Learning Attitude, Motivation and Preferences of Online Learners

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Abstract: *In the present paper, we report our study on attitude, motivation and preferences of online learners in two open universities in India. We have investigated, on a sample of 272 online learners, areas such as difficulties faced in web-based learning, and the preferences for platforms, support structure, mode of interaction, and pedagogic and technological ingredients for successful online self-learning. The findings show that the online learners preferred web-based learning supported by printed self-learning materials, and some form of online and/or f2f interaction. The other support structures included email facility with instructor and peers, interactive materials on CD-ROM, and web-based materials. The preferred web-based components included images, video clips, animation, audio and hyperlinks. The preferred modes of interaction were suggested to include discussion groups, online assignment and feedback, voice-based online chatting and online mentoring support.*

Introduction

In a recent paper (Dikshit et al., 2003), we had analysed the pedagogic effectiveness of face-to-face (f2f), interactive multimedia (IMM-CD) and online learning. The experiments performed under this study revealed that instructional content provided through interactive multimedia CD for self-learning was more effective than self-instructional printed module (SIM) and online learning. However, print was preferred for pre-test, post-test and summary, and the web for activities and discussions. Those who studied exclusively online through the web pointed out that web based learning (WBL) was more effective than f2f for the content as a whole, for discussion, content pre-test, induction to study, SAQs and activities, objectives and study guide, summary, and content post-test. Also, learners had indicated that interactive multimedia CD would be equally effective, but less than WBL, for induction to study, discussion and summary. Further, print based SIM had limited effectiveness for activities, discussion, study guide and summary.

The findings suggests that while there was no significant difference in the academic achievement mean scores between those who studied through CD and through print, and between those who studied through print and online, the mean score of CD group was higher (61.85) than that of print (56.30) and online group (49.10). This led us to conclude that self-learning of content through interactive multimedia CD results in

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higher academic achievement (and is more pedagogically effective) than online learning. This study was preceded by a survey of the attitude, motivation and preferences of online learners, as also the programmes in Indian open universities (Panda, 2002). In the present paper, we report the analysis of our findings on online learners of the Indira Gandhi National Open University (IGNOU) and Yashwantrao Chahwan Maharashtra Open University (YCMOU). We have investigated issues such as difficulties faced in web-based learning, and the preferences for platforms, support structure, mode of interaction, and pedagogic and technological ingredients for successful online self-learning.

Objectives

The present study was undertaken with the objectives of investigating:

- learning variables of online learners;
- reasons for taking online courses/study;
- views on various aspects of distance learning/online learning;
- preferences for delivery mode;
- main concerns and difficulties in online learning/computer-based distance education; and
- preferences for online support structures, learning platforms, and modes of interaction.

Method

Methodologies of survey research, and purposive (for institutions) and random sampling (for student sample) were followed in this study. Only three universities in India use ICT extensively for distance education delivery. And, even out of these, only IGNOU and YCMOU either offer full programmes online, or use online learning to support distance education delivery. IGNOU offers four programmes online — Bachelor of Information Technology (BIT), Advanced Diploma in Information Technology (ADIT), Master of Business Administration (MBA), and Postgraduate Certificate in Displacement, Rehabilitation and Resettlement (PGCMRR). MBA partly involves conventional distance education delivery; and, therefore, BIT and PGCMRR programmes were selected for student sample. There were 1700 students studying in the 2nd year of BIT in 2002 and 50 students studying the second intake of PGCMRR in January 2002. Out of these, 600 (35%) BIT and all PGCMRR learners were selected through respectively simple random sampling and purposive sampling. (The entire population for PGCMRR was selected as sample, keeping in view the very small size of the population.) A questionnaire designed specially for the online students, comprising 23 questions, which was commented by five experts of distance education/information technology, was emailed to the sampled students to obtain their feedback. A few questionnaires were administered at three telelearning centres of Delhi region when students were present for hands-on practical. In all, 230 questionnaires for BIT and 7 for PGCMRR were received back. However, PGCMRR questionnaires were not included because of the low response rate. Similarly, the questionnaire was emailed as also sent by post to 100 Diploma in Electronics (DIE) online learners of YCMOU; and 42 questionnaires (42%) were received back for analysis.

Analysis of Results

The analysis and interpretation of data generated on the basis of the questionnaire administered on IGNOU and YCMOU sampled online students is given as follows.

Background characteristics

The background characteristics of 230 BIT respondents of IGNOU and 42 DIE online students of YCMOU are summarised in Table 1. The figures within the brackets denote the percent of the total respondents rounded off to two decimal places. (The percentage analysis for each category of gender (i.e. male and female) and for each category of years of experience (i.e. <1 year, 1-3 years, 4-6 years and >6 years) is based on taking the particular category as 100%).

Table 1: Basic characteristics of responding BIT students of IGNOU and on-line students of YCMOU

Gender	IGNOU	YCMOU
Male	195 (84.70)	19 (45.20)
Female	29 (12.70)	23 (54.80)
Not mentioned	6 (2.60)	42 (100%)
Qualification		
Senior secondary	153 (66.50)	17 (40.50)
Graduate	35 (15.20)	15 (35.70)
Postgraduate	24 (10.40)	10 (23.80)
Not mentioned	18 (7.80)	230 (100%)
Total	230 (100%)	
Employment		
Employed	16 (6.90)	11 (26.20)
Unemployed	194 (84.30)	25 (59.50)
Self-employed	11 (4.70)	6 (14.30)
Not-mentioned	9 (3.90)	42 (100%)
Total	230 (100%)	
Internet Skill		
Beginner	31 (13.40)	17 (40.50)
Intermediate	116 (50.40)	14 (33.30)
Experienced	61 (26.40)	7 (16.70)
Expert	13 (5.60)	3 (7.10)
Not mentioned	9 (3.90)	1 (2.40)
Total	230 (100%)	42 (100%)
Working Experience		
<1 year	107 (46.50)	17 (40.50)
1-3 years	20 (8.60)	9 (21.40)
4-6 years	4 (1.70)	6 (14.30)
>6 years	2 (0.80)	9 (21.40)
Not mentioned	97 (42.10)	1 (2.40)
Total	230 (100%)	42 (100%)
Computer Experience		
<1 year	49 (21.30)	19 (45.20)
1-3 years	135 (58.60)	10 (23.80)
4-6 years	18 (7.80)	7 (16.70)
>6 years	13 (5.60)	2 (4.80)
Not mentioned	15 (6.50)	4 (9.50)
Total	230 (100%)	

From the data given in Table 1, the following points emerge:

- In case of IGNOU, male learners responded overwhelmingly (six-and-half times) compared to female respondents. But in case of YCMOU, female respondents outnumbered male respondents.
- Majority (66.5%) of IGNOU respondents possessed senior secondary (10+2) qualification but in case of YCMOU, the proportion of graduate and postgraduate learners was significant; being 36% and 24%, respectively.
- Nearly half of IGNOU respondents had prior intermediate Internet skills against 33 percent of YCMOU. But at YCMOU, 41 percent respondents had Internet skills at the beginners' level, which is considerably higher than that of IGNOU learners.

