

## **Chapter V**

### **CHALLENGES OF USING NEW MEDIA TECHNOLOGY**

#### **5.1 Introduction**

In the first section of this chapter, an attempt was made to understand the problems associated with the learners on the use of new media technology using empirical data collected through field study. The problems were identified from the data set using Principal Component Analysis (factor analysis). Identification of problems was followed by a micro level analysis of the effect of each of the independent variables on each of the problems (i.e. identified factors), by using statistical tools like ANOVA and effect size calculations.

The second section of the chapter examines the learners', counselors' and coordinators' attitude towards new media technologies, their understanding of these new tools, their usage, and challenges faced in using them. The inferences were drawn with the help of focus group discussions with the learners, coordinators as well as counselors at select study centres of Krishna Kanta Handiqui State Open University, and in-depth interviews conducted face-to-face as well as through e-mail with the concerned authorities of the select five open learning institutions of India. The collected data provided a picture of the present scenario of the use and impact of new

media technologies in the country, along with showing the condition and opinion of the learners in context of reaping the benefits of new media technologies.

## **5.2 Problems faced by the learners with the use of New Media Technologies**

There are different kinds of problems associated with the students' use of new media technologies in open and distance learning. A questionnaire was prepared and distributed in which respondents were asked to rate certain statements using 7 point Likert scale. The statements are related to some problems (factors) perceived by distant learners in the use of various tools of new media technology provided by the Krishna Kanta Handiqui State Open University (KKHSOU).

The questionnaire comprised of three sections, viz., A, B and C. With the help of survey questionnaire (part C), data were collected. Those responses which were full of missing data were deleted before starting data entry procedure. Again some of the responses are deleted from the analysis considering them as 'not mindfully completed'. There were some responses which had the same rating (e.g. strongly agree) for every statement provided in the questionnaire. After the data cleaning procedure, total 951 numbers of valid survey remained and were analysed using SPSS software (version 20.0).

### **5.2.1 *Principal Component analysis (Factor Analysis)***

To determine the underlying structure of empirical data-set a principal component analysis with Varimax rotation was used. The factorability of the matrix was

determined by Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA). For these data value of the MSA for the entire matrix was 0.812 which is which falls in to the range of being ‘great’, and therefore the factor analysis is appropriate for these data. A significant Bartlett's Test of Sphericity that R-matrix is not an identity matrix and therefore there is some relationship that exists among the variables. Bartlett's test of sphericity for these data is highly significant ( $p < .001$ ,  $df = 190$ , chi-square = 9039.369) and there were patterned relationships between items therefore factor analysis is appropriate.

**Table 5.1**  
**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.812
Approx. Chi-Square	9039.369
Bartlett's Test of Sphericity Df	190
Sig.	.000

Based on eigenvalues, which is the most common technique for determining the number of factors to extract, eight factors were identified. All the factors which have initial eigenvalues greater than 1, considered significant. Table 5.2 shows the percentage variance accounted for by each of the variables.

In table 5.3 there is a list of the extraction communalities. ‘Extraction communalities for a variable give the total amount of variance in that variable, explained by all the factors.’ Higher the values of communalities suggest that it is better for Principal Component Analysis using the data set.

**Table 5.2**  
**Total Variance Explained**

Component	Initial Eigenvalue			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.046	30.229	30.229	6.046	30.229	30.229	2.454	12.269	12.269
2	2.213	11.067	41.296	2.213	11.067	41.296	2.345	11.727	23.996
3	1.867	9.334	50.630	1.867	9.334	50.630	2.277	11.385	35.381
4	1.508	7.540	58.169	1.508	7.540	58.169	2.214	11.069	46.451
5	1.384	6.919	65.088	1.384	6.919	65.088	2.157	10.784	57.235
6	1.117	5.585	70.673	1.117	5.585	70.673	2.119	10.593	67.828
7	1.070	5.352	76.024	1.070	5.352	76.024	1.639	8.196	76.024
8	.616	3.082	79.107						
9	.542	2.710	81.817						
10	.515	2.573	84.390						
11	.454	2.268	86.657						
12	.388	1.942	88.600						
13	.353	1.763	90.363						
14	.344	1.722	92.085						
15	.335	1.673	93.758						
16	.312	1.560	95.318						
17	.280	1.401	96.719						
18	.244	1.222	97.941						
19	.232	1.161	99.102						
20	.180	.898	100.000						

Extraction Method: Principal Component Analysis.

