

Prospective Teacher's Attitude towards Mobile-Learning: A Quantitative reflection through Gender and Locality

Prof. (Dr.) Mahadeb Chattopadhyay¹, Prof. Pallabi Banerjee²

ABSTRACT

In the post COVID-19 Pandemic Learning-Teaching process becomes very easy through the application of mobile devices and related technology to get various learning resources, to connect with learners and teachers, or create content materials for better learning. Mobile-learning involves the application of education software through the mobile technology, either individually or in-collaboration with other human resources or technological resources to enable learning anytime and anywhere. The present study has been conducted with the main objectives to know the prospective teachers' attitude towards mobile learning in relation to two categorical variables e.g. gender and locale. The data were collected randomly by selecting 152 prospective teachers through using 'Mobile Learning Attitude Scale' by S. Raja Kumar. The sample consisted of 46.71% male and 53.29% female prospective teachers; 55.26% prospective teachers belonged to rural areas and 44.74% prospective teachers belonged to urban areas. Descriptive statistical measures e.g. mean, standard deviation and inferential statistics in other words, t-test and ANOVA were used. All hypotheses were tested at 0.05 level of significance. The findings showed that attitude towards mobile among rural prospective teachers significantly differed from urban prospective teachers ($t=4.41$, $p=0.00$) but there was no significant difference observed in gender variation. The result of the present study will be helpful to improve the quality of learners for better learning through ICT integration or in other words mobile technology. The results also suggest that teacher education institutions in the study population area should incorporate structured teaching and training on mobile-learning integration within the curriculum. Special attention should be given to bridging the digital divide between urban and rural prospective teachers by providing equal access to technological resources; digital skill development programs may also be introduced. Workshops, seminars and hands-on training sessions can enhance digital competence and positive attitudes among prospective teachers. At the pre-service level, providing best atmosphere for mobile-learning will contribute to effective technology-integrated pedagogy in 21st Century's classrooms.

Keywords: *Prospective Teacher, Attitude, Mobile learning, Gender, Locality*

Author(s):

¹Professor in Education,
P.G. Department of Teacher Education
Balurghat B.Ed. College (Autonomous) Mangalpur,
Balurghat, Dakshin Dinajpur-733101, West Bengal, India
Mobile Number-7001966977,
Email- educhemchatterjee@gmail.com

²Assistant Professor, B.Ed. Department
Raipur Rabindra Vivek B.Ed. College Sapor,
Chandrahati, Purba Bardhaman-713407, West Bengal, India

1. INTRODUCTION

“We need to bring learning to people instead of people to learning.”

–Elliot Masie

In the post-pandemic COVID-19 student and teachers become mostly dependent on mobile technology from day to night. With the advancement of civilization, we are now with the full of new innovation in technology. The old system of learning is ended in the classroom instruction and the modern learning system is coming to fill the gap. Gradually, both the formal and informal educational institutes try to adopting full of innovative technology in teaching learning, and consequently, education becomes available and pleasant to the learners and also the teachers. A study in Uttarakhand Open University reported that students of Open and Distance education are more comfortable in using mobile technology and computer for surfing internet and websites (Pande, 2018).

In this digital age, learning with mobile technology e.g. m-learning has opened the doors for a new possibility of learning in front of school and higher education students. The students are now able to know and understand various academic contents through m-learning as per their need. Mobile learning is the self-paced learning by which students can fulfil their academic needs easily and teachers can easily give the instruction to the students. The concept and application of mobile learning is worldwide accepted.

From the past research works it is reflected that several discrimination has been found in the application of mobile technology and devices for higher education in India and abroad. M-learning is very important for the students because they have to keep them up-to-date by gathering the daily news of recent educational changes in the world. In addition to those who are somewhat conservative or alien, the modern minded students favour more and proper use of m-learning. Keeping in view, the rapid progress of current technology in the world, the benefits of using mobile-learning in higher education and school education is gradually increasing. In India, the low-cost m-learning is even more useful in the present scenario. Even for foreign language learning smart phone is also useful due to instant, affordable fast access of relevant information (Yurdagul & Oz, 2018). Sometimes, Science, Information Technology and Social Science lesson can be better understood with the help of mobile device and related technology (Korucu & Bicer, 2018). Moreover, it is easy to shift from traditional to modern learning systems through the fast access of mobile learning technology as quickly as possible.