From this we may conclude that YCMOU seems to be catering more to in-service personnel, whereas IGNOU is responding to general masses, in keeping with its national mandate.

Main reason for students taking online/distance learning

Table 2 shows that the main reason for taking up online/distance learning was updating knowledge and skills. This is followed by the desire to adopt a career outside one's present job. Comparatively low, yet significant, priority was for promotion within the present job. It is heartening to note that skills and competencies developed in distance learning equip our learners to compete in the job market.

Table 2: Response of learners for taking online/distance learning

	Reasons	High priority		Medium priority		Low priority	
		IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a)	Update knowledge and skills	157 (68.3)	21 (50.0)	40 (17.4)	18 (42.9)	14 (4.7)	1 (2.4)
b)	Promotion	45 (19.7)	10 (23.8)	60 (26.3)	25 (59.5)	55 (24.1)	6 (14.3)
c)	Career outside the present job	108 (47.0)	11 (26.2)	44 (19.1)	15 (35.7)	29 (12.6)	14 (33.3)

Learner responses on different aspects of online/distance learning programme

Table 3 lists the learner responses on different aspects of online/distance learning programmes offered by IGNOU and YCMOU. The IGNOU students perceived that the learning materials, tutor access, mode and quality of assessment and tutorial support were of high standard. However, some of them desired that provision of library resources should be improved considerably. Though this aspect needs particular attention in view of academic consideration, it is neither desirable nor possible for any open university to create such resources physically; sharing resources of conventional institutions' library and the information on Internet would be a better way out of the problem. In fact, recently UGC has decided to create digital libraries, which can be networked country-wide for cost-effective yet prompt and diverse services. The study shows that YCMOU students were provided rich learning experience through tutor access, library resources and assessment mode, though they were not satisfied with the quality of teaching materials. It would

therefore be desirable for open distance learning institutions to share the best practices and their strengths for greater credibility of the system. (The above findings are also corroborated by the results given in Table 12).

Table 3: Views on various aspects of current OL/DL programme

Sources	Very poor	Poor	Good	Very good				
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
Teaching materials	42 (18.3)	9 (21.4)	50 (16.8)	14 (33.3)	107 (46.5)	12 (28.6)	24 (10.4)	6 (14.3)
Tutor access	25 (10.9)	2 (4.8)	56 (24.3)	10 (23.8)	110 (47,8)	21 (50.0)	25 (10.9)	8 (19.0)
Tutorial quality	22 (9.6)	7 (16.7)	53 (17.8)	9 (21.4)	100 (33.6)	16 (38.1)	38 (12.8)	7 (16.7)
Library resources	69 (30.0)	2 (4.8)	70 (30.4)	8 (19.0)	63 (27.4)	17 (40.5)	16 (7.0)	12 (28.6)
Assessment mode	32 (13.9)	4 (9.5)	48 (20.9)	6 (14.3)	115 (50.0)	23 (54.8)	20 (8.7)	7 (16.7)
Assessment quality	25 (10.9)	4 (9.5)	54 (23.6)	10 (23.8)	107 (46.7)	18 (42.9)	26 (8.7)	6 (14.3)

Mode of delivery of education preferred by the learners

One of the most important objectives of this study was to know the mode of delivery of education preferred by the learners. It may be noted from Table 4 that the learners were divided in their preference across the modes. However, all students had a particular preference for face-to-face (f2f) support. The priorities of IGNOU students were WBL enhanced by f2f, CD+f2f, and WBL (50%)+f2f (50%) in that order, the priority of YCMOU students was WBL (50%)+f2f (50%), followed by WBL only, and WBL+f2f+other media. These findings also suggest that the emerging dimension of technology-enabled distance education points towards a mix of interactive multimedia, WBL and some kind of f2f interaction either built into the materials or as supplementary support. Further, informal chat with some of the students reinforced these findings, as also the need for some kind of print back-up. While YCMOU students had preference for IMM-CD with online support, the IGNOU students had desired IMM-CD with f2f support.

Table 4: Preference for teaching delivery model

Teaching delivery	IGNOU (N=230)	YCMOU (N=42)
a) WBL only	9 (3.9)	8 (19.0)
b) WBL enhanced by f2f	61 (26.5)	6 (14.3)
c) WBL with f2f & other media	34 (14.8)	8 (19.0)
d) WBL (50%) & f2f (50%)	42 (18.3)	9 (21.4)
e) CD with online support	18 (7.8)	7 (16.7)
f) CD with f2f support	48 (20.9)	3 (7.1)
g) Any other	13 (5.7)	-
h) No response	5 (2.2)	1 (2.4)

Table 4.1: Preferred delivery model (Gender-wise)

	No reply	WBL only	WBL & F2F	WF TV	WFW	Int. CD	CD & F2F	Other	Total
No reply (M&F)	9 (3.91)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	9 (3.91)
Male	0 (0.0)	8 (3.48)	54 (23.48)	23 (10.0)	36 (15.65)	16 (6.96)	43 (18.70)	12 (5.21)	192 (83.48)
Female	0 (0.0)	0 (0.00)	7 (3.04)	10 (4.35)	4 (1.74)	2 (0.87)	5 (2.97)	1 (0.43)	29 (12.61)
Total	9 (3.91)	8 (3.48)	61 (26.52)	33 (14.35)	40 (17.4)	18 (7.83)	48 (20.87)	13 (6.13)	230 (100.00)

Tables 4.1 and 4.2 present the gender-wise and computer experience-wise preferred delivery modes for IGNOU learners. It may be noted from Table 4.1 that more males had preference for web-based learning enhanced by f2f interaction/support, followed by interactive multimedia CD with f2f tutorial support. However, the female learners had greater preference for web-based learning enhanced by f2f and other media followed by web-based learning enhanced by f2f.

Table 4.2: Preferred delivery model (Computer experience-wise)

	No reply	WBL only	WBL & F2F	W. F. TV	W.F .W	Int. CD	CD & F2F	Other	Total
No reply (M+F)	18 (7.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	18 (7.8)
<1 year	0 (0.0)	3 (1.3)	12 (5.2)	6 (2.6)	9 (3.9)	7 (3.0)	9 (3.9)	3 (1.3)	49 (21.3)
1-3 years	0 (0.0)	3 (1.3)	40 (17.4)	21 (9.1)	22 (9.6)	9 (3.9)	30 (13.0)	7 (3.0)	132 (57.37)
4-6 years	0 (0.0)	1 (0.4)	4 (1.7)	2 (0.9)	5 (2.2)	1 (0.4)	5 (2.2)	0 (0.0)	18 (7.8)
> 6 years	0 (0.0)	1 (0.4)	1 (0.4)	4 (1.7)	1 (0.4)	1 (0.4)	3 (1.3)	2 (0.9)	13 (5.7)
Total	18 (7.8	8 (3.5)	57 (24.8)	33 (14.3)	37 (16.0)	18 (7.8)	47 (20.4)	12 (5.2)	230 (100)

Table 4.2 suggests that students with experience of 1-3 years preferred web along with all other media, and those with 4-6 years of experience preferred interactive CD. However, more experienced learners opined that web and f2f be given equal importance. These findings are to be seen in relation to the findings of the achievement test and learning activity scale (Dikshit et al, 2003).

