

## HIGHER EDUCATION THROUGH MOBILE LEARNING: AN ANALYSIS OF STUDENTS FROM KOLKATA

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### ABSTRACT

Technologies have significantly changed the transition mode and the way of delivery in education. From the traditional chalk and talk to the multicoloured PPT slides, from the shabby class rooms to the modern-Vsat classrooms. With the high penetration of mobile phones, yet another medium of delivering educational content have come to existence. The advancement in mobile networks, smart phones, 3-G technology and the privatization of the telecom sector have opened many avenues for mobile learning (M-learning). Some renowned universities have started or have made strategic partnerships with mobile service providers to start this type of services for their distance education department. IGNOU is to offer content on mobile phones for cyber law and software engineering. SNDT Women's University has formed an alliance with Tata Teleservices for mobile education in rural communities and Karnataka's Visvesaraya Technological University (VTU) is launching an e-learning platform via mobile phones. VTU has tied up with Nokia to deliver course content.

This paper attempts to analyse the M-learning environment and the student perceptions regarding such services by relevant exploratory research and by application of appropriate statistical techniques.

**Keywords :** Mobile phone, TRAI, Literacy level, M-learning, student perceptions, exploratory research

## INTRODUCTION

*‘We’ve been using TV and internet for delivering content, but the reach of mobile networks are even better,’- IGNOU, Vice-Chancellor V.N.Rajashekharan Pillai.*

The mobile phone, which did not exist fifteen years ago, has now become equally important to us like electricity and cooking gas. The satellite and the internet have ushered a technological revolution and in recent time’s mobile phone have added strength to this change. With the multiplication of mobile service providers (MSP’s), price competition resulting in lowering of tariff charges and availability of cheap handsets, mobiles have proliferated in all segments. Now the mobile phones are necessary not just for the corporate executives but for vegetable sellers, plumbers, electricians and all such workers. Today in remote villages not having proper roads, transportation or even basic sanitary infrastructure, people are at ease with the mobile phone.

The number of mobile users has long back surpassed internet users. According to Telecom Regulatory Authority of India (TRAI) the number of telephone connections during December 2008 stood at 384.79 million, of which wireless subscribers touched 346.89 million(GSM,CDMA and WLL) and the number is increasing at a phenomenal rate (CAG, Report No. CA 25 of 2008-9)<sup>1</sup>. Mobile handset manufacturers like Nokia, Motorola and Samsung have increased their capacities and marketing efforts. Similarly MSP’s have come up with better service, price and lot of value added services to gain market share and take opportunities of a fast growing market.

Mobiles are no longer just talking machines but have evolved to deliver features for music, radio, pictures, movies, map directions, games and many more. Mobile have become an equally power full media, if not more than the traditional medias and can be harnessed more actively to inform, instruct and entertain (Gibson, 1992)<sup>2</sup>. Mobiles are one of the fastest growing and adopted technologies across the world The reliance of end users on mobile phones for diverse uses like news, entertainment, railway PNR verification, mobile banking etc has been shaping it into a mass media with enormous potentiality and wide spread reach.

A decade ago mobile users were not even familiar with the concept of listening to music or watching video on their mobile. Mobile back then was a device only for communication. Slowly the colour handset was introduced capable of supporting not only monophonic ring tones but also polyphonic tones. Now mobiles can support a wide variety of music formats and various other multimedia applications. Mobiles have evolves from the bulky set giving very less battery back up to sleek touch phones with battery power lasting days. After TRAI permitted mobile operators to start General Packet Radio Service (GPRS), MSP’s got an opportunity to deliver many value added services like the mobile internet. Through the mobile internet subscribers could easily download content directly to their mobile.