1.1. Rationale of the Study

- a) Mobile learning has become a very important part in modern education system because of the rapid growth of smartphones and internet facilities (Traxler, 2007).
- b) It is noteworthy that the attitude of prospective teachers influences the effective integration of mobile technology in teaching–learning processes (Teo, 2011)
- c) Locality (rural and urban background) and gender may also affect access to technology and perception towards mobile-learning. Differences in technological usages and socio cultural contexts may create variation in attitude towards technology adoption (Venkatesh, 2003).

- d) A quantitative study helps in measuring and comparing attitudes of prospective teachers in an objective and statistical way.
- e) The findings may help policymakers and teacher educators in planning inclusive and technology-friendly education strategies.

1.2. Objectives of the study:

O1: To compare the mobile-learning attitude among prospective teachers in gender variation.

O2: To compare the mobile-learning attitude among prospective teachers in locale variation.

1.3. Hypotheses:

H₀₁: There is no significant mean difference of mobile learning attitude between male and female prospective teachers.

H₀₂: There is no significant mean difference of mobile learning attitude between rural and urban prospective teachers.

2. LITERATURE REVIEWS

Basri & Husain (2025) conducted a quantitative survey to investigate the extent of smart phone use by the university students for m-learning, the majority of students actively used smartphones to accessing learning materials easily, engaging in online tasks, and better communication with teachers and peers. The study of Sharma (2024) revealed that students had fair knowledge and concept about mobile-learning and they had used mobile for various purposes including learning. The study of Bihari and Gupta (2024) revealed that for mobile learning to be successfully implemented and used in senior secondary schools, it is important to comprehend the elements that affect instructors' attitudes towards it. A study of Dey (2024) revealed that a rural postgraduate student's attitude towards mobile learning significantly differs from urban students. The study also reflects that learning through mobile has a significant positive impact on urban students than rural areas. Bag (2024) conducted a study on mobile learning attitude which shows no difference in attitude between the male and female UG and PG students but a significant difference in mobile learning attitude observed between the UG and PG students of MPC Autonomous College and Maharaja Sriram Chandra Bhanj Deo University of Baripada town in Mayurbhanj district. The research conducted by Chauhan (2024) examines m-learning using mobile devices to determine students' opinions in various dimensions of mobile techniques and perceive the viability of mobile technologies for academic and social purposes. Pham and Truong (2023) employed the qualitative as well as quantitative research work to investigate the attitude towards mobile learning among students in higher education in Vietnam by using questionnaire and semi-structure interview and they reported that maximum students had high learning attitude in mobile technology for learning. The study of Salheb (2023) recommended that higher education institutions adhere to a set of guiding principles when creating m-learning policies and they should customize the m-learning environment with higher levels of interactivity to meet students' needs and learning styles to improve their attitudes towards m-learning. Rysbayeva & others (2022) conducted a qualitative research with semi structure

interview on mobile learning attitude among 80 students and they found that mobile learning application are using frequently by maximum numbers of students. Students' opinion are that mobile learning facilitates the learning and motivation. The survey of Yosiana (2021) revealed the implementation of mobile learning on learning is a productive way of conveying mathematical content and able to transmit independence for students to comprehend the subject well. Alaspure (2021) reported that students of physical education background from urban area are more inclined towards mobile learning than students from rural areas. The study of Vo (2020) explored teachers' positive attitudes towards mobile technology as they accept mobile technology in teaching English at University level. Moreover, designing and experimenting mobile literacy should be managed for students to approach the notable convenient learning at higher education like University level and in other localities. Shahi (2019) conducted a research on the attitude of BSN students towards mobile learning and found that the students had good knowledge on mobile-learning and they had used mobile for various purposes including learning. The study of Alblowi (2019) showed that the construct of attitudes was positively and remarkably related to m-learning adoption with various recommendations that could be implemented by educators and policy makers in Saudi Arabia. According to Mondal (2018) the college students' attitude in Bankura district of West Bengal is satisfactory or average in mobile learning attitude. Gupta and Vishwakarma (2017) showed that in foreign countries the teachers and students have positive attitude towards Mobile Learning and the similar results found in our country also. Senthilkumaran and Muthaiah (2017) conducted a study on prospective teacher's attitude towards mobile learning. The result showed that female prospective teachers are frequent users of mobile learning. Sudakaran & Pachaiyappan (2017) conducted a study which revealed that the students of B.Ed. colleges located in urban areas have a higher attitude towards M-learning compared to B.Ed. students from rural areas, moreover the Science Stream B.Ed. students have a high attitude towards M-learning compared to Arts Stream B.Ed. students. Serin (2012) studied the level of mobile learning among prospective teachers in Turkish Republic of Northern Cyprus on the basis of gender.