Preferred place to access the web

India is a leading country as far as software development is concerned. However, due to limited availability of infrastructure and scarce resources, access to ICT is confined to work place, Internet café and educational institutions. Table 5 gives the preferred place to access the web. As may be noted, the majority of IGNOU students could access the web at the tele-learning centres and at Internet café. On the other hand, the YCMOU students preferred to access the Net at home and tele-learning centres. On very rare occasions, they could access the web at Internet café and office. It may be noted that the design of interactive multimedia materials would also require availability of bandwidth and speed of online material delivery.

Table 5: Preferred place to access the Web

Places	Always		Sometimes		Not at all	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Telelearning centre	130 (56.8)	16 (38.1)	62 (27.1)	14 (33.3)	29 (12.7)	10 (23.8)
b) Office	7 (3.1)	4 (9.5)	24 (10.5)	19 (45.2)	118 (51.8)	13 (31.0)
c) Home	34 (14.8)	15 (35.7)	67 (29.3)	12 (28.6)	71 (31.0)	12 (28.6)
d) Internet café	50 (21.8)	7 (16.7)	111 (48.5)	20 (47.6)	35 (15.3)	12 (28.6)

Gender-wise and computer experience-wise analysis for IGNOU is given in Tables 5.1 and 5.2, respectively. Table 5.1 shows that out of the IGNOU sample of 230, 49.6% used TLC as their first preference. (This group constitutes about 58.5% of total male population in the sample.) Similarly, 50% of the total responding and nearly 44.8% of the total female population opted for IGNOU TLC as the first preference. It also means that a fairly significant percentage from each gender group had preferred to access the web through Internet café and at home.

Table 5.1: Accessibility to the web for the courses (Gender-wise)

IGNOU TLC	No reply	Not at all	Sometimes	Always	Total
No reply (F+M)	14 (6.1)	0 (0.0)	0 (0.0)	0 (0.0)	14 (6.1)
Female	0 (0.0)	1 (0.4)	12 (5.2)	13 (5.7)	26 (11.3)
Male	0 (0.0)	28 (12.1)	48 (20.9)	114 (49.6)	190 (82.6)
Total	14 (6.1)	29 (12.5)	60 (26.1)	127 (55.3)	230 (100)
Office					
No reply (F+M)	84 (36.5)	0 (0.0)	0 (0.0)	0 (0.0)	84 (36.5)
Female	0 (0.0)	15 (6.6)	1 (0.4)	3 (1.3)	19 (8.3)
Male	0 (0.0)	102 (44.3)	21 (9.2)	4 (1.7)	127 (55.2)
Total	84 (36.5)	117 (50.9)	22 (9.6)	7 (3.0)	230 (100)
Home					
No reply (F+M)	61 (26.5)	0 (0.0)	0 (0.0)	0 (0.0)	61 (26.5)
Female	0 (0.0)	10 (4.4)	9 (3.9)	5 (2.2)	24 (10.5)
Male	0 (0.0)	61 (26.5)	55 (23.9)	29 (12.6)	145 (63.0)
Total	61 (26.5)	71 (30.9)	64 (27.8)	34 (14.8)	230 (100)
Internet café					
No reply (F+M)	37 (16.1)	0 (0.0)	0 (0.0)	0 (0.0)	37 (16.1)
Female	0 (0.0)	2 (0.9)	16 (6.9)	8 (3.5)	26 (11.3)
Male	0 (0.0)	32 (13.9)	93 (40.4)	42 (18.3)	167 (72.6)
Total	37 (16.1)	34 (14.8)	109 (47.3)	50 (21.8)	230 (100)
Other					
No reply (F+M)	202 (87.8)	0 (0.0)	0 (0.0)	0 (0.0)	202 (87.8)
Female	0 (0.0)	3 (1.3)	0 (0.0)	0 (0.0)	3 (1.3)
Male	0 (0.0)	16 (7.0)	8 (3.5)	1 (0.4)	25 (10.9)
Total	202 (87.8)	19 (8.3)	8 (3.5)	1 (0.4)	230 (100)

Table 5.2 gives accessibility to the web for learners with different computer experiences. It is evident that about 63% learners with less than 1 year of computer experience had opted for TLC as their first preference, while those with 1-3 years of experience opted for Internet café. This indicates the growing self-confidence in the learners in controlling their studies on their own. This is further confirmed by the preferences of those having more than six years of experience to work at home as the usual place to access the web.

Table 5.2: Accessibility to the web for the courses (Computer experience-wise)

IGNOU TLC	No reply	Not at all	Sometimes	Always	Total
No reply (Exp)?	23 (10.0)	0 (0.0)	0 (0.0)	0 (0.0)	23 (10.0)
<1 year	0 (0.0)	5 (2.17)	13 (5.65)	31 (13.47)	49 (21.30)
1-3 years	0 (0.0)	20 (8.7)	36 (15.65)	73 (31.73)	129 (56.08)
4-6 years	0 (0.0)	0 (0.0)	6 (2.6)	11 (4.78)	17 (7.39)
Over 6 years	0 (0.0)	2 (0.86)	5 (2.17)	5 (2.17)	12 (5.23)
Total	23 (10.0)	27 (11.74)	60 (26.09)	120 (52.17)	230 (100)
Office					
No reply (Exp)?	90 (39.13)	0 (0.0)	0 (0.0)	0 (0.0)	90 (39.13)
<1 year	0 (0.0)	20 (8.7)	5 (2.17)	1 (0.4)	26 (11.30)
1-3 years	0 (0.0)	79 (34.34)	10 (4.34)	4 (1.73)	93 (40.43)
4-6 years	0 (0.0)	9 (3.91)	2 (0.86)	1 (0.4)	12 (5.22)
Over 6 years	0 (0.0)	5 (2.17)	3 (1.30)	1 (0.4)	9 (3.92)
Total	90 (39.13)	113 (49.13)	20 (8.69)	7 (3.04)	230 (100)
Home					
No reply (Exp)?	68 (29.56)	0 (0.0)	0 (0.0)	0 (0.0)	68 (29.56)
<1 year	0 (0.0)	14 (6.08)	13 (5.65)	4 (1.73)	31 (13.48)
1-3 years	0 (0.0)	47 (20.43)	35 (15.21)	23 (10.0)	105 (45.65)
4-6 years	0 (0.0)	5 (2.17)	8 (3.47)	2 (0.86)	15 (6.52)
Over 6 years	0 (0.0)	2 (0.86)	4 (1.73)	5 (2.17)	11 (4.78)
Total	68 (29.56)	68 (29.56)	60 (26.09)	34 (14.78)	230 (100)
Internet Café					
No reply (Exp)?	46(20.0)	0 (0.0)	0 (0.0)	0 (0.0)	46 (20.0)
<1 year	0 (0.0)	13 (5.65)	19 (8.26)	6 (2.6)	38 (16.52)
1-3 years	0 (0.0)	15 (6.52)	68 (29.56)	38 (16.52)	121 (52.60)
4-6 years	0 (0.0)	2 (0.86)	11 (4.78)	1 (0.4)	14 (6.08)
Over 6 years	0 (0.0)	2 (0.86)	6 (2.6)	3 (1.30)	11 (4.78)
Total	46(20.0)	32 (13.91)	104 (45.22)	48 (20.87	230 (100)