Education and related content delivery through mobile have given birth to a new term - M-learning (Venkat, 2000)<sup>3</sup>. M-learning or mobile learning allows users to access information and learning materials thorough the use of mobile technology anytime and anywhere. Educations which are delivered through the distance mode or where students are already employed and are unable to attend class this technology have extended the reach of education (Brown, 2004)<sup>4</sup>. Employees on the job can use the M-learning to access training materials and information when they need it for just-in-time training. Educators and trainers on the other hand can also access learning resources from around the globe 24x7 to plan and deliver their lessons (Ashby,2004)<sup>5</sup>. The fundamental benefit of using wireless M-learning technology is to extend the reach to people who are living in remote locations where there are no schools, teachers, or libraries. Mobile phones can be used to deliver instruction and information to remote regions without having people

leave their geographic areas. Students and workers will not have to leave their families and jobs to go to a different location to learn or to access information. Manufacturers, agriculture workers, and others working in different sectors can access information to increase productivity and improve the quality of their products. People residing in remote communities can access health information to enhance their quality of life (Vavoula, 2005)<sup>6</sup>.

**CONCEPT OF EMPLOYEE COUNSELING**

Counseling is a process through which one person helps another by purposeful conversation in an understanding atmosphere. It seeks to establish a helping relationship in which the one counseled can express their thoughts and feelings in such a way as to clarify their own situation, come to terms with some new experience, see their difficulty more objectively, and so face their problem with less anxiety and tension. Its basic purpose is to assist the individual to make their own decision from among the choices available to them. (British Association for Counseling, Rugby 1989)

Employee counseling is a service offered by companies to their employees. Organizations that care for their employees are perceived as more meaningful and purposeful. Every organization has economic and social goals.

**CURRENT STATE OF MOBILE LEARNING**

Mobile learning have some definite plus points as illustrated in the following figure. Today and especially tomorrow-mobile phones will help students revise there syllabi, check their course material and try out test papers while on the move (Carr, 2000)<sup>7</sup>.

	<b>Classroom</b>	<b>E-Learning</b>	<b>M-Learning</b>
<b>Access</b>	Limited	24/7	24/7
<b>Quality</b>	Varied	Consistent	Consistent, Progressive
<b>Metrics</b>	Difficult	Difficult	Formal and Informal, Automatic, Anytime
<b>Retention</b>	Varied	Varied	High Retention, Personalized Learning.
<b>Relative Cost</b>	High	High	Currently Mid-Range, Decreasing.

Fig 1: Adapted from: “While I live, I learn”, Mobile Learning 2008

The year 2009 saw India’s first mobile phone mock test for MBA entrance exam called the “MAD-GK” which has been conceived by the Mumbai-based information technology firm Delta Technologies (Chaudhuri, 2009)<sup>8</sup>. The content was provided by education service provider Career Launcher and publisher Tata McGraw Hill. IGNOU will soon begin transmitting educational content in text, audio and video formats to students located in remote areas. “We’ve been using TV and Internet for delivering content, but the reach of mobile network is even better,” says IGNOU vice-chancellor V.N. Rajasekharan Pillai. According to IGNOU Project coordinator P.V.Suresh, the University has already

launched its SMS alert service to update students and presently the M-learning content for cyber law and software engineering modules are being prepared (Chaudhuri, 2009)<sup>9</sup>.

Other prestigious educational institutions like Karnataka’s Visvesaraya Technological University (VTU) are launching an e-learning platform via mobile phones.” We are doing this to help students utilize their spare time,” says VTU registrar K.V.A. Balaji. VTU have made a tie-up with Nokia to deliver course content which can be downloaded to cell phones from the university’s web server.” (Chaudhuri, 2009)<sup>10</sup>.

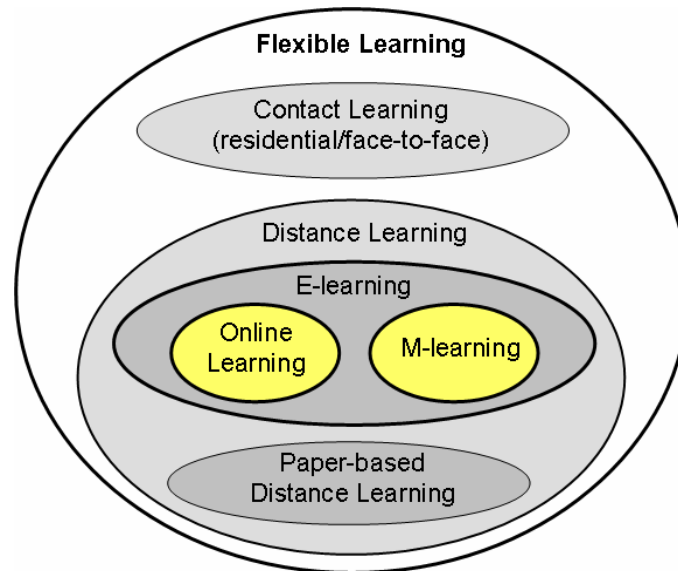


Fig 2: Types of Flexible learning (Adapted from JISC. 2005)<sup>11</sup>

**SIGNIFICANCE OF THE STUDY**

The study assumes significance for the following reasons :