2.1. Critical observation from Literature Review:

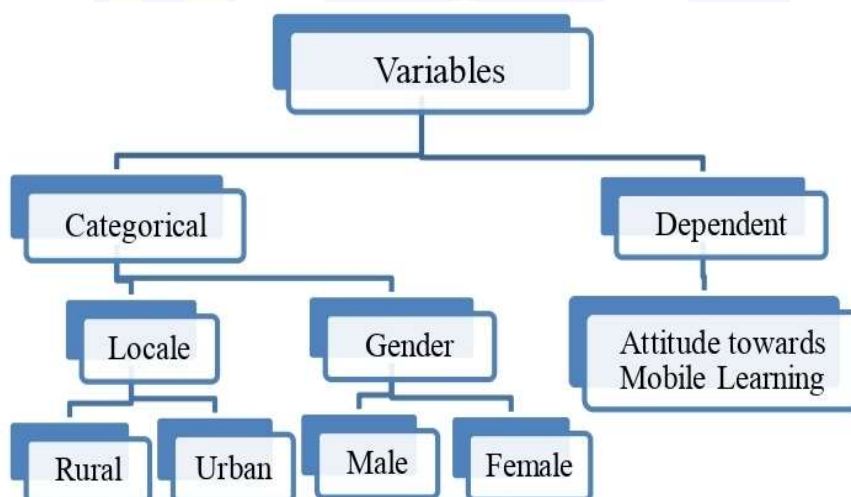
It is found from the extensive reviews of literature on mobile learning that various qualitative and quantitative research work have been carried out by different researchers with taken the major variable in other words mobile learning attitude. Researchers from the different part of our country India and abroad conducted their research on mobile learning attitude with variety of target sample like, Senior secondary students, UG and PG students, College students, BSN students, Physical education students, B.Ed. students, and University students. Previous studies adopted different data collection tools and techniques e.g. questionnaire, interview, scale etc. Mai (2015) performed a study on attitude of school teachers towards mobile learning technology in Malaysia. Similarly, Mondal (2021) investigated the attitude of post-graduate students towards the use of mobile technology and smart phone. There has been very limited research work carried out on mobile learning attitude of prospective teachers as target sample in West Bengal. There is no such research work on mobile learning attitude which has been conducted by any researcher with the prospective teachers in Paschim Burdhaman district selected as population of study. Baek., et al. (2017) conducted a study on mobile learning attitude among Korean school teachers in variation of gender, school levels, teaching experience and subject taught. Al-Emran

and Shaalan (2015) investigated the mobile learning attitude of learners and educators in higher education. Hence, after critical evaluation of different related literatures, researchers took the problem as the study as mobile learning attitude of prospective teachers in gender and locality variations in Paschim Bardhaman district in West Bengal.

3. METHODOLOGY

3.1. Variables

- Major Variables (Dependent Variable-
 - Attitude towards Mobile-Learning
- Categorical Variables-
 - Locale (Rural and Urban)
 - Gender (Male and Female).



3.2. Population

This study was conducted in the B.Ed. colleges of Paschim Bardhaman District of state West Bengal. All the prospective teachers are belongs from secondary teachers' training institutions in Paschim Bardhaman district, the institutions are recognized by NCTE and affiliated to BSAEU, considered as the population of present study.

3.3. Sample

Samples were selected from different B.Ed. colleges in Paschim Bardhaman district randomly. The sample was comprised of male prospective teachers and female prospective teachers from both rural and urban areas. Samples were drawn from 5 Self-financed B.Ed. colleges. From these colleges total 182 prospective teachers were selected. It is found that 152 prospective teachers comprised the actual sample.

3.3.1 Sample Frame

Among 152 prospective teachers, rural= 84 & urban= 68; male= 71 & female= 81 prospective teachers were given the actual data.

Gender and locale wise distribution of sample are given in table-1 and figure-1 below.