*Source : Field survey*

**Table 5.3**  
**Communalities**

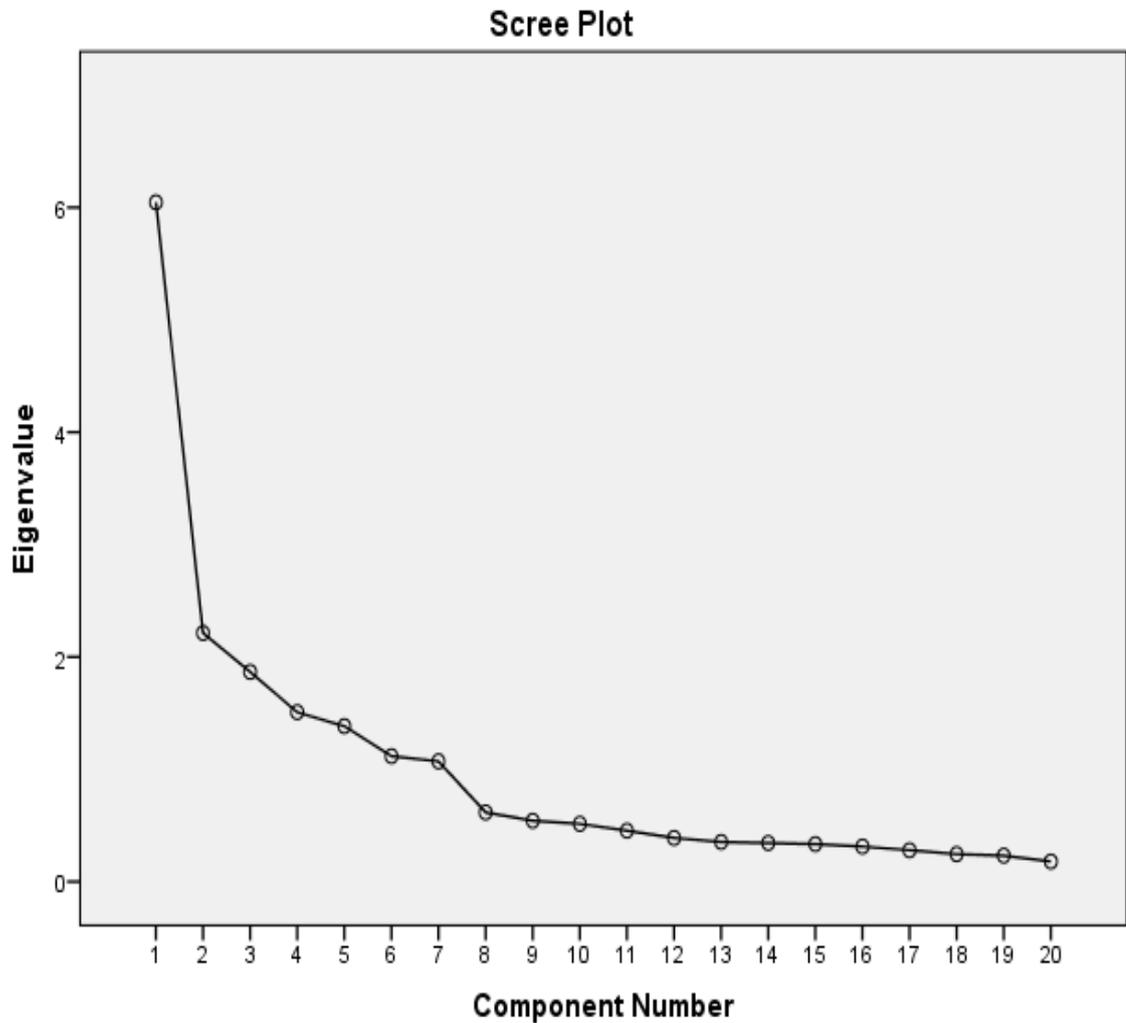
<i>Components</i>	<i>Initial Extraction</i>	
1. Lack of clear instructions	1.000	.796
2. Lack of timely feed back	1.000	.779
3. Lack of sufficient real-time advisor	1.000	.832
4. Sufficient support from study centre coordinator / counselor	1.000	.750
5. Significant interruption during study	1.000	.756
6. Insufficient time to use New Media tools	1.000	.792
7. Social networking tools to interact with fellow students are insufficient	1.000	.801
8. Afraid of feeling isolated	1.000	.686
9. Lack of collaboration among students	1.000	.748
10. Fear to use new tools of NMT	1.000	.711
11. Lack of software skills to use New Media tools	1.000	.754
12. Fear computer and technology	1.000	.781
13. Lack of personal motivation to learn through NMT	1.000	.779
14. NMT learning environment is not inheritably interesting	1.000	.736
15. Must be responsible to learn through NMTs	1.000	.744
16. Lack of inadequate internet access	1.000	.773
17. Cost of learning through NMT is very high	1.000	.781
18. Required technology is unavailable	1.000	.828
19. Inconsistency in platforms, browsers, software	1.000	.725
20. Lack of technical assistance	1.000	.796

Extraction Method: Principal Component Analysis.

*Source : Field survey*

The Scree plot is a graph of the eigenvalues versus the extracted factors. Scree plot helps in determination of the number of factors to be retained graphically. The Scree plot graph was presented in Fig.5.1. The graph shows that after curve got

almost flatten after a break at factor (component) 7. In this way all those seven factors eigenvalue above 1 were retained for analysis.



**Fig. 5.1: The Scree plot showing the eigenvalue of the corresponding component number**

The Principal Component Factor Analysis (PCFA) of the 20 *problems that* affecting the use of the New Media Technology by the learners in open and distance learning listed in the survey questionnaire resulted in seven factors that accounted for 76.024% of the overall variance (table 5.2). The factor rotation method use for the analysis is Varimax orthogonal rotation method. Rotation is a way of maximizing high loadings and minimizing low loadings in order to achieve simplest possible

structure. There are two basic types of rotation: ‘orthogonal’ and ‘oblique’. Orthogonal means the factors are assumed to be uncorrelated with one another. As the factor loadings of 0.5 or greater are considered practically significant, a cutoff of factor loadings of 0.5 was used (table 5.4).

**Table 5.4**  
**Rotated Component Matrix<sup>a</sup> of Factors**

	Variable	Component						
		1	2	3	4	5	6	7
1.	Lack of clear instructions	.867						
2.	Lack of timely feed back	.836						
3.	Lack of sufficient real-time advisor	.827						
4.	Sufficient support from study centre coordinator / counselor		.883					
5.	Significant interruption during study		.833					
6.	Insufficient time to use New Media tools		.787					
7.	Social networking tools to interact with fellow students are insufficient			.854				
8.	Afraid of feeling isolated			.838				
9.	Lack of collaboration among students			.819				
10.	Fear to use new tools of NMT				.835			
11.	Lack of software skills to use New Media tools				.808			
12.	Fear of computer and technology				.762			
13.	Lack of personal motivation to learn through NMT					.793		
14.	NMT learning environment is not					.781		

	inheritably interesting							
15.	Must be responsible to learn through NMTs					.775		
16.	Lack of inadequate internet access						.839	
17.	Cost of learning through NMT is very high						.786	
18.	Required technology is unavailable						.731	
19.	Inconsistency in platforms, browsers, software							.854
20.	Lack of technical assistance							.809

**Note:** Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Cut off = 0.50. a. Rotation converged in 6 iterations.

Factors: (1) Administrative issues, (2) Time and support, (3) Social communication, (4) Technical skills, (5) Motivation of learners, (6) Cost and access to the internet and (7) Technical problems.

*Source : Field survey*

**Table 5.5**

**List of components along with initial eigenvalues and percentage of variance**

	Component	Initial eigenvalue		
		Total	% of variance	Cumulative %
1	Administrative issues	6.046	30.229	30.229
2	Time and support	2.213	11.067	41.296
3	Social communication	1.867	9.334	50.630
4	Technical skills	1.508	7.540	58.169
5	Motivation of learners	1.384	6.919	65.088
6	Cost and access to the internet	1.117	5.585	70.673
7	Technical problems	1.070	5.352	76.024

Therefore factor loading below 0.5 are not shown in the table. Table 5.5 shows the variables loading on each of the components, which produced the following factors: (1) Administrative issues, (2) Time and support, (3) Social communication, (4) Technical skills, (5) Motivation of learners, (6) Cost and access to the internet and (7) Technical problems

### ***5.2.2 Labelling of factors***

Three items loaded onto Factor 1. It is clear from Table 5.5 that these three items all relate to the distance learner's perceived administrative problems under the control of administrators and instructors in the matter of using of New Media Technology. This factor loads onto lack of clear instructions, lack of timely feedback and lack of sufficient real-time advisor. This factor was labeled as "administrative problems".