Level of skills in web applications

Table 6 lists the level of skills required to access web applications. It is interesting to note that a large majority of IGNOU students had high proficiency in handling email, web-browsing, and chat in that order, while majority of YCMOU students had high proficiency in email, and medium to low proficiency in areas like browser, file transfer, chat, etc.

Table 6: Level of skills in web applications

Web applications	90% skill		75% skill		50% skill		25% skill		No skill	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) E-mail	165 (72.1)	20 (47.6)	33 (14.4)	14 (33.3)	19 (6.4)	8 (19.0)	8 (3.5)	--	--	--
b) File transfer (FTP)	62 (27.2)	9 (21.4)	56 (24.6)	12 (28.6)	50 (21.9)	11 (26.2)	29 (12.7)	--	20 (8.8)	10 (23.8)
c) Browsers	110 (48.0)	11 (26.2)	63 (27.5)	14 (33.3)	24 (10.5)	15 (35.7)	14 (6.1)	2 (4.8)	3 (1.3)	--
d) Bulletin board	51 (22.5)	3 (7.1)	36 (15.9)	9 (21.4)	47 (20.7)	13 (31.0)	34 (15.0)	10 (23.8)	38 (16.7)	7 (16.7)
e) Chat	96 (41.9)	7 (16.7)	38 (16.6)	3 (7.1)	33 (14.4)	15 (35.7)	27 (11.8)	7 (16.7)	26 (11.4)	10 (23.8)
f) Telnet	26 (11.5)	2 (4.8)	33 (14.5)	4 (9.5)	48 (21.1)	3 (7.1)	42 (18.5)	7 (16.7)	49 (21.6)	25 (59.5)

Preferences of weekly study duration by the learners

Table 7 gives an estimate of the weekly study duration preferred by the learners. While IGNOU students would like to put in more than 6 hours per week, besides the time spent in guided support (about 12 hours) YCMOU students were not able to devote more than 3 hours per week. This is a crucial input for distance educators in their effort to promote effective and active self-learning.

Table 7: Preferred weekly study duration

Duration per week	IGNOU (N=230)	YCMOU (N=42)
a) < 1 hour	5 (2.2)	15 (35.7)
b) 1-3 hours	65 (28.4)	15 (35.7)
c) 4-6 hours	65 (28.4)	7 (16.7)
d) > 6 hours	89 (38.9)	3 (7.1)
e) No response	6 (2.6)	2 (4.8)

Aspects of most recent computer-mediated course taken

Table 8 shows that most IGNOU students could share ideas with peers and undertake group projects through the computer. Moreover, they were motivated to enrol in advanced computer-mediated programme, though it was their first chance to study online. In case of YCMOU, a large majority of similarly placed learners had received adequate documentation from their university, yet most of them could not use computer for sharing ideas and undertaking group projects on their own. This could be due to their prior limited exposure and lack of confidence in using computers.

Table 8: Aspects of most recent computer-mediated course taken

Aspects	Yes		No	
	IGNOU	YCMOU	IGNOU	YCMOU
a) Receipt of adequate documentation	84 (33.7)	36 (85.7)	131 (58.7)	6 (14.3)
b) Computer experience before	104 (46.0)	15 (35.7)	119 (52.7)	27 (64.3)
c) First computer-mediated course	147 (65.0)	30 (71.4)	75 (33.2)	12 (28.6)
d) Plan to enrol more in CMC	113 (50.0)	16 (38.1)	107 (47.3)	26 (61.9)
e) Sharing ideas through computer	172 (76.1)	16 (38.1)	48 (21.2)	26 (61.9)
f) Group projects through computer	146 (64.6)	12 (28.6)	75 (33.2)	30 (71.4)

Rating of computer-mediated courses

Designing and developing distance education programmes requires specialised training and skills. This is more so in case of online courses. Since there is a rush for ICT enabled mediated courses and programmes, distance learners must be well equipped with necessary wherewithal. Table 9 gives the rating of computer mediated courses offered by IGNOU as well as YCMOU in terms of seven different variables ranging from contents of the course to accessing computer resources. While IGNOU students rated the overall computer-based distance learning (CBDL), accessing computer resources, instructor support, ability of the instructors, and contents of the courses as good, they experienced difficulties with technical support from the university, and the concerned ISP provider. For the YCMOU, while the overall CBDL along with access to computer resources, access to the instructor via computer and contents of the courses were rated high, the ISP providers' support was suggested to be poor.

Table 9: Rating of recent computer-mediated course

Aspects	Excellent		Good		Fair		Poor	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Accessing computer resources	13 (5.8)	19 (45.2)	90 (39.8)	21 (50.0)	89 (39.4)	2 (4.8)	28 (12.4)	--
b) Instructor via computer	34 (15.1)	6 (14.3)	84 (37.3)	24 (57.1)	59 (26.2)	8 (19.0)	43 (19.1)	3 (7.1)
c) Instructor ability	25 (11.1)	13 (31.0)	103 (45.8)	15 (35.7)	65 (28.9)	12 (28.6)	28 (12.4)	2 (4.8)
d) University technical support	7 (3.1)	3 (7.1)	55 (24.3)	16 (38.1)	71 (31.4)	15 (35.7)	88 (38.9)	8 (19.0)
e) ISP provider support	13 (5.8)	7 (16.7)	50 (22.2)	9 (21.4)	73 (32.4)	8 (19.0)	85 (37.8)	18 (42.9)
f) Content of the course	19 (8.4)	10 (23.8)	105 (46.5)	25 (59.5)	73 (32.3)	4 (9.5)	24 (10.6)	3 (7.1)
g) Overall CBDL	11 (4.9)	8 (19.0)	91 (40.6)	23 (54.8)	87 (38.8)	8 (19.0)	29 (12.9)	3 (7.1)

Student's main concerns in computer mediated DE

Table 10 lists learner responses about their main concerns in computer mediated distance education. As may be noted, IGNOU students considered teacher computer competency, availability of campus resources, facility for personal interaction in the group, and computer training programmes more crucial and areas of serious concern as these are intimately connected to their success and acceptability by the employers. For the YCMOU students, the main concerns were teacher computer competency, student computer competency, and support group in the university. These could be taken as indicators of their concern for effective training. Interestingly, computer cost, connection cost, computer training and campus resources were not considered as important.