1. Inaccessibility of the institution from the place the person resides.
2. Non-availability of the desired courses offered by the desired/most sought after institutions.
3. People who fail to join the conventional education for paucity of time.
4. People who have already been working with industry , to have the real feel of the mobile based delivery of education coupled with hands on experience in their specialized areas .

**OBJECTIVES OF THE STUDY**

1. To find the people respondents who are interested in M-learning mode of management education.
2. To find the reasons for preference of mobile based education compared to traditional method.

**HYPOTHESES**

- Ho 1:** Enrollment of M-learning is independent of educational qualifications of respondents.
- Ho 2:** Enrollment of M-learning is independent of professional background of respondents.
- Ho 3:** Enrollment of M-learning is independent of income of respondents.

**RESEARCH DESIGN**

This research was carried out with a sample base of 250 students from various back-grounds in terms of qualifications, age, sex, income and profession but all of them have made queries about management courses under distance education mode from two important IGNOU and Netaji Subhas Open University centers located at Kolkata. . Apart from the primary data, the secondary data has also been used which includes sources like journals, books, articles, web-resources etc. The study was exploratory in nature based on survey. A pre structured questionnaire was used to collect the primary data. In the questionnaire five-point Likert scale is used. Data collection was done in the month of July-September 2009. Time frame for survey and report generation was 68 days.

Data obtained through questionnaire survey have been analysed by using descriptive quantitative techniques like percentage, mean, standard deviation and non-parametric technique i.e. Chi-square test , Pearson two tailed bivartiate correlation test . However, for all the quantitative analysis SPSS 14.1 version has been used.

**DATA ANALYSIS**

To know the trend of management education preference by mobile-learning platform , the respondents profile has been studied in terms of their demographic as well as their economic criteria.

**Table 1: Descriptive statistics of Profile of Respondents**

Serial number	Description	Mean	Standard deviation	Total respondents
1	Gender	1.2680	0.4438	250
2	Age (25-35years)	2.312	1.0445	250
3	Educational qualification	3.148	0.997	250
4	Profession	3.22	1.0659	250
5	Income	2.08	0.9493	250

*Source: Primary data*

It is evident from the table that the average age group lies between 25-35 years with the standard deviation of 1.0445. The mean of the qualification is 3.148., which shows that majority of the respondents are graduates with the standard deviation of 0.997 , majority of the respondents’ profession is executives, and their mean score is 3.22 and standard deviation is 1.0659. The mean income is 2.08 , i.e., between Rs.10000-15000 with standard deviation of 0.9493.

Response pattern towards pursuing specific course can be understood from the tables given here under :

**Table 2: Awareness about M-learning courses**

Serial number	Particulars	Number of respondents	Percentage
1	Positive	199	79.6
2	Negative	51	20.4
	<b>Total</b>	<b>250</b>	<b>100.0</b>

**Table 3 : Preference pattern to opt for M-learning platform**

Serial number	Particulars	Number of respondents	Percentage
1	Positive	196	78.4
2	Negative	54	21.6
	<b>Total</b>	<b>250</b>	<b>100.0</b>

**Table 4: Type of Management course preferred on M-learning mode**

Serial number	Particulars	Number of respondents	Percentage
1	Certificate/Short-course	94	37.75
2	Diploma	102	40.81
3	UG	4	1.55
4	PG	50	19.89

**Table 5 : Preference to opt for management courses , if offered**

Serial no.	Preference	Number of respondents	Percentage
1	Yes	141	56.4
2	No	109	43.6
	<b>Total</b>	<b>250</b>	<b>100</b>

The findings from the above tables can be summarized as follows:

- 80% of the respondents are aware of the M-learning platform.
- 78% of the respondents are willing to opt for M-learning courses .
- 56% of the respondents are willing to take management courses on M-learning mode , if offered.