Three items load onto a second factor are the problems related to the respondents' perspectives on availability of adequate time and support for the use of New Media Technology. This factor was related to sufficient support from study centre coordinator / counselor, significant interruption during study and Insufficient time to use New Media tools by the individual; and therefore labeled as "time and support".

The three items that load onto Factor 3 relate to the obstacles while using New Media Technology that students perceive as being caused by insufficient social networking tools to interact with fellow students, a lack of student collaboration online, their being afraid of feeling isolated in online courses. This factor was labeled as "social communication".

The three items that load onto Factor 4 identified as problems related to inadequate technical skills which are to be possessed by the learners of distance education in the use of New Media Technology. These factors includes three the variables such as fear to use new tools of New Media Technology, lack of personal motivation to learn through New Media Technology and fear of computer and technology. This factor was labeled as “social communication”.

Items loaded for Factor 5 related to motivation of distance learners towards using New Media Technology. This factor was load on to variables like lack of personal motivation to learn through New Media Technology, New Media Technology learning environment is not inheritably interesting and must be responsible to learn through New Media Technology. This factor was labeled as “motivation of learners”

Factor 6 is “cost and access to the internet”. This factor is related to the problems like distance learners lack of inadequate internet access, internet access is highly expensive for the learners and unavailability of required technology.

The two items that load onto Factor 7 identify the technical problems caused by inconsistency in platforms, browsers, software and lack of technical assistance that causes obstacles to the use of New Media Technology. This was labeled as “technical problems”.

### ***5.2.3 Reliability analysis of factor scales***

The Cronbach’s alpha ( $\alpha$ ) test for internal consistency or reliability of each of the Factor sub-scale is calculated. Higher values of alpha are more desirable. George and

Mallery (2003) provide the following rules of thumb: “  $\alpha > .9$  – Excellent,  $\alpha > .8$  – Good,  $\alpha > .7$  – Acceptable,  $\alpha > .6$  – Questionable,  $\alpha > .5$  – Poor and  $\alpha < .5$  – Unacceptable”

**Table 5.6**  
**Reliability analysis of factor scales**

<b>Factor scale</b>	<b>Items in the scale</b>	<b>Cornbach's alpha (<math>\alpha</math>)</b>
1. Administrative issues	(i) Lack of clear instructions	.873
	(ii) Lack of timely feed back	
	(iii) Lack of sufficient real-time advisor	
2. Time and support	(i) Sufficient support from study centre coordinator / counselor	.783
	(ii) Significant interruption during study	
	(iii) Insufficient time to use New Media tools	
3. Social communication	(i) Social networking tools to interact with fellow students are insufficient	.767
	(ii) Afraid of feeling isolated	
	(iii) Lack of collaboration among students	
4. Technical skills	(i) Fear to use new tools of New Media Technology	.830
	(ii) Lack of software skills to use New Media tools	
	(iii) Fear of computer and technology	
5. Motivation of learners	(i) Lack of personal motivation to learn through New Media Technology	.823
	(ii) New Media Technology learning environment is not inheritably interesting	
	Must be responsible to learn through New Media Technology	
6. Cost and access to the internet	Lack of inadequate internet access	.845
	Cost of learning through New Media Technology is very high	
	Required technology is unavailable	
7. Technical problems	Inconsistency in platforms, browsers, software	.780
	Lack of technical assistance	

*Source : Field survey*

Table 5.6 shows that all the values of Cronbach's alpha ( $\alpha$ ) for each of the factor scale are well above acceptable level (i.e.  $\alpha \geq 0.7$ ). Therefore the analysis suggests that there is a high level of internal consistency for the scales with this specific sample.

#### **5.2.4 *Difference in problems among the sub-groups of independent variables***

In order to perceive the difference in problems among the sub-groups of independent variable, first of all, ANOVA was calculated for each of the independent variables viz. location, sex/gender, age, level of education, employment status, place of access to new media technology and enjoyment in learning through new media technology respectively to each of the seven extracted factors (problems). After that, in order to determine the strength of association of the independent variables to each of the seven extracted factors (problems), the value of Omega squared ( $\omega^2$ ) was calculated for each ANOVA. Omega squared is an *effect size* measure associated with ANOVA that is less biased than *eta squared* (Field, 2009). It has been suggested that values of **.01, .06 and .14** represent small, medium and large effects respectively (Kirk, 1996). Thus, according to the value of omega squared we are to determine the extent of effect (i.e. small / medium /large) of the independent variables on the each of the students perceived problems identified through principal component analysis. Secondly, analysis was also done to understand the variance of the identified problems according to sub-groups of the independent variables. All significant values are reported at  $p < .05$ .

#### 5.2.4.1 Effect of location

The ANOVAs between the independent variable 'location' and the factors (problems) like 'administrative issues', 'time and support', 'social communication', 'technical skills', 'motivation of learners' and 'cost and access to the internet' is found statically insignificant ( $p > .05$ ), except for 'technical problems', which is found statically significant ( $p < .05$ ). Levene's test indicated that the assumption of homogeneity of variance had been violated,  $F(1, 949) = 138.661, p < .001$ , so Welch's F is reported. The results show that 'location' significantly affected the 'technical problems' among the participants,  $F(1, 942.195) = 78.901, p < .001, \omega^2 = .059$ . The effect size ( $\omega^2$ ) indicated that the effect of 'location' on the 'technical problems' while using new media technology by the distance learners was 'moderate'. 'Rural' distance learners ( $M=0.19, SD= 1.14$ ) face significantly more technical problems than that of the 'urban' distance learners ( $M= -.30, SD= .60$ ).

In simple terms, on the basis of the analysis we may conclude that, the 'technical problems' which is basically associated with the technical facilities and support provided to the students/learners are influenced by the location of residence of the learners with a 'moderate' effect. Given the technical infrastructural facilities at the rural areas in India, the findings of the analysis are justified. Rural areas are deficient of technical and infrastructural development to bring the new media technology to the learners, as compared to urban areas. Therefore, proper infrastructure development especially regarding telecommunication and information technology in the rural as well as urban areas might resolve the technical problems perceived by the students.