Table 10: Main concerns in computer mediated DE

Concerns	Crucial		Very important		Important		Somewhat important		Of little important	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Tr. Computer competency	105 (46.9)	10 (23.8)	87 (38.8)	18 (42.9)	25 (11.2)	12 (28.6)	4 (1.8)	2 (4.8)	1 (0.4)	-
b) St. computer competency	66 (29.5)	7 (16.7)	88 (39.3)	17 (40.5)	59 (26.3)	16 (38.1)	9 (4.0)	2 (4.8)	-	-
c) Support group	48 (21.7)	7 (16.7)	82 (37.1)	14 (33.3)	73 (33.0)	13 (31.0)	14 (6.3)	8 (19.0)	1 (0.5)	-
d) Group interaction	67 (30.2)	1 (2.4)	88 (39.6)	10 (23.8)	53 (23.9)	18 (42.9)	10 (4.5)	12 (28.6)	2 (0.9)	1 (2.4)
e) Campus resources	79 (35.3)	3 (7.1)	77 (34.4)	3 (7.1)	53 (23.9)	16 (38.1)	10 (4.5)	10 (23.8)	1 (0.4)	10 (23.8)
f) Computer training	60 (27.3)	4 (9.5)	108 (49.1)	3 (7.1)	31 (14.1)	10 (23.8)	17 (7.7)	12 (28.6)	1 (0.5)	13 (31.0)
g)Connection cost	25 (11.3)	8 (19.0)	50 (22.6)	11 (26.2)	74 (33.5)	6 (14.3)	44 (19.9)	9 (21.4)	19 (8.6)	8 (19.0)
h) Computer cost	24 (10.9)	4 (9.5)	40 (18.1)	6 (14.3)	87 (39.4)	9 (21.4)	37 (16.7)	13 (31.0)	25 (11.3)	10 (23.8)
i) Others	5 (3.2)	1 (2.4)	2 (1.3)	3 (7.1)	3 (1.9)	1 (2.4)	7 (4.5)	3 (7.1)	4 (2.6)	3 (7.1)

Gender-wise analysis for the main concerns in computer-mediated distance education revealed that almost all the learners in both gender groups had opined that teacher's computer competency was extremely important and crucial. On the other hand, more females (45%) than males (34%) considered student access to campus resources more crucial whereas more males (32%) than females (24%) had preferred greater personal interaction in the group as crucial for effective computer-mediated distance education.

Analysis in terms of computer experience shows that learners with 1-3 years of experience preferred teacher computer competency, student computer competency, student access to campus resources, and personal interaction in the peer group. The learners with less than 1 year and more than 4 years computer experience were less critical about these aspects.

Though open distance learning essentially involves independent self-study, the individual learners expect some form of human mediation at designated and preferred locations for guided instruction and peer group interaction. These interventions cater to improving reading and study skills, enhancing motivation, widening individual world-view and perception, and developing group dynamics and leadership. Therefore, distance teaching institutions do make considered decisions and provide various sustainable learner support services. And the quality of these services influences learner retentively and success rate. To use this as an indicator for online learning, we considered it appropriate to rate the support services on a three-point scale: low, moderate and high.

Preference for support structures

Table 11 suggests that IGNOU students accorded the highest preference to printed course materials, f2f interaction with the tutor, email contact with the instructor/tutor, interactive multimedia materials on CD-ROM, web-based course materials, and emailing peers. On the other hand, the YCMOU students indicated printed course materials, interactive multimedia materials on CD-ROM, f2f contact with the tutor, web-based course materials, and email contact with the instructor/tutor as important support provisions in the order of preference.

Table 11: Preference for support structures

Support structures	High preference		Moderate preference		Low preference	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Course materials (print)	187 (82.7)	37 (88.1)	30 (13.3)	5 (11.9)	6 (2.7)	-
b) Course material (web)	87 (39.4)	16 (38.1)	106 (48.0)	25 (59.5)	25 (11.3)	1 (2.4)
c) CD-ROM	114 (50.2)	23 (54.8)	80 (35.2)	16 (38.1)	31 (13.7)	3 (7.1)
d) TV programmes	34 (16.0)	9 (21.4)	105 (49.5)	18 (42.9)	71 (33.5)	13 (31.0)
e) F2f tutor contact	178 (59.7)	17 (40.5)	34 (15.6)	14 (33.3)	4 (1.8)	9 (21.4)
f) Emailing instructor	162 (74.0)	14 (33.3)	50 (22.8)	15 (35.7)	5 (2.3)	11 (26.2)
g) Emailing peers	46 (20.8)	6 (14.3)	117 (52.9)	20 (47.6)	56 (25.3)	16 (38.1)
h) Message boards	50 (22.6)	2 (4.8)	122 (55.2)	8 (19.0)	47 (21.3)	30 (71.4)
i) Chat sessions	64 (29.2)	9 (21.4)	109 (49.8)	15 (35.7)	44 (20.1)	17 (40.5)

It is interesting to note that while IGNOU students preferred f2f contact with the teacher to the CD-Rom or web-based course material, YCMOU students showed preference for CD-Rom over f2f contact. This is an indicator of greater confidence in YCMOU students while working with multimedia. Surprisingly, both category of students showed low preference for TV programmes, e-mail contact with the peers, message board and chat sessions.

Gender analysis for IGNOU suggests that females preferred print materials, CD-based materials and f2f contact with peers, while male learners had preference for f2f and email contact with their tutors. Analysis of the data for IGNOU learners with 1-3 years of computer experience shows that this group had a marked preference for web-based materials, CD-based materials, f2f contact with tutor, and f2f contact with fellow students. This is an indicator of their greater motivation and proficiency in in-fashion modes of teaching learning. The group with more than four years of computer experience felt comfortable with all the support provisions, which is a measure of their self-confidence.

Preference for components of web-based learning

The preference of sample population for components of web-based learning platforms like plain text with proper layout, hyperlinks, frames, images, interface, animation, audio and video clips are listed in Table 12. IGNOU students, as may be noted, showed high preference for images, interface like buttons, scroll bars, menus, etc., video clips, animation, audio and hyperlinks; and moderate preference for text with proper layout. For the students of YCMOU, the preferred platforms included hyperlinks, plain text with layout, and video clips whereas moderate preference included interface, audio and animation. These preferences guided the investigator in the conversion/development of the Chapter into interactive multimedia and web-based learning for the experimental treatments.