**DESCRIPTIVE STATISTICS OF RESPONDENTS OPINION TOWARDS M-LEARNING COURSES**

The table 6 shows the mean and standard deviation of the respondents opinion in terms of their inclination towards courses through M-learning platform.

**Table-6 : Descriptive statistics of respondents opinion towards M-learning courses :**

Serial no.	Descriptions	Mean	Standard deviation	Total respondents
1	Awareness of M-learning courses	1.204	0.403	250
2	Preference to take study on M-learning platform	1.216	0.4123	250
3	Courses preferred	2.032	1.0935	250
4	Preference for management courses	1.4378	0.4971	250

Following conclusions can be drawn from the findings as presented in the above table .

- Awareness level regarding the M-learning is quite high.
- Number of people willing to take courses through M-learning mode is quite high.
- There is the tendency of high deviation regarding choice of course through M-learning.
- Mean of preference of management course if offered through M-learning is above average.

**ASSOCIATION OF PROFILE OF THE RESPONDENTS**

The table -7 displays the result from the Pearson two-tailored bivariate correlation test using SPSS software . The Pearson bivariate test is a measure of the linear association of variables . Correlation measures how variables or rank order have been statistically related .

**Table-7: Bivariate correlation and coefficient result of the profiles of Respondents and Respondent opinion towards M-learning courses :**

		Gen Age der	Age	Qlfn.	Profes sion	Incom e	Awar eness	Prefer ence	Cours e prefer ence	Willin gness for Mgmt course
Gender	*	1.00	.070	.055	.002	-.042	-.037	.012	-.084	.012
	**		.269	.0385	.972	.513	.556	.855	.186	.848
	***	250	250	250	250	250	250	250	250	249
Age	*	.070	1.000	.102	.147*	-.001	-.009	-.083	-.121	.022
	**	.269		.108	.020	.988	.891	.194	.055	.728
	***	250	250	250	250	250	250	250	250	249
Qualification	*	.055	.102	1.000	.060	-.072	.034	.068	-.063	.128*
	**	.385	.108		.345	.257	.588	.281	.319	.043
	***	250	250	250	250	250	250	250	250	249
Profession	*	.002	-.147*	.060	1.000	.177* *	.035	.019	-.041	-.185* *
	**	.972	.020	.345		.005	.579	.761	.524	.003
	***	250	250	250	250	250	250	250	250	249
Income	*	-.042	-.001	.072	.177* *	1.000	-.043	.038	-.076	.049
	**	.513	.988	.257	.005		.501	.552	.231	.446
	***	250	250	250	250	250	250	250	250	249
Awareness	*	-.037	-.009	-.034	.035	-.043	1.000	.048	-.033	-.007
	**	.556	.891	.0588	.579	.501		.451	.603	.918
	***	250	250	250	250	250	250	250	250	249
Preference	*	.012	-.083	.068	.019	.038	.048	1.000	.065	.066
	**	.855	.194	.281	.761	.552	.451		.308	.299
	***	250	250	250	250	250	250	250	250	249
Course preference	*	-.084	-.121	.063	-.041	-.076	-.033	.065	1.000	.052
	**	.186	.055	.319	.524	.231	.603	.308		.0411
	***	250	250	250	250	250	250	250	250	249
Willingness to opt for Mgmt. course	*	.012	.022	.128*	-.185* *	.049	-.007	.066	.052	1.000
	**	.848	.728	.043	.003	.446	.918	.299	.411	
	***	249	249	249	249	249	249	249	249	249

SPSS 14.1 VERSION

\* Pearson correlation , \*\* Sig. ( 2-tailed ) , \*\*\* Number



**REASONS FOR ENROLLMENT IN M-LEARNING MANAGEMENT EDUCATION**

The table- 8 discusses the opinion of the respondents for enrolling in management education if offered by M-learning platform. To evaluate the reasons a five point Likert scale has been used. The scaling has been done as strongly disagree, disagree, no comment, agree and strongly agree. Following table (Table- 8) presents the percentage of response in each category.