#### 5.2.4.2 Effect of gender

The ANOVAs between the 'gender' and factors (problems) like 'administrative issues', 'time and support', 'social communication', 'technical skills', 'motivation of learners' and 'cost and access to the internet' was found statically insignificant ( $p > .05$ ) except for 'technical problems', which is found statically significant ( $p < .05$ ). Levene's test indicated that the assumption of homogeneity of variance had been violated,  $F(1, 949) = 16.678, p < .001$ , so Welch's F is reported. The results show that 'sex/gender' of the respondent significantly affected the 'technical problems' among the respondents,  $F(1, 939.738) = 53.274, p < .001, \omega^2 = .05$ . The effect size ( $\omega^2$ ) indicated that the effect of 'gender' on the 'technical problems' while using new media technology by the distance learners was 'moderate'. The mean value of the factor scores shows that female distance learners ( $M = 0.20, SD = 1.04$ ) face significantly more technical problems than that of the male distance learners ( $M = -0.25, SD = .89$ ). Therefore, on the basis of statistical analysis it can be concluded that female students/learners are more vulnerable to the 'technical problems' compared to the male learners. Better technical assistance, support and hands-on training for the female students can eradicate this effect. In the areas of technology, women represent about 10 % of researchers and about 5% of manager, the impact of information technology on society has not been uniformly useful, and the technological divide is being increasingly felt, especially in the developing countries. The Intel Women and the Web Study 2013 revealed that a woman in India is 27% less likely to have internet access than a male (Gurumurthy and Chami, 2014). Media technologies hold immense scope for learning possibilities for women owing to its non-textual format and help in developing digital skills.

#### **5.2.4.3 Effect of level of education**

All the ANOVAs between ‘level of education’ of the distance learners and the seven identified problems were found statistically insignificant ( $p > .05$ ). Therefore, it can be concluded there was no effect of ‘level of education’ viz. degree level and PG Level on the problems faced by the distance learners while using the new media technology. The seven identified problems were almost same in the two different levels of educational background of the distance learners.

#### **5.2.4.4 Effect of status of employment**

All the ANOVAs between ‘status of employment’ of the distance learners and the seven identified problems were found statistically insignificant ( $p > .05$ ). Therefore, it can be concluded that there was no effect of status of employment (i.e. working and non-working) on the problems faced by the distance learners while using the New Media Technology. Alternatively, problems faced by the distance learners were almost same throughout working and non-working students.

#### **5.2.4.5 Effect of situation of use of New Media Technology**

All the ANOVA results between ‘situation of use of new media technologies’ by the distance learners and the seven identified problems from factor analysis were found statistically insignificant ( $p > .05$ ). Therefore it can be concluded that there was no effect of ‘situation of use of new media technologies’, on the problems perceived by the distance learners while using the new media technologies. In other words, problems faced by the distance learners were almost same across different situation of use of new media technologies- whether be it ‘mostly in home’ users or ‘mostly in

study centre' users or 'mostly in mobile device' user or 'mostly in any other place' user.

#### **5.2.4.6 Effect of learners' motivation towards using New Media Technology**

The ANOVA results between 'learners' motivation towards using new media technology' and the problems like 'administrative issues', 'social communication', 'technical skills', 'motivation of learners' 'cost and access to the internet' and 'technical problems' were found statistically insignificant ( $p > 0.05$ ). However, the ANOVAs between 'learners' motivation towards using new media technology' and problems related to 'time and support' were found statistically significant. Levene's test indicated that the assumption of homogeneity of variance had been violated,  $F(2, 948) = 9.039, p < .001$ , so Welch's  $F$  is reported. The results showed that learners' motivation in using new media technologies while learning significantly affected the problem related to 'time and support' among the participants,  $F(2, 571.918) = 10.676, p < .001, \omega^2 = .019$ . The effect size indicated that the effect of learners' motivation on the time and support for using new media technology by the distance learners was 'weak' (i.e.  $\omega^2 < .02$ ). Therefore, it can be concluded that learners' motivation towards using new media technology weakly affected the problems related to 'time and support'.

Games–Howell *post hoc* tests revealed significant differences between groups who said 'yes' and who said 'no' ( $p < .001$ ) along with the groups who remained 'neutral' and who said 'no' ( $p < .001$ ). The results for each *post hoc* test have been reported individually.

**Table 5.7**

**Multiple Comparisons among the sub-groups of Learners' motivation**

Learners' motivation		Sig.	95% Confidence Interval	
			Lower Bound	Upper Bound
Yes	Neutral	$p = .910$	-.1479290	.2112221
Yes	No	$p = .001$	-.4586129*	-.1005257
Neutral	No	$p < .001$	-.4841024*	-.1383293

\*The mean difference is significant at the 0.05 level.

According to mean value of the factor scores the learners who answered 'yes' to enjoyment in learning by using new media technology were less affected by time and support related problems than those who answered 'no'. In other words, it can be said that those students who 'did not enjoy' using new media technology while learning were more likely to be affected by time and support related problems than those students who 'enjoyed' using new media technologies. Measures like building confidence to use new media technology, providing proper support to the students, use of user-friendly hardware and software can effectively motivate the student to use new media technology and thereby the problems related to the time and support can be mitigated.

**5.2.4.7 Effect of Learners' Preference for Distance Mode of Education**

The ANOVA between learners' preference for distance mode of education and the problems perceived by learners viz. administrative issues, social communication, technical skills, motivation of learners, cost and access to the internet and technical problems were found statistically insignificant ( $p > .05$ ). However, the ANOVAs between 'learners' preference for distance mode of education' and problems related to 'time and support' along with ANOVA between 'learners' preference for distance

mode of education' and problems related to 'motivation for using NMT tools' were found statistically significant.

**(a) ANOVA between learners' preference for distance mode of education and 'time and support' factor**

Levene's test indicated that the assumption of homogeneity of variance had been violated,  $F(1, 949) = 5.359, p < .05$ , so Welch's F is reported. The results showed that 'learners' preference for distance mode of education' significantly affected the problem related to 'time and support',  $F(2, 827.370) = 19.533, p < .001, \omega^2 = .019$ . The effect size indicated that the 'learners' preference for distance mode of education' on the 'time and support' by the distance learners was 'weak' ( $\omega^2 < .02$ ). The mean value of the factor scores showed that the learners who chose distance mode as their 'primary preference' ( $M = -.125, SD = .940$ ) shows significantly lesser problems related to 'time and support' than those who chose distance education as their 'secondary preference' ( $M = .165, SD = 1.05$ ). In simplified terms it can be said that learners who had opted distance mode as their primary preference likely to affect less by the time and support related problems than those who opted distance mode as their secondary option.

**(a) ANOVA between learners' preference for distance mode of education and 'motivation of learners' factor**

There was a significant effect of 'learners' preference for distance mode of education' on problems related to learners' 'motivation of learners',  $F(1, 949) = 21.914, \omega^2 = .02$ . The result of omega squared indicated that there was a 'weak' effect (i.e.  $\omega^2 = .02$ ) of learners' preference for distance mode of education on the problems related to 'the motivation of learners'. The mean value of the factor scores indicated

that that the learners who opted for distance education as their primary preference ( $M = -.130$ ,  $SD = .946$ ) were likely to be affected less by the problems related to motivation to use new media technology than those who opted for distance education as their secondary preference ( $M = .174$ ,  $SD = 1.04$ ).