Table 12: Preference for components of web-based learning

Support structures	High preference		Moderate preference		Low preference	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Plain text	86 (38.6)	22 (52.4)	101 (45.3)	10 (23.8)	34 (15.2)	9 (21.4)
b) Text with proper layout	85 (38.6)	20 (47.6)	110 (50.0)	20 (47.6)	21 (9.5)	1 (21.4)
c) Hyperlinks	129 (59.7)	25 (59.5)	66 (30.6)	11 (26.2)	14 (6.5)	5 (11.9)
d) Frames	101 (45.9)	3 (7.1)	87 (39.5)	13 (31.0)	27 (12.3)	25 (59.5)
e) Images	154 (68.8)	12 (28.6)	45 (20.1)	22 (52.4)	15 (6.7)	6 (14.3)
f) Interface	141 (62.7)	9 (21.4)	58 (25.8)	23 (54.8)	11 (4.9)	9 (21.4)
g) Animation	113 (50.4)	9 (21.4)	73 (32.6)	17 (40.5)	26 (11.6)	15 (35.7)
h) Audio	113 (50.4)	13 (31.0)	73 (32.6)	21 (50.0)	29 (12.9)	7 (16.7)
i) Video clips	137 (60.9)	17 (40.5)	58 (25.8)	10 (23.8)	19 (8.4)	14 (33.3)

Further analysis based on gender and computer experience reveals that males preferred hyperlinks, frames, images, interface and video clips while females had high preference for printed materials with layout design, hyperlinks, images, interface and video clips. Also, learners having up to 3 years computer experience had highly preferred images, interface, hyperlinks and video clips. Most of those with more than 6 years of experience had preference for hyperlinks, images, interface and video clips.

Difficulties perceived by IGNOU and YCMOU students while working with WBL

It has been observed that in developing countries, the Internet/web-based access for teaching learning is comparatively low. But in the emerging scenario ICT is bound to play a greater role in instructional delivery. To obtain the views of our online learners about their experiences with web-based learning, we analysed this question in terms of Internet access, connectivity, response time, computer skills, technical limitations such as availability of bandwidth and the like. Table 13 shows that the difficulties perceived by IGNOU and YCMOU students while working with WBL included slow Internet connectivity, greater time to receive responses, cost of Internet connection, and technical limitations of working on the Net. In case of YCMOU students, the low computer skill was an additional handicap. However, it is interesting to note that almost equal fraction from both the groups of learners had experienced moderate and low difficulties in independent learning, choosing the WBL resources and unfamiliarity with the features.

Table 13: Views on difficulties with WBL

Areas	High difficulty		Moderate difficulty		Low difficulty		No difficulty	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Internet access	73 (32.4)	30 (71.4)	91 (40.4)	9 (21.4)	36 (16.0)	3 (2.7)	18 (8.0)	--
b) Slow connection	132 (58.9)	19 (45.2)	53 (23.7)	14 (33.3)	20 (8.9)	9 (21.4)	5 (2.2)	--
c) Cost of Internet	77 (34.5)	23 (54.8)	85 (38.1)	7 (16.7)	36 (16.1)	11 (26.2)	13 (5.1)	--
d) Response time	82 (36.6)	12 (28.6)	88 (39.3)	9 (21.4)	32 (14.3)	9 (21.4)	12 (5.4)	12 (28.6)
e) Low computer skill	30 (13.3)	4 (9.5)	65 (28.9)	17 (40.5)	48 (21.3)	13 (31.0)	70 (31.1)	7 (16.7)
f) Technical imitation	58 (25.8)	1 (2.4)	85 (37.8)	13 (31.0)	48 (21.3)	15 (35.7)	26 (11.6)	13 (31.0)
g) Unfamiliarity	43 (19.1)	5 (11.9)	77 (34.2)	10 (23.8)	70 (31.1)	8 (19.0)	28 (12.4)	1 (2.4)
h) Independent learning	32 (14.4)	6 (14.3)	68 (30.6)	8 (19.0)	54 (24.3)	10 (23.8)	54 (24.3)	18 (42.9)
i) Too many resources	38 (17.0)	2 (4.8)	63 (28.1)	9 (21.4)	57 (25.4)	11 (26.2)	54 (24.3)	19 (45.2)
j) WBL not suitable	31 (13.8)	3 (7.1)	86 (38.4)	6 (14.3)	54 (24.1)	10 (23.8)	41 (18.3)	23 (54.8)
k) Expression of personal opinion	49 (21.9)	1 (2.4)	76 (33.9)	10 (23.8)	68 (30.4)	13 (31.0)	19 (8.5)	18 (42.9)
l) Features unfamiliarity	49 (21.9)	6 (14.3)	68 (30.4)	6 (14.3)	55 (24.6)	9 (21.4)	41 (18.3)	21 (50.0)
m) Any other	3 (1.3)	2 (4.8)	6 (2.7)	4 (9.5)	3 (1.3)	1 (2.4)	4 (1.8)	2 (4.8)

Preference for modes of interaction in WBL

In view of the difficulties experienced by the learners while working with WBL, it was considered worthwhile to examine the preferences of the learners for modes of

interaction in WBL. This question was examined by seeking preferences in areas such as electronic annotations, discussion groups, online chatting, questions online, reading online, grades online, feedback online, voice chatting, online tutorials and online mentoring.

Table 14: Preference for modes of interaction in WBL

Areas	High favourable		Moderate favourable		Not favourable	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Electronic annotations	64 (28.4)	19 (45.2)	107 (47.6)	13 (31.0)	10 (4.4)	6 (14.3)
b) Discussion groups	113 (50.7)	17 (40.5)	70 (31.4)	18 (42.9)	5 (2.2)	4 (9.5)
c) Questions online	108 (48.2)	(17 (40.5)	66 (29.5)	13 (31.0)	4 (1.8)	1 (2.4)
d) Online chatting	71 (31.7)	7 (16.7)	82 (36.6)	17 (40.5)	14 (6.3)	6 (14.3)
e) Voice chatting	76 (34.7)	6 (14.3)	76 (34.7)	19 (45.2)	19 (8.7)	5 (11.9)
f) Reading online	62 (28.2)	8 (19.0)	71 (32.3)	17 (40.5)	25 (11.4)	4 (9.5)
g) Grades online	76 (34.2)	9 (21.4)	77 (34.7)	21 (50.0)	16 (7.2)	3 (7.1)
h) Feedback online	110 (50.0)	10 (23.8)	66 (30.0)	20 (47.6)	18 (8.2)	2 (4.8)
i) Online tutorial	70 (31.5)	11 (26.2)	85 (38.3)	12 (28.6)	27 (12.2)	7 (16.7)
j) Online mentoring	52 (23.4)	8 (19.0)	93 (41.9)	11 (26.2)	21 (9.5)	11 (26.2)

Note: The 'neutral' option responses have not been included in the analysis (Table 15).

Table 14 indicates that for the IGNOU students, the most preferred modes of interaction in WBL included discussion groups, receiving feedback on tests and assignments online, asking and answering questions online, voice-based online chatting, and online mentoring support. For the YCMOU students, the most favourable interaction modes included making electronic annotations, forming discussion groups, asking and answering questions online, receiving grades online, and receiving feedbacks on tests and assignments online.