**Table 8: Percentage of response in each category (Based on the Likert Scale feedback)**

Serial number	Issues	Strongly Disagree	Disagree	No comment	Agree	Strongly agree
1	Better fits schedule	10.4%	17.2%	21.6%	24%	26.8%
2	Flexibility of timing	13.6%	16.4%	38.8%	16.4%	14.8%
3	Location flexibility	4%	4.8%	28%	41.2%	22%
4	Affordable fees	4.8%	31.6%	28.8%	21.2%	13.6%

The analysis also reveals that in most of the cases the respondents shared their willingness to enroll in management programmes through M-learning platform as the mean value is more than 3 in all responses.

**Table 9: Descriptive statistics of reasons for enrollment of students**

Serial number	Statements	Mean	Standard deviation	Total respondents
1	Better fits schedule	3.396	1.3229	250
2	Flexibility of timing	3.024	1.2121	250
3	Location flexibility	3.7240	0.9898	250
4	Affordable fees	3.072	1.1242	250

Based on the above findings , the attempt has been made to explore the relationship of educational qualification, profession and income of the respondents surveyed under this research project. Following table (Table-10) shows the relationship in between educational qualification, professional background and income level and enrollment preference through M-learning. For the purpose above hypotheses have been tested by applying Chi-square test techniques respectively.

**Table 10 : Findings of Chi-square tests for determining relationship between M-learning and educational qualification , between Professional back-ground and M-learning ; Income and M-learning**

<b>Chi-square test for M-learning and Educational qualification</b>					
Serial no.	Description	Persons Chi-square value	Degrees of freedom	Asym P Sig ( 2 sided)	Significant / Not significant at 5% LOS
1	Better fits schedule	29.565	12	0.003	S
2	Flexibility of timing	91.748	12	0.000	S
3	Location flexibility	19.008	12	0.088*	NS
4	Affordable fees	64.099	12	0.000	S
<b>Chi-square test for M-learning and professional back-ground</b>					
1	Better fits schedule	114.681	12	0.000	S
2	Flexibility of timing	108.493	12	0.000	S
3	Location flexibility	97.497	12	0.000	S
4	Affordable fees	117.195	12	0.000	S
<b>Chi-square test for M-learning and income</b>					
1	Better fits schedule	31.468	12	0.002	S
2	Flexibility of timing	30.159	12	0.003	S
3	Location flexibility	96.234	12	0.000	S
4	Affordable fees	22.090	12	0.31	S

**S= Significant , NS=Not significant**

**FOLLOWING ARE THE REVELATIONS BASED ON CHI-SQUARE TESTS**

- As the Chi-square value of convenient location is found to be not significant at 5% level of significance , hence convenient location is independent of educational qualification. However, all other statements are dependent on educational qualification. Therefore, the Ho 1: ENROLLMENT OF M-LEARNING COURSE IS INDEPENDENT OF EDUCATIONAL QUALIFICATION OF THE RESPONDENTS has been proved wrong.
- Regarding the finding of relationship between the enrollment to M-learning programmes and the professional background of the respondents , the Chi-square test findings has proved the Ho 2: ENROLLMENT OF M-LEARNING IS INDEPENDENT OF PROFESSIONAL BACKGROUND OF RESPONDENTS wrong .

- Finally , on the issue of the impact of income of respondents on enrollment in M-learning courses , the Chi-square value findings have also revealed the level of 5% significance . This means once again the Ho 3 : ENROLLMENT OF M-LEARNING IS INDEPENDENT OF INCOME BACKGROUND OF RESPONDENTS has been proved incorrect.

## CONCLUSIONS

- The concept of M-learning is still a concept at the very nurturing stage and more conviction strategy is required to make it popular.
- As the issues of developed technological platform, better telecommunication initiative integration with the service providers are still pending , much more is still to be done in the near future.
- A different content development and delivery pattern is required to make it successful.
- The study has identified that the great potentiality of the medium among the graduates ( more than 50% positive responses) , among the employed/self-employed (about 52% of the positive responses) and among the income group of beyond Rs.10000/- per month.
- While taking the issue further , the aspects of relationship between the profile and the M-learning preference as well as the relationship between the profession and the M-learning preference of the respondents can not be ignored , which is very much evident by value of  $r = 0.147$  and  $0.177$  respectively.

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