### **5.3 Focus group discussions**

Focus groups, composed of relatively homogenous groups of people, are a form of in-depth group interview, which provides information on topics specified by the researcher (Hughes & DuMont, 1993). Focus groups provide researcher with direct access to the language and concepts respondents use to structure their experiences and to think and talk about a designated topic (Kitzinger, 1995).

Focus groups are generally conducted among a small non-representative sample of participants who share one or more characteristics that are of interest to the researcher. The sample selection is purposive and based more on suitability and availability, rather than on representativeness (O'Brien, 1993). Participants in this type of research are selected on the criteria that they would have something to say on the topic, within the age-range, have similar socio-characteristics and would be comfortable talking to the interviewer and to each other (Richard and Rabiee, 2001). The information brought out from the discussions was compared to that of the field study with questionnaire. Focus groups can generate large amount of data within a very short span of time, and the findings may be used to precede quantitative procedures (Rabiee, 2004).

In the present study, the procedure of focus group discussion is utilized in order to generate first hand information from the affected groups/individuals (i.e. learners, counsellors, coordinators), and the data collected through the FGDs are again compared with the data collected through survey questionnaire and juxtaposed with the interview data, then a final interpretation is carried out regarding the issue.

### ***5.3.1 Selecting focus groups and participant***

In order to capture the diverse opinions, attitudes and experiences of the distance learners regarding the new media technologies and their use and benefits on the learning process, three categories of participants were identified: (a) young urban/rural net-savvy learners (b) middle-aged urban/rural based learners and (c) counselors/coordinators of study centres. Learners of the age-group 18 to 30 years were considered to be young learners who are mostly experienced in handling internet, computers, smart-phones, and other digital devices. Their opinion was considered important for the study as the university has a large base of learners in this age-group, who would be able to share their experiences and issues in learning through the new media technologies. The learners belonging to the age group of above 30 years were considered to be not so 'net-savvy' and their opinion was chosen for the study as they would be able to point out the issues related to cost and access and challenges in the use of NMT. The counselors and coordinators are the link between the learners and the university, and hence, their role is considered vital for the successful use of new media technologies in the learning process. Therefore, the counselors and coordinators of the study centres were also included in the groups.

In the present study, a total of four focus group discussions were conducted at four different study centres of Krishna Kanta Handiqui State Open University, located

at different parts of the state of Assam. The groups comprised of distance learners of KKHSOU, the coordinator of the study centre, counselors, and the researcher herself acting as the moderator of the discussions. Two FGDs were conducted in two study centres of Guwahati city (Assam Institute of Mass Communication and Media Research and Cotton College), because of ease of access, large number of UG and PG level learners and use of new media technologies to some extent. One FGD was conducted each at the study centres of Cinnamara College Jorhat, MNC College Nalbari and Moran College, to understand the views and issues of rural based learners, and also due to a commendable number of learners enrolled there. The details of the FGDs conducted for the study are given in the table below:

**Table 5.8**  
**Details of Focus Group Discussions conducted**

<b>FGDs</b>	<b>Venues</b>	<b>No. of Participants</b>	<b>Type of Participants</b>
<b>Group I</b>	AIMCMR, Guwahati	12	5 PG & 5 UG level Learners, 1 Coordinator, 1 Counselors
<b>Group II</b>	Cinnamara College, Jorhat	8	6 Learners, 1 Coordinator, 1 Counselor
<b>Group III</b>	MNC College, Nalbari	6	5 Learners, 1 Counselor
<b>Group IV</b>	Moran College	6	5 Learners, 1 Coordinator
<b>Total</b>	4	32	26 Learners, 3 Coordinators, 3 Counselors

The focus group discussions were held to elicit information about participants' attitude towards the new media technologies provided by Krishna Kanta Handiqui State Open University for the distance learning process, the benefits and challenges of the technologies and their usage. A list of topical questions was prepared and referred

to during the discussion. Same set of questions were discussed upon in each group. Three sets of questions were used as guides for the focus group discussions, which are presented in the table below:

**Table 5.9**  
**Questions for focus group discussions**

Sl. No.	Focus Group Questions
1.	<i>What do you know about NMTs? What NMTs you use in your learning?</i>
2.	<i>Do you face any difficulty in using NMTs in your learning? Does anybody help you in solving these problems?</i>
3.	<i>Is the use of NMTs helping learners or the University in any way? What can be done for the maximum utilization of NMTs in learning?</i>

Prior to the focus group discussions, the participants completed a demographics questionnaire, which was used to gather information about characteristics such as participants' age, educational background, income and locality of residence. The coordinator and counselors of the study centres were also accommodated in the discussions along with the learners as they acted as the link between the learners and the university and the learners depend to a large extent on them. They also handle some of the new media technologies provided by the university such as audio-visual study materials, and can sometimes motivate the learner to use them. Hence, their opinion and attitude is considered to be important for the present study. The moderator encouraged the participants to discuss the topics thoroughly, to interact with each other and express their views freely. Each discussion (FGD) continued for about 40 to 45 minutes.

### ***5.3.2 Procedure for data analysis of focus group discussions***

The data collected from the focus group discussions was transcribed by the investigator. As the entire conversation was held in Assamese language, they were later translated to English for the ease of analysis. Verbatim typed transcriptions were then compiled into a master copy of the discussions, which formed the basis for the content analysis. An effort was made to take note of the non-verbal information as well (facial expressions, gestures, tone of the voice, etc.). To begin the data analysis process, the transcripts were read many times with emphasis on each word, sentence as well as non-verbal communications. Then primary themes were identified across all transcripts. The analysis of the transcripts revealed three overarching themes across the four focus groups.

***Theme 1- Positive Experiences with NMT:*** Across all the focus groups, many participants reported satisfaction with the availability and services of the new media technologies provided by KKHSOU. The participants discussing the positive effects were mostly the post-graduate (PG) level learners and coordinators or counselors of the study centres. Comparatively lesser number of under-graduate (UG) level learners acknowledged the helpful implications of NMTs.