Table-1: Locale and Gender wise structure of sample

Variable	Category	Frequency	Percentage (%)
Gender	Male	71	46.71%
	Female	81	53.29%
Locale	Rural	84	55.26%
	Urban	68	44.74%
Total		152	100%

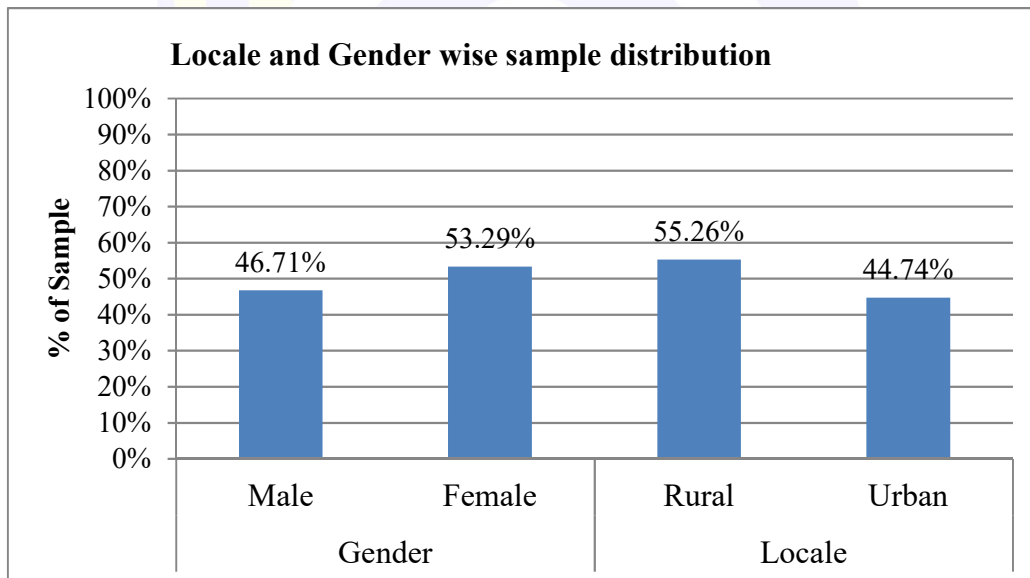


Figure-1: Graphical presentation of sample

3.4. Tools used

A Standardized tool was employed for the collection of data mentioned below-

Mobile Learning Attitude Scale (2016)- developed by P. Pachaiyappan and S. Raja Kumar.

This scale is a self administering and self reporting scale.

3.4.1 Description of Tool

The scale consists of 62 items. Respondent can put a tick mark on a single option against each item and not to keep any item blank. There are 5 options for each item in the scale as Strongly

Disagree, Disagree, Undecided, Agree and Strongly Agree respectively and scoring varies from 1 to 5 for each positive items. The order is reversed for the negative items. The method of answering the questions was according to 5 degree Likert.

Table-2: Serial Number wise distribution of items in Scale

Sl. No	Type of Items	Sl. No of Items	Total
I.	Positive	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15, 16,17,18,19,20,21,22,23,27,28,30, 32,33,34,35,36,37,38,40,45,46,47, 48,50,52,53,54,55,56,58,59,60,61,62	49
II.	Negative	24,25,26,29,31,39,41,42,43,44, 49,51,57	13
Total Items			62

3.4.2. Scoring Pattern:

The sum of scores on all statements of single respondent is considered as respondent's overall attitude towards mobile learning. Raw score on the test can range from 62 to 310 reflecting extremely negative attitude to extremely positive attitude towards mobile learning.

Table-3: Scoring of items in Scale

Nature of items	SD	D	UD	A	SA
Positive	1	2	3	4	5
Negative	5	4	3	2	1

Note: SD-Strongly Disagree, D- Disagree, UD-Undecided, A-Agree, SA-Strongly Agree

3.4.3. Validity, Reliability and Norms:

The content validity was checked and established by i) expert's opinion, review and through selection/ rejection of items, ii) Item Analysis applied on large sample.

The reliability was established by calculating i) Cronbach's alpha $r=0.94$, ii) Split-half (odd-even) method. The r found was 0.86.

Norms was established on the basis of calculated z-scores.

3.5. Statistical Treatment

- Descriptive Statistics: Mean, Standard Deviation (SD), Standard Error (SE)
- Inferential Statistics : t-Test

3.6. Software used

The raw data collected from the respondent were tabulated in MS excel 2010 and analysed by using IBM SPSS 22.00.

4. ANALYSIS AND INTERPRETATION

4.1. Data analysis for Objective-1

O1: To compare the mobile-learning attitude among prospective teachers in gender variation.

Testing of Null Hypothesis-1 (H_{01}):

H_{01} : There is no significant mean difference of mobile learning attitude between male and female prospective teachers.