To know gender-wise and computer experience-wise preferences for modes of interaction in WBL, we have analysed data for IGNOU students. It is observed from Tables 14.1 and 14.2 that:

- male as well as female learners had largely preferred formation of discussion groups, asking and answering questions online, and receiving feedback on tests and assignments online;
- learners with less than 1 year computer experience preferred formation of discussion groups, asking and answering questions online and text based online chat; and
- learners with more than 3 years of computer experience opined for receiving feedback online, asking and answering questions online and voice-based online chat.

Table 14.1: Preference for modes of interaction in WBL (Gender-wise)

	No reply	Not favourable	Neutral	Favourable	H. favour.	Total
Making electronic annotations						
No reply (F&M)	28 (12.17)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	28 (12.17)
Female	0 (0.0)	0 (0.0)	3 (1.30)	19 (8.26)	7 (3.04)	29 (12.61)
Male	0 (0.0)	10 (4.35)	18 (7.83)	88 (35.26)	57 (24.78)	173 (75.22)
Total	28 (12.17)	10 (4.35)	21 (9.13)	107 (46.52)	64 (27.83)	230 (100)
Forming discussion groups						
No reply (F&M)	23 (10.00)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	23 (10.00)
Female	0 (0.0)	0 (0.0)	2 (0.87)	11 (4.78)	16 (6.96)	29 (12.61)
Male	0 (0.0)	5 (2.17)	18 (7.83)	58 (25.22)	97 (42.17)	178 (77.39)
Total	23 (10.00)	5 (2.17)	20 (8.70)	69 (30.00)	113 (49.13)	230 (100)
Asking and answering question						
No reply (F&M)	14 (6.09)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	14 (6.09)
Female	0 (0.0)	0 (0.0)	2 (0.87)	12 (5.22)	14 (6.09)	28 (12.17)
Male	0 (0.0)	4 (1.70)	37 (16.04)	53 (23.04)	94 (40.87)	188 (81.74)
Total	14 (6.09)	4 (1.70)	39 (16.96)	65 (28.26)	108 (46.96)	230 (100)
Text based online chatting						
No reply (F&M)	19 (8.26)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	19 (8.26)
Female	0 (0.0)	0 (0.0)	11 (4.78)	6 (2.61)	11 (4.78)	28 (12.17)
Male	0 (0.0)	13 (5.65)	34 (14.78)	76 (33.04)	60 (26.09)	183 (79.57)
Total	19 (8.26)	13 (5.65)	45 (19.57)	82 (35.65)	71 (30.87)	230 (100)
Voice-based online chatting						
No reply (F&M)	19 (8.26)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	19 (8.26)
Female	0 (0.0)	2 (0.87)	7 (3.04)	15 (6.52)	5 (2.17)	29 (12.61)
Male	0 (0.0)	16 (6.96)	34 (14.78)	61 (26.52)	71 (30.87)	182 (79.13)
Total	19 (8.26)	18 (7.83)	41 (17.83)	76 (33.04)	76 (33.04)	230 (100)
Reading on line						
No reply (F&M)	18 (7.83)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	18 (7.83)
Female	0 (0.0)	6 (2.61)	0 (0.0)	13 (5.65)	9 (3.91)	28 (12.17)
Male	0 (0.0)	18 (7.83)	55 (23.91)	58 (25.22)	53 (23.04)	184 (80.0)
Total	18 (7.83)	24 (10.43)	55 (23.91)	71 (30.87)	62 (26.92)	230 (100)
Receiving grades on-line						
No reply (F&M)	29 (12.61)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	29 (12.61)
Female	0 (0.0)	0 (0.0)	5 (2.17)	12 (5.22)	8 (3.48)	25 (10.87)
Male	0 (0.0)	15 (6.52)	28 (12.17)	65 (28.26)	68 (29.57)	176 (76.52)
Total	29 (12.61)	15 (6.52)	33 (14.35)	77 (33.48)	76 (33.04)	230 (100)
Receiving feedbacks on tests and assignments online						
No reply (F&M)	21 (9.13)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	21 (9.13)
Female	0 (0.0)	0 (0.0)	3 (1.30)	8 (3.48)	18 (7.83)	29 (12.61)
Male	0 (0.0)	18 (7.83)	13 (5.65)	57 (24.78)	92 (40.0)	180 (78.26)
Total	21 (9.13)	18 (7.83)	16 (6.96)	65 (28.26)	110 (47.83)	230 (100)
Online tutorial						
No reply (F&M)	15 (6.52)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	15 (6.52)
Female	0 (0.0)	3 (1.30)	4 (1.74)	13 (5.65)	9 (3.91)	29 (12.61)
Male	0 (0.0)	24 (10.43)	30 (13.04)	71 (30.87)	61 (26.52)	186 (80.87)
Total	15 (6.52)	27 (11.74)	34 (14.78)	84 (36.52)	70 (30.43)	230 (100)
Online mentoring support						
No reply (F&M)	19 (8.26)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	19 (8.26)
Female	0 (0.0)	3 (1.30)	5 (2.17)	16 (6.96)	5 (2.17)	29 (12.61)
Male	0 (0.0)	18 (7.83)	40 (17.39)	77 (33.48)	47 (20.43)	182 (79.13)
Total	19 (8.26)	21 (9.13)	45 (19.57)	93 (40.43)	52 (22.61)	230 (100)
Any other						
No reply (F&M)	209 (90.87)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	209 (90.87)
Female	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Male	0 (0.0)	2 (0.87)	5 (2.17)	2 (0.87)	12 (5.22)	21 (9.13)
Total	209 (90.87)	2 (0.87)	5 (2.17)	2 (0.87)	12 (5.22)	230 (100)

Table 14.2: Preference for mode of interaction in WBL (Computer Experience-wise)