***Theme 2- Barriers to NMT Use:*** In all the three focus groups, participants pointed out an array of factors that either fostered or impede the smooth usage of available NMTs in the learning process. Lack of technical know-how was one of the factors that restrict the absolute utilization of the technologies. The participants discussed the occasional dearth of electricity, internet connections and skilled technicians, especially in the rural and hilly regions, which pose as hindrances. Many respondents could not access the facilities of NMTs due to their fear of being

embarrassed in front of fellow learners, by not asking for help or assistance in using the new media technologies available in study centres or for personal use. A majority of the learners of KKHSOU belong to the Assamese medium, as they are more comfortable in the regional language than in English. The focus group participants threw light on certain difficulties faced by them in utilizing some of the NMTs due to the language barrier. The audio and audio-visual materials and few programmes in internet radio are available in Assamese and some other local languages which are advantageous for the users, but the wide use of the English language for the technologies sometimes contribute to feelings of isolation and loneliness among some learners.

***Theme 3- Recommendations for Efficient Utilization of NMTs:*** In all the focus groups, the respondents offered a range of recommendations, which are creation of awareness regarding NMTs among the learners, providing training to coordinators and counselors on use of NMTs, and the University's involvement in proper utilization of the technologies in the study centres.

### ***5.3.3 Analysis of focus group discussions***

The conversational data presented in the data analysis is layered with the multi dimensional thoughts and impressions participants have regarding the new media technologies used in the distance education field. Generally, there was equal participation among the participants in the group. Within each of the above-mentioned major themes, a number of sub-themes were identified, which are discussed below.

***(a) Positive Experiences with NMT:*** The young learners (i.e., 18 to 30 years) favoured the practical and active nature of the new technologies. It is considered by

them to be “more fun than just sitting, writing and listening” in the classroom. 85 per cent (22 numbers) of the FGD participants possess smart-phones equipped with internet facilities and 69 per cent (18 numbers) of them have laptops or PCs of their own. Hence, they considered the new media technologies to be an integral part of their learning process. Most of the learners are very keen in learning to use the new technologies and equipments, finding it hard at first, but gradually being able to use them for learning. The attitude is evident from the comment of one of the learners that he expressed with excitement in his voice that he “was not comfortable using technology before getting admitted to the BBA course of KKHSOU, but now I am using it so much and I have become comfortable in using the new media technologies that are available”. The Counselors experienced the easiness in teaching with the help of new media technologies, as a concept or lesson can be imparted with more ease and interesting manner with the help of media technologies. Again, the learner does not have to depend solely on the weekly counseling sessions (on every Sunday); instead they can continue learning on their own through their mobile devices, over internet, audio-video materials, etc. The coordinators of the study centres, during the focus group discussions, agreed on the availability of new media technologies in the study centres for the assistance of the learners. They informed about the multimedia support provided to learners during the weekly counseling sessions, in the form of display of audio-visual study materials with the help of PC/Laptop/LCD projector. Almost 94 per cent (30 numbers) of the respondents in the four focus groups have their accounts in social networking site i.e. *Facebook*, which, according to them, is helpful in “socialising with co-learners and some authorities from the University as well”. The ‘Job Portal’ of the University is also a suitable platform for teachers and learners to

interact, share and learn. Technology has been considered a great equalizer when used by people with disabilities.

Adult learners have a wide variety of reasons for pursuing learning at a distance, for instance, constraints of time, distance, and finances, the opportunity to take courses or listen to speakers who would otherwise be unavailable, and the ability to come in contact with other students from different social, cultural, economic, and experiential background (Willis, 1993). Technology can fulfill these needs of a learner to a large extent by bringing lessons and lectures right to his/her doorsteps.

***(b) Barriers to New Media Technology Use:*** The focus discussions resulted in identifying a number of barriers to the efficient utilization of new media technologies in the distance learning process of the University. The information elicited from the discussions has further been sub-categorized in two parts as discussed below.

*Time and Support:* Some participating learners cited the lack of adequate computers or laptops with internet connectivity in the study centres for all the learners enrolled in that particular centre. Few of the students are not able to afford smart-phones with internet facilities, and hence are facing trouble in accessing NMTs. Some of the counselors also accepted that their inadequate experience in handling media technologies also plays a role as barriers for the learners. The learners agreed upon the fact that they are not able to devote sufficient time to the use of new media technologies due to their everyday engagements, requirements of the course they are enrolled into, and other social reasons.

*Cost and Access:* The Diffusion of Innovation theory describes the behaviour of people toward a new idea in technology, the method of adaptation to it and the way

in which innovation is communicated through particular channels over time among the members. The theory also explains how people with strong opinions affect the masses through the media. New ideas and innovations frighten people and cause frustration. Same is the case of the people who are changing their teaching-learning process from the traditional face-to-face to a technologically mediated education encounter these difficulties. As is evident from the comment of an elderly learner of post-graduate level of the university, as he mentioned how he felt “handicapped for not being able to operate the computer or laptop” and he gets help from the study centre coordinator and his own family members for the same. The participants also focused on the lack of resources at times, as it becomes difficult for many learners from the remote corners of the state to access internet and other new media technologies due to lack of internet facility, electricity and other devices. Some of the learners expressed that they could not afford internet facilities on their own due to high cost of the service. Though the devices and facilities are available in the study centres of the university, most of the times it becomes difficult for the learners to visit the respective study centres to access the new media technologies, due to constraints of time, distance, etc. The learners as well as the coordinator and counsellors opined that the technical problems caused by inconsistency in platforms, browsers, software and lack of technical assistance sometimes cause obstacles to the use of NMT tools. Lack of technical know-how and the cost of equipments pose as hurdles for most of the learners.

Learners and counselors both face technical barriers at some point during teaching and learning, due to lack of experience about technology, and sometimes due to semantic barriers like misunderstanding the message. The majority of the learners

of the university are comfortable in the local language, i.e., Assamese, Bodo, and others. Hence, the print self learning materials are prepared in two languages, English and Assamese; so that the learner can choose the language he/she is comfortable in and continues the study in ease. During the focus discussions in all the four groups, the learners as well as the counselors pointed out the issue of language barrier faced while using some of the new media technologies of KKHSOU, such as, the online study materials (available on University website), some of the audio-visual materials, and many more. So methods to eliminate these communication barriers, by increasing the ability of Internet access, student to student interactions, student to content interactions, and student/instructor motivations which makes the distance education programme more effective, interactive and even more attractive should be explored.