The result is presented in the table-4 below.

Table-4: Group statistics of attitude towards mobile learning in gender variations

Categorical variable		N	Mean	S.D	SE of Mean
Gender	Male	71	244.97	22.003	2.611
	Female	81	240.17	23.502	2.611

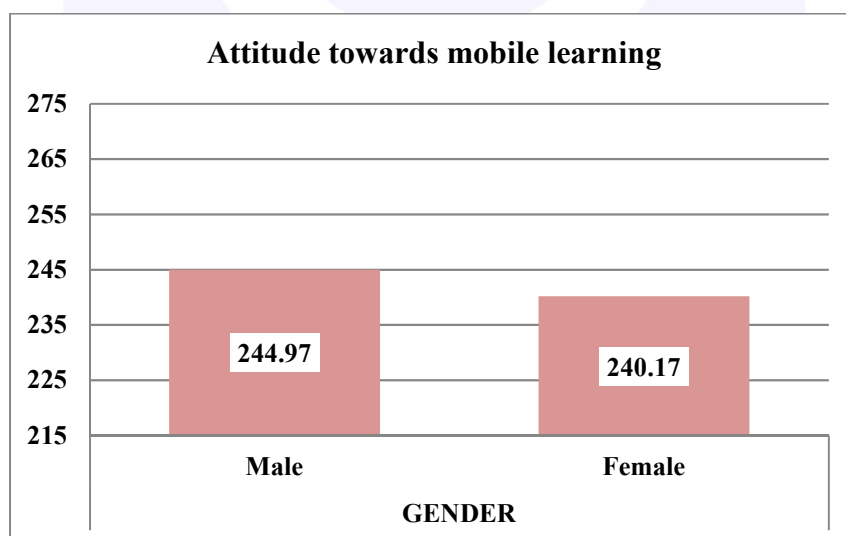


Figure-2: Column graph _ Mean value of attitude towards mobile learning _ Gender wise

Table-4 depicted that there is a difference in the means value and standard deviation between male teachers and female teachers shown in the figure-2. Therefore, the independent sample t-test was employed.

Table-5: Independent sample t-test assuming equal variances

Categorical Variable	t-test for equality of means			
	t-stat	df	t-critical	Sig. (2-tailed)
Male vs Female	1.29	150	1.97	0.197

At 0.05 level

Interpretation:

It is observed from the result given in table-4 that the mean attitude score of male teachers is more than the female teachers towards mobile learning. In contrary to that table no-5 the calculated t-value for comparing the mean value of mobile learning attitude between male teachers and female teachers is 1.29 and p value is 0.197 (p greater than 0.05). Hence, t value is not significant at 0.05 level. So, the H_{01} is not rejected. So, the concluding remark for H_{01} is that the mobile learning attitude of prospective teachers (Celik and Karayaman, 2018) is not significantly differing in gender variation.

4.2. Data analysis for Objective-2

O2: To compare the mobile-learning attitude among prospective teachers in locale variation.

Testing of Null Hypothesis-2 (H_{02}):

H_{02} : There is no significant mean difference of mobile learning attitude between rural and urban prospective teachers.

The result is presented in the table-6 below.

Table-6: Group statistics of attitude towards mobile learning in locale variations

Categorical variable		N	Mean	S.D	SE of Mean
Locale	Rural	84	235.27	24.660	2.690
	Urban	68	251.78	20.604	2.498

