

Item Analysis of Mobile Learning Questionnaire

For establishing the item validity of the tool, it was administered among 60 student teachers in a College of Education selected from Kanyakumari District for item validation. The answer sheets of all the 60 student teachers were evaluated.

Item Analysis

Item analysis is an important phase of test construction. Through this, items can be analysed qualitatively in terms of their content and form, and quantitatively in terms of their statistical properties. Qualitative analysis includes the consideration of content validity and the evaluation of items in terms of effective item writing procedure. Qualitative analysis, on the other hand, includes principally the measurement of item difficulty and item discrimination. Both the validity and reliability of any test depend ultimately on the characteristics of its items. High validity and reliability can be built into a test in advance through item analysis. The items included in the draft scale were analyzed quantitatively by using the procedure narrated by Anastasi and Urbina (2009).

The Procedure of Validating the Items of Mobile Learning Questionnaire

For each subscale, item analysis was done as mentioned earlier by considering discriminative index and difficulty level were calculated as follows: the response sheets were arranged in the descending order. The top 20 (33%) were taken as upper group (U). The next 20 (33%) were considered as medium group (M). The remaining 20 (33%) belonged to the lower group (L).

For each item, the number of students who marked the 'keyed' response (those getting a score of 4 or 5) was counted. Similarly, the number of students marking the keyed answer was counted in the other groups also.

As a measure of difficulty index, a total number of students marking the keyed answer in the total sample of 60 (U+M+L) was taken. (U-L) was considered as the discriminative power for each item. The details of item analysis is presented in Table 1.

Item Selection

The items having average difficulty index and high

Item No.	Upper (U) 20	Middle (M) 20	Lower (L) 20	Discrimination (U-L)	Difficulty (U+M+L)
1*	15	18	07	08	40
2*	17	09	11	06	37
3*	15	10	03	12	28
4	13	11	10	03	34
5*	16	08	05	11	29
6*	15	12	05	10	32
7*	19	16	05	14	40
8	15	10	12	03	37
9*	18	14	06	12	38
10*	19	16	10	09	45
11*	16	09	05	11	30
12*	14	13	06	08	33
13*	15	12	10	05	37
14*	18	13	13	05	44
15	18	18	15	03	51
16*	19	16	07	12	42
17	14	12	12	02	38
18*	17	18	04	13	39
19*	19	09	08	11	36
20*	14	10	08	06	32
21*	14	10	08	06	32
22*	12	16	01	11	29
23*	20	18	05	15	43
24*	14	13	04	10	31

*Marked items were selected.

Table 1. Details of Item Analysis for Mobile Learning Questionnaire

discriminating power were selected, and included in the final scale. Thus out of 24 items, 20 were selected for the final tool.

Reliability

Reliability is based on the notion that there is some sense of uniformity in what is being measured and that methods need to consistently capture what is being explored. It is thus the extent to which a measure, procedure or instrument provides the same result on repeated trials (Leary, 2005).

The reliability of Mobile Learning Questionnaire was established by split-half method. Split-half reliability refers to the correlation within a single test of two similar parts of the test (Jain, 2003).

In the split-half method, the whole items are divided into two sets by considering all the odd numbered items as a set and the even numbered items as a separate set. If the two sets of scores were highly correlated with each other, this can be taken as the evidence of the index's reliability. Thus the test was divided into two equivalent halves and the correlation (r) was found for this half-test using Karl Pearson's formula and the value of r was found to be 0.69.

From the self-correlation of the half-test, the reliability coefficient of the whole test (r') is given by the Spearman-Brown prophecy formula (Garrett, 2005). The value of r' was found to be 0.82 which indicates that the tool is highly reliable (Best & Kahn, 2006).

Scoring Procedure of Mobile Learning Questionnaire

The draft tool consisted of 24 items with eight sections. Each item had given responses, viz., Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD). For the purpose of scoring, numerical values were assigned. For each positive item, the assigned score was 5 (SA), 4 (A), 3(U), 2 (D), and 1(SD). For a negative item, the score was reversed as 1(SA), 2(A), 3 (U), 4(D), and 5(SD). For each student, scores were found out.