*(c) Recommendations for Efficient Utilization of NMTs:* All the four focus group discussions brought forward many appropriate recommendations for the efficient utilization of the NMTs by the university so that their benefits could be harnessed in large scale by every learner of the university. The participating learners made it clear during the focus group interaction that simply providing access to technology does not ensure that technology will effectively enhance teaching and learning and result in improved accomplishments. Technical capabilities to handle the technologies, acceptance and satisfaction at the learners' level are necessary for the successful utilization of new media technologies. "Awareness creation" would play a crucial role at this phase, as without knowing the nature and uses of new media technologies and their benefits, it would be difficult to expect a wide-scale application of the technologies. The participants also pointed out that at various times, the elderly learners seem difficult to accept the use of new media technologies for education over

the traditional print medium. They find it comfortable to confine their learning process within the use of books, radio and television, as the “complex technologies” of smart-phones and computers are difficult for them to handle.

#### **5.4 Comparison among the selected distance learning institutions on the use new media technologies**

The emergence of the internet came with numerous advantages to the emergence of learning deliverances within the education, communication and marketing realms. Blogs, wikis, podcasts, chat-rooms and other e-tools have proved not only effective and convenient, but has proved that technology can make learning a lot fun as students and academics experiment with various tools (Mapuva, Stoltenkamp, & Muyengwa, 2010). Digital technology plays an important role in the present higher education scenario around the world. And today, distance learning is an integral part of higher education. Hence, it becomes imperative to study the use of new media technologies in the teaching learning process of some major distance learning institutions.

The evaluation of the use of new media technologies by the universities/institutions serves a worthy purpose. Over the last fifty years, the development of a range of technologies has accelerated exponentially, mainly due to the invention of digital electronics and the importance of the use of the resources and technologies of the internet in education is obvious today (Moore & Tait, 2002). It leads to increased accessibility of education which is necessary, especially for a developing country like India. The Republic of India is the world’s largest democracy. The total area of the country is 3.3 million square kilometres. The population of the

country, as in 2011, is more than 1.21 billion (India Today, 2011). The literacy rate in India is 74.09 per cent (82.14 percent male and 65.45 percent female). There are 198.39 million internet subscribers in the country, at the end of June 2013 (Central Statistical Organisation, India, 2014). India has one of the largest education systems in the world, as per the number of institutions, students registered and faculty engaged to handle the educational workload (Pulist, 2013). The number of universities in India has increased to 740 during the year 2014-15 (46 central, 342 state, 227 private, 125 deemed to be universities) (University Grants Commission, 2015). There are 34,908 colleges in India (Department of Higher Education, 2013, p. 7). The distance education system contributes to one-fourth of the student enrolment in higher education system.

The analysis of interview transcripts was based on an inductive approach geared to identifying patterns in the data by means of thematic codes. Data are analyzed using the constant comparative method whereby line, sentence, and paragraphed segments of the transcribed interviews and field notes were reviewed. Based on the data collected through interviews and cases study method, the new media technologies used by the selected universities/institutions have been compared and analyzed.

#### **5.4.1 *Web-portal***

As defined by IBM, an Internet portal is “a single integrated, ubiquitous, and useful access to information (data), applications and people” (Abdulhamid & Idris, 2010). Portals are a way of bringing together all the information that users need in a single

place, accessible in a coherent way that provides for enhanced productivity. A university portal or institution portal is a one-stop client-oriented website that personalizes the portal's tools and information to the specific needs and characteristics of the person visiting the site, using information from the faculty databases (Abdulhamid & Idris, 2010). In a portal, an individual identifies himself/herself to it, then the portal gathers all information relevant for that particular person and displays in one place. But a website is different from a web-portal, as the person visiting the site has to find and use the information available there by himself. A website is the first digital endeavour faced by a client of the university/institution (learner or student). All the universities/institution under the present study have well-furnished websites. Though their websites are not web-portals, in the true meaning of the term, they serve the purpose of providing the necessary information to the visitors of the site.

Dr. Bhimrao Ambedkar Open University (BRAOU) has a website that provides information on the university as a whole, and links to examination, admissions details, links to online programmes, videos, and many more. A visitor to the website can access the online programmes, videos, and notifications of the university through the links provided. Yashwantrao Chavan Maharashtra Open University (YCMOU) directs the visitor to its 'e-portal' by providing a link to 'click on'. The page that is displayed next is the website of the university, providing numerous links to the various services and tools/technologies. It has separate 'user-identification through single log-on account', through which learners can create their 'account' for easier future visits to the site. It also provides link to *e-Suvidha*, which is a joint initiative of the universities and Maharashtra Knowledge Corporation Limited

(MKCL) providing *eSuvidha* services to the students on login. The services include information about universities, courses, admission fee, intake capacity, etc., the student can view one's academic details; can apply for re-evaluation or re-verification or photocopy of answer books, and many more. The *eSuvidha* also provides employment assistance to the students and gets links to Wikipedia, open learning, open courseware, social networking and so on. Moreover the 'e-portal' of YCMOU provides links to the web-radio, audio-visual learning content, free download of e-books, and other necessary information. The university has a number of audio and video learning materials on various subject matters which have been uploaded on the website. The website of the Indira Gandhi National Open University (IGNOU) Regional Centre Guwahati is a well-stocked one, providing links to RSS Feed, YouTube, site-map, etc. the website provides almost all the necessary details about the university, its courses, admission procedure and fees, available courses at the regional centre, the location of study centres, examination details, and many more for the benefit of the learners. The Annamalai University Directorate of Distance Education (DDE) has a web page of its own, which also links to the main website of the Annamalai University. The DDE website provides detailed information of the directorate, its programmes, courses, provided by the University. Established in 1979, it is one of the oldest distance learning institutions in the country. The website of the DDE provides fewer facilities as compared to the other universities/institutions under the study. The Krishna Kanta Handiqui State Open University, one of the young distance education institutions of the country, established in 2007, has a well-furnished website. The website provides access to all the information regarding the university, courses available, location of study centres, details of faculty members and other necessary details. It also provides links to its social networking page, android

application, internet radio, video programmes, e-portal, and soft copies of university newsletters and prospectus, among other services.

#### **5.4.2 Audio-video learning materials**

Face-to-face classes are audio-visual experiences. Audio-visual learning materials have been an integral part of the distance learning system along with the printed self-instructional materials. Audio and video always leave lasting impression on a learner's mind, and these multimedia materials helps in reducing isolation between the distance learner and other learners and instructor. It has been observed that almost all the distance learning institutions/universities of India prepare audio-visual learning materials in the form of CDs or DVDs for the benefit of their learners. In 1986, Dr. Bhimrao Ambedkar Open University established its Audio-Video Production and Research Centre (AVPRC) as part of the Material Production Directorate. The Centre became a separate unit headed by a Director in 1993, with the following objectives:

- to produce audio and video educational programmes
- to organize transmission of educational programmes over radio and television
- to conduct training and academic programmes in communication
- to undertake research in the field of educational technology as applied to distance education

Yashwantrao Chavan Maharashtra Open University (YCMOU) prepares audio-visual learning content for the learners, a link to which is provided in its web-portal. Audio/video cassettes of lectures are prepared by the Annamalai University Directorate of Distance Education and made available at the study centres. Though these cassettes are not considered as 'new media technology', they could be of help

for the distance learners. Krishna Kanta Handiqui State Open University has a collection of audio-visual study materials on various subject areas which are made available on its website as well as *You-tube*; they are also available in the form of CDs/DVDs which are provided to the study centres as well as the learners. IGNOU has a vast array of audio-visual productions on numerous topics, which are available in CD and DVD format, as well as uploaded on the internet in *You-tube* to be accessed freely.