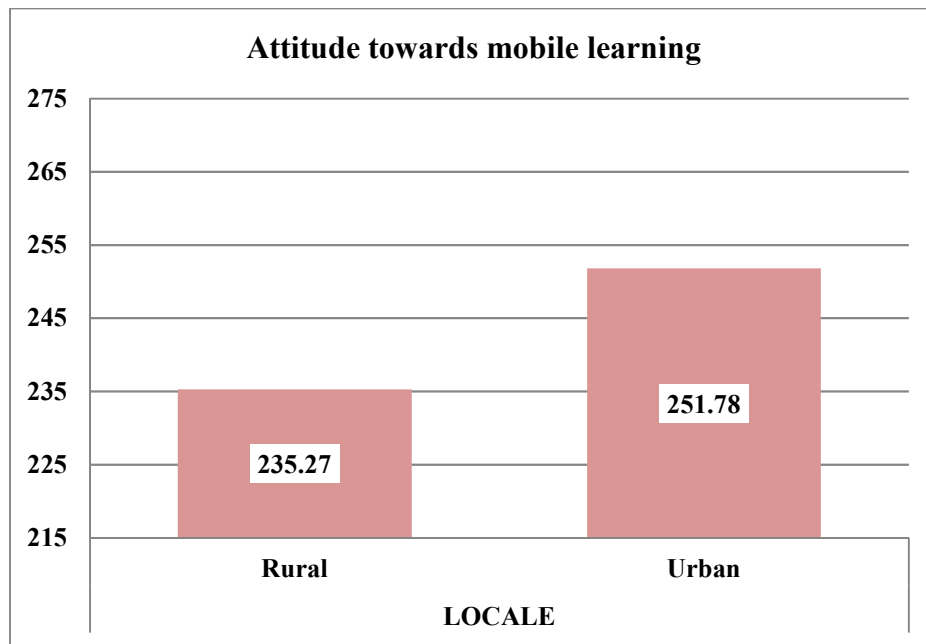


Figure-3: Column graph _ Mean value of attitude towards mobile learning _ Locale wise

Table-6 depicted that there is a difference in the means value and standard deviation between rural teachers and urban teachers shown in the figure-3. Therefore, the independent sample t-test was employed.

Table-7: Independent sample t-test assuming equal variances

Categorical Variable	t-test for equality of means			
	t-stat	df	t-critical	Sig. (2-tailed)
Rural vs Urban	4.41*	150	1.97	0.00

*At 0.05 level

Interpretation:

It is observed from the result given in table-6 that the mean value of urban prospective teachers is more than the rural teachers towards mobile learning. In contrary to that table no-7 the calculated t-value for comparing the mean value of mobile learning attitude between rural teachers and urban teachers is 4.41 and p value is 0.00 (p lesser than 0.05). Hence, t-value is significant at 0.05 level. So, the H_0 is rejected. . So, the concluding remark for H_0 is that the mobile learning attitude of prospective teachers significantly differed in locale variation.

4.3. Fate of Hypotheses:

Table-8: Fate of hypothesis (Objective wise)

Objectives	Hypotheses	't' value	Inference
O1: To compare the mobile-learning attitude among prospective teachers in gender variation.	Ho1: There is no significant mean difference of mobile learning attitude between male and female prospective teachers.	$t=1.29\#$; $p=0.197$	H ₀₁ Accepted
O2: To compare the mobile-learning attitude among prospective teachers in locale variation.	Ho2: There is no significant mean difference of mobile learning attitude between rural and urban prospective teachers.	$t=4.41^*$; $p=0.00$	H ₀₂ Rejected

*Indicate significant and # indicate insignificant

4.4. Major Findings:

1. There was no significant mean difference ($t= 1.29$, $p= 0.197$) in mobile learning attitude of prospective teachers in gender variation.
2. There exists a significant difference ($t= 4.41$, $p= 0.00$) in mobile learning attitudes between rural and urban prospective teachers.

4.5. Conclusion & Suggestion for further research:

4.5.1. Conclusion:

The findings showed that the attitude of prospective teachers towards mobile learning (Celik and Karayaman, 2018) differs in locale variation but not in gender variation. This result also reflects that majority of the rural prospective teachers are either unaware about the use of mobile technology (Tighe, 2016) in the learning-teaching process or they are not updated with the digital mobile technology in the target population area. The attitudes of prospective teachers (Celik and Karayaman, 2018) from urban areas are higher which indicates they are aware and updated with mobile technology in Paschim Bardhaman district. So day-to-day the learning using mobile is becoming widespread. And hopefully its use in the future will be even more. The use of mobile technology (Tighe, 2016) is not limited only in higher education but its usage at all levels of education will be acceptable and rewarded with respect. Findings give a direction towards the usability and access of mobile technology (Tighe, 2016) so that prospective teachers realize the

significance of mobile learning in education. If the prospective teachers are aware about the positive impacts of mobile technology in learning-teaching then they recommend it for fruitful learning to the future learners.

4.5.2. Suggestion for future research:

1. This study can be undertaken with other geographical population and with regards to other demographic variables too.
2. Research can be conducted on mobile learning attitudes among school students studied in open & distance mode.
3. Future Research can be conducted on mobile learning attitudes among under graduate and post-graduate students.
4. Similar research can be conducted across different levels of school students with larger sample drawn from diverse geographical locations in India and abroad.
5. This research can be replicated by adopting qualitative methods from variety of respondent and that could support these quantitative findings with qualitative results for more authentic outcome.

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