Framing the Final tool of Mobile Learning Questionnaire

The final tool of Mobile Learning Questionnaire had 20 items. The items were neatly printed and administered to the student teachers to record their opinion. Thus the final tool is done for the present study.

Description of Data Collection

The investigator visited the selected College with the permission of Head of institution. After self introduction, the investigator administered the tools with clear instructions to the students. Sufficient time was given to the students for proper responding.

Analysis and Interpretation

Comparison of mobile phone users and others in mobile learning as a learning style among student teachers

The mobile phone users and others in mobile learning as a learning style among student teachers were compared using t test. The details are presented in Table 2.

Table 2 indicated that 60 Mobile Phone Users and 40 other student teachers who did not use mobile phones were compared for the variable mobile learning using t test. The mean and standard deviation obtained by Mobile Phone Users were 67.38 and 12.43 and the corresponding values obtained by others were 55.25 and 12.51 respectively. The t obtained was 4.77, which was significant at 0.05 level.

On the basis of the above Table 2, Hypothesis that, "There is no significant difference between mobile phone users and others in mobile learning as a learning style among student teachers" was rejected.

Comparison of mobile phone users and others in mobile learning as a learning style among student teachers

The mobile phone users and others in mobile learning as a learning style among student teachers were compared using t test. The details are presented in Table 3.

Table 3 indicated that 60 Mobile Phone Users and 40 other student teachers who did not use mobile phones were compared for the variable Academic Achievement using t test. The mean and standard deviation obtained by Mobile

Groups compared	N	M	SD	SEM	t	Level of significance
Mobile Phone Users	60	67.38	12.43	1.6	4.77	0.05
Others	40	55.25	12.51	1.98		

Table 2. Data and results of t test for comparison of mobile phone users and others in mobile learning as a learning style among student teachers

Groups compared	N	M	SD	SEM	t	Level of significance
Mobile Phone Users	60	70.53	12.31	1.59	5.38	0.05
Others	40	56.28	13.91	2.2		

Table 3. Data and results of t test for comparison of mobile phone users and others in Academic Achievement among student teachers

Phone Users were 70.53 and 12.31 and the corresponding values obtained by others were 56.28 and 13.91 respectively. The t obtained was 5.38, which was significant at 0.05 level.

On the basis of the above Table 3, Hypothesis that, "There is no significant difference between mobile phone users and others in academic achievement among student teachers" was rejected.

Correlation between Mobile Learning and Academic Achievement

The correlations between the variables mobile learning and academic achievement was calculated using Product-moment method. The result was given in Table 4.

Table 4 indicated that the correlation between mobile learning and academic achievement obtained on a sample of 100 student teachers was found to be 0.49. This positive correlation is significant at 0.05 level of probability indicating that there existed significant correlation between the two variables. Verbal interpretation showed that the correlation coefficient had marked correlation.

On the basis of the results given in the Table 4 the hypothesis that "There is no significant correlation between mobile learning and academic achievement among student teachers in mobile learning as a learning style" was rejected.

There is a positive marked correlation between Mobile Learning and Academic Achievement of the student teachers.

Correlation between Mobile Learning and Academic Achievement of Mobile users

The correlations between the variables mobile learning and academic achievement of Mobile Users was calculated using Product-moment method. The result was given in Table 5.

Table 5 indicated that the correlation between mobile learning and academic achievement of Mobile Users obtained on a sample of 100 student teachers was found to be 0.52. This positive correlation is significant at 0.05 level of probability indicating that there existed significant correlation between the two variables. Verbal

interpretation showed that the correlation coefficient had marked correlation.

On the basis of the results given in the Table 5 the hypothesis that "There is no significant correlation between mobile learning and academic achievement of mobile users among student teachers in mobile learning as a learning style" was rejected.

There is a positive marked correlation between Mobile Learning and Academic Achievement of Mobile Users among the student teachers.

Correlation between mobile learning and Academic Achievement of Others

The correlations between the variables mobile learning and academic achievement of others was calculated using Product-moment method. The result was given in Table 6.