### **5.4.3 Web-radio**

With the development of digital broadcasting, radio transmission is not confined anymore to AM and FM terrestrial platforms. '*Yash Vaani*' is the web-radio of Yashwantrao Chavan Maharashtra Open University, which can be accessed by the link provided on the website of the University. The radio can be listened to live or during re-webcast of the programmes, the page also provides a list of the programmes. The internet radio of Krishna Kanta Handiqui State Open University, '*Jnan Taranga*' is available in the website of '*Ek Duniya Anek Awaaz*' (EDAA), where the programmes can be listened to. The programmes are available under the Creative Commons License (CC) BY-NC. Dr. Bhimrao Ambedkar Open University and Annamalai University Directorate of Distance Education do not broadcast content over internet/web radio. Indira Gandhi National Open University launched web-based radio and television channels on 20<sup>th</sup> October, 2014 initially on pilot test, which are made available on public domain to be accessed by anyone.

#### **5.4.4 *Blog / Job-portal***

A blog or a separate portal acts as a platform for the learners and counselors to connect, interact, share, on various issues. By carefully evaluating their strengths and weaknesses, educators are learning to set guidelines and expectations to maximize the benefits of blogs (Educause Learning Initiative, 2005). Blogs offer learners, teachers a high level of autonomy, provides a forum for discussion, and offer mechanism for peer-to-peer knowledge sharing and acquisition. BRAOU does not provide information regarding available job opportunities through online forums or blogs, etc. As informed by the Director (Academic) of BRAOU, N. Venkata Narayana, a separate portal (i.e. [www.braouonline.in](http://www.braouonline.in)) has been developed to access the application form for registration into various programmes viz., U.G., P.G., Diploma and Certificate programmes. Under this system, the student is informed at every level of the process right from his/her registration to admission by alerting him/her through SMS on his/her mobile, to pay the fee at A.P. Online and seek admission. The system has also been extended to registration for examinations. A help desk has been created to respond to the queries of students.

#### **5.4.5 *Digital Library***

Digital Libraries basically store materials in electronic format and manipulate large collections of those materials effectively (NSF,1996). Digital libraries are more critical in developing countries as this technology can ameliorate the knowledge gap between the developed and developing sections, because it does not have to depend on internet for distribution (UNESCO, 2006). The UGC-INFONET Digital Library

Consortium was formally launched in 2003, which provides access to more than 5000 full-text scholarly electronic journals from 23 publishers across the globe (UGC-INFONET Digital Library Consortium, 2009). Digital libraries provides solution to most of the information access problems of distance learners, as distance learners are reluctant to travel long distances to visit libraries, internet can act as a powerful tools to bring scholarly materials to learners' doorsteps (Gurram, 2008). The present study as well as a review of the related literature shows that the digital library project for open and distance learning has yet to make many developments to meet the needs of the learners. The Universities/institutions under the present study have initiated the process, but has to go a long way to fully digitalize its resources. The digital libraries of ODL institutes should aim at providing the following facilities to its learners: Digital/virtual reference service; Information service through e-mail; Access to OPACs; Powerful search tools to retrieve the whole or parts of a digital document, etc (Gurram, 2008).

#### **5.4.6 *Social networking***

Social networking sites are a category of sites that are based on user participation and user-generated content (Masuku & Moyo, 2014). It has grown to a mass online activity, used by numerous internet users during their leisure time and at work, with the help of personal computer or laptop or mobile phones. This platform could be utilized by the distance learning institutions to reach out to its learners, provide opportunity of connecting with fellow learners and teachers/counselors, share information and lessons, and numerous other purposes. An attempt was made in the present study to study the use of social networking by the selected distance learning

universities/institutions of the country. The study showed that Yashwantrao Chavan Maharashtra Open University has its pages in the social networking site *Facebook*, where learners and other people can get information regarding the University and its activities. Bhimrao Ambedkar Open University (BRAOU) and Annamalai University Directorate of Distance Education (DDE) do not have social networking sites or pages. Krishna Kanta Handiqui State Open University (KKHSOU) has its existence in the popular social networking site *Facebook*, where learners can interact and ask queries, which are attend to by the concerned University authorities.

#### **5.4.8 Mobile Learning**

The invention and development of mobile devices such as smart-phones, tablets and PDAs (Personal Digital Assistants) have become important tools to support teaching and learning activities (Taharim, Mohd Lokman, Wan Mohd Isa, & Mohd Noor, 2013). It provides the advantage of conducting classes anywhere, anytime, overcoming the constraints of distance learning. So far, the distance learning universities/ institutions of India have not utilized all the facilities of mobile technologies for learning. The mobile services are only used for sending SMS (Short Message Service) alerts containing short information and alerts regarding examinations, results, admissions, and so on. There is enough scope for incorporating mobile learning at present in the country, keeping in mind the escalating number of mobile device users. Mobile internet, as of June 2013, has a penetration of 65 percent among the 108 million Active Internet Users in urban India, while in rural India, 70% of the active internet population access internet using mobile phones (IAMAI, 2013). IGNOU provides SMS alerts to the learners, a link to which is also provided in its

website. KKHSOU also provides SMS alerts to its learners, the University also has link to its android application in its website, which can be downloaded by smart-phone users (with android) to receive all details regarding the University in their mobile phone itself. BRAOU, YCMOU and Annamalai University DDE are also using mobile services for SMS alerts only so far, but have plans to further utilize their facilities in the teaching-learning process.

#### **5.4.9 *Other technologies***

Apart from the above discussed technologies, the universities / institutions under the present study have planned few other initiatives to utilize new media technologies in delivering education. Yashwantrao Chavan Maharashtra Open University has been using e-college learning management system for online distance learning. As informed by the Director Academic, BRAOU, the University has switched gears and would be embarking upon the online mode of education from 2014. Krishna Kanta Handiqui State Open University has plans to commence online admission procedures from the 2015-16 session onwards.

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