Table 6 indicated that the correlation between Mobile Learning and academic achievement of others obtained on a sample of 100 student teachers was found to be 0.15. This positive correlation is significant at 0.05 level of probability indicating that there existed significant correlation between the two variables. Verbal interpretation showed that the correlation coefficient had negligible correlation.

On the basis of the results given in Table 6 the hypothesis that "There is no significant correlation between mobile learning and academic achievement of others among student teachers in mobile learning as a

Variables Correlated	N	r	Verbal interpretation of r
Mobile Learning and Academic Achievement	100	0.49	Marked correlation

Table 4. Correlation Between Mobile Learning and Academic Achievement

Variables Correlated	N	r	Verbal interpretation of r
Mobile Learning and Academic Achievement of Mobile Users	100	0.52	Marked correlation

Table 5. Correlation Between Mobile Learning and Academic Achievement of Mobile Users

Variables Correlated	N	r	Verbal interpretation of r
Mobile Learning and Academic Achievement of Others	100	0.15	Negligible correlation

Table 6. Correlation Between Mobile Learning and Academic Achievement of others

learning style" was rejected.

There is a positive negligible correlation between Mobile Learning and Academic Achievement of Mobile Users among the student teachers.

Findings

The major findings of this paper are

- There is significant difference between mobile phone users and others in mobile learning as a learning style among student teachers.

- There is significant difference between mobile phone users and others in academic achievement among student teachers.

- There is significant correlation between mobile learning and academic achievement among student teachers in mobile learning as a learning style.

- There is significant correlation between mobile learning and academic achievement of mobile users among student teachers in mobile learning as a learning style.

- There is significant correlation between mobile learning and academic achievement of others among student teachers in mobile learning as a learning style.

Recommendations to Educational Institutions

Educational institutions will should provide the facilities to learners to use mobile technology in their learning environment. Also they should be provided advance network (wifi) for mobile learning in their institutions. The information and keynotes should be sent to them by internet, e-mail, SMS, MMS and etc. This will help the students to participate whole heartedly in their learning and the learning can take place informally.

Conclusion

Evolution of new expertise and approaches will be necessitated to maximize the development of mobile learning in modern research practice as a learning style. Shifting from teacher-centered to student-centered classroom environments, m-learning may perform a consequential role in increasing the teaching and learning process. The findings of this paper show that the mobile technology takes an essential role in education. The correlation between mobile learning and academic achievement show that mobile users are better than others. Thus in the present investigation, the researcher concluded that mobile learning as a learning style will increase the academic achievement among student teachers.

References

[1]. **Alexander, B. (2004).** Going Nomadic: Mobile Learning in Higher Education. *Educause Review,* 39 (5), 28-35.

[2]. **Santrock, John. W. (2006).** *Educational Psychology.* New Delhi: Tata McGraw-Hill Publications.

[3]. **Best, J.W., & Kahn, J.V. (2005).** *Research in education* (8th ed.). New Delhi: Prentice Hall of India.

[4]. **Best, J.W., & Kahn, J.V. (2006).** *Research in education* (9th ed.). New Delhi: Prentice Hall of India.

[5]. **Garrett, Henery E. (2005).** *Statistics in psychology and education.* New Delhi: Paragon International Publishers.

[6]. **Leary, Zina. O. (2005).** *The essential guide to doing research.* New Delhi: Vistaar Publications.

[7]. **Jain, Atul. (2005).** *Computer in education*. New Delhi: Isha books.

[8]. **Anastasi., A. & Urbina, S. (2009)**. *Psychological testing.* New Delhi: Prentice Hall of India Pvt. Ltd.,

[9]. http://www.acu.edu/technology/mobilelearning/spotlights/program_spotlights/iphone_first.html

[10]. http://www.ericsson.com/ericsson/corpinfo/programs/incorporating_mobile_learning_mainstream.pdf

[11]. http://mobile2012.org/mobile learning/

[12]. http://www.acu.edu/technology/mobilelearning/index.html

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