	No reply	Not favourable	Neutral	Favourable	H. favour.	Total
Making electronic annotations						
No reply (Exp)	37 (16.04)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	37 (16.04)
<1 year	0 (0.0)	2 (0.87)	7 (3.04)	19 (8.26)	15 (6.52)	43 (18.70)
1-3 years	0 (0.0)	7 (3.04)	11 (4.78)	73 (31.74)	31 (13.48)	122 (53.04)
4-6 years	0 (0.0)	1 (0.43)	3 (1.30)	6 (2.61)	6 (2.61)	16 (6.96)
Over 6 years	0 (0.0)	0 (0.0)	0 (0.0)	6 (2.61)	6 (2.61)	12 (5.22)
Total	37 (16.04)	10 (4.35)	21 (9.13)	104 (45.22)	58 (25.22)	230 (100)
forming discussion groups						
No reply (Exp)	31 (13.48)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	31 (13.48)
<1 year	0 (0.0)	1 (0.43)	4 (1.70)	14 (6.09)	28 (12.17)	47 (20.43)
1-3 years	0 (0.0)	3 (1.30)	13 (5.65)	43 (18.70)	63 (27.39)	122 (53.04)
4-6 years	0 (0.0)	1 (0.43)	1 (0.43)	4 (1.70)	11 (4.78)	17 (7.39)
Over 6 years	0 (0.0)	0 (0.0)	1 (0.43)	5 (2.17)	7 (3.04)	13 (5.65)
Total	31 (13.48)	5 (2.17)	19 (8.26)	66 (28.70)	109 (47.39)	100 (43.48)
Asking and answering questions on-line						
No reply (Exp)	23 (10.00)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	23 (10.00)
<1 year	0 (0.0)	0 (0.0)	5 (2.17)	16 (6.96)	26 (11.30)	47 (20.43)
1-3 years	0 (0.0)	3 (1.30)	26 (11.30)	39 (16.96)	62 (26.92)	130 (56.55)
4-6 years	0 (0.0)	1 (0.43)	6 (2.61)	3 (1.30)	7 (3.04)	17 (7.39)
Over 6 years	0 (0.0)	0 (0.0)	2 (0.87)	3 (1.30)	8 (3.48)	13 (5.65)
Total	23 (10.00)	4 (1.70)	39 (16.96)	61 (26.52)	103 (44.78)	230 (100)
Text based online chatting						
No reply (Exp)	28 (12.17)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	28 (12.17)
<1 year	0 (0.0)	1 (0.43)	7 (3.04)	16 (6.96)	22 (9.57)	46 (20.0)
1-3 years	0 (0.0)	9 (3.91)	34 (14.78)	47 (20.43)	36 (15.65)	126 (54.78)
4-6 years	0 (0.0)	2 (0.87)	1 (0.43)	11 (4.78)	3 (1.30)	17 (7.39)
Over 6 years	0 (0.0)	1 (0.43)	1 (0.43)	5 (2.17)	6 (2.61)	13 (5.65)
Total	28 (12.17)	13 (5.65)	43 (18.70)	79 (34.35)	67 (29.13)	230 (100)
Voice-based online chatting						
No reply (Exp)	32 (13.91)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	32 (13.91)
<1 year	0 (0.0)	1 (0.43)	1 (0.43)	4 (1.70)	2 (0.87)	8 (3.48)
1-3 years	0 (0.0)	5 (2.17)	5 (2.17)	17 (7.39)	20 (8.70)	47 (20.43)
4-6 years	0 (0.0)	11 (4.78)	30 (13.04)	47 (20.43)	39 (16.96)	127 (55.22)
Over 6 years	0 (0.0)	2 (0.87)	2 (0.87)	5 (2.17)	7 (3.04)	16 (6.96)
Total	32 (13.91)	19 (8.26)	38 (16.52)	73 (31.74)	68 (29.57)	230 (100)
Reading online chatting						
No reply (Exp)	27 (11.74)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	27 (11.74)
<1 year	0 (0.0)	6 (2.61)	8 (3.48)	13 (5.65)	18 (7.83)	45 (19.57)
1-3 years	0 (0.0)	15 (6.52)	36 (15.65)	46 (20.0)	32 (13.91)	129 (56.09)
4-6 years	0 (0.0)	1 (0.43)	7 (3.04)	4 (1.70)	5 (2.17)	17 (7.39)
Over 6 years	0 (0.0)	1 (0.43)	2 (0.87)	6 (2.61)	3 (1.30)	12 (5.22)
Total	27 (11.74)	23 (10.00)	53 (23.04)	69 (30.00)	58 (25.22)	230 (100)
Receiving grades on-line						
No reply (Exp)	38 (16.52)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	38 (16.52)
<1 year	0 (0.0)	6 (2.61)	3 (1.30)	18 (7.83)	18 (7.83)	45 (19.57)
1-3 years	0 (0.0)	8 (3.48)	22 (9.57)	47 (20.43)	40 (17.39)	117 (58.87)
4-6 years	0 (0.0)	1 (0.43)	3 (1.30)	7 (3.04)	6 (2.61)	17 (7.39)
Over 6 years	0 (0.0)	0 (0.0)	3 (1.30)	2 (0.87)	8 (3.48)	13 (5.65)
Total	38 (16.52)	15 (6.52)	31 (13.48)	74 (32.17)	72 (31.30)	230 (100)

Table 14.2: *(Contd.)*

Receiving feedbacks						
No reply (Exp)	29 (12.61)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	29 (12.61)
<1 year	0 (0.0)	4 (1.70)	4 (1.70)	17 (7.39)	19 (8.26)	44 (19.13)
1-3 years	0 (0.0)	9 (3.91)	8 (3.48)	41 (17.83)	70 (30.43)	128 (55.65)
4-6 years	0 (0.0)	3 (1.30)	2 (0.87)	4 (1.70)	7 (3.04)	16 (6.96)
Over 6 years	0 (0.0)	2 (0.87)	0 (0.0)	2 (0.87)	9 (3.91)	13 (5.65)
Total	29 (12.61)	18 (7.83)	14 (6.09)	64 (27.83)	105 (45.65)	230 (100)
Online tutorial						
No reply (Exp)	24 (10.43)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	24 (10.43)
<1 year	0 (0.0)	7 (3.04)	10 (4.35)	16 (6.96)	15 (6.52)	48 (20.87)
1-3 years	0 (0.0)	14 (6.09)	20 (8.70)	54 (23.48)	40 (17.39)	128 (55.65)
4-6 years	0 (0.0)	2 (0.87)	2 (0.87)	7 (3.04)	6 (2.61)	17 (7.39)
Over 6 years	0 (0.0)	2 (0.87)	1 (0.43)	4 (1.70)	6 (2.61)	13 (5.65)
Total	24 (10.43)	25 (10.87)	33 (14.35)	81 (35.22)	67 (29.13)	230 (100)
Online tutorial support						
No reply (Exp)	28 (12.17)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	28 (12.17)
<1 year	0 (0.0)	4 (1.70)	8 (3.48)	22 (9.57)	13 (5.65)	47 (20.43)
1-3 years	0 (0.0)	14 (6.09)	30 (13.04)	57 (24.78)	26 (11.30)	127 (55.22)
4-6 years	0 (0.0)	2 (0.87)	4 (1.70)	5 (2.17)	4 (1.70)	15 (6.52)
Over 6 years	0 (0.0)	1 (0.43)	1 (0.43)	6 (2.61)	5 (2.17)	13 (5.65)
Total	28 (12.17)	21 (9.13)	43 (18.70)	90 (39.13)	48 (20.87)	230 (100)
Any other						
No reply (Exp)	210 (91.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	210 (91.3)
<1 year	0 (0.0)	1 (0.43)	1 (0.43)	0 (0.0)	6 (2.61)	8 (3.48)
1-3 years	0 (0.0)	1 (0.43)	3 (1.30)	2 (0.87)	3 (1.30)	9 (3.91)
4-6 years	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.43)	1 (0.43)
Over 6 years	0 (0.0)	0 (0.0)	1 (0.43)	0 (0.0)	1 (0.43)	2 (0.87)
Total	210 (91.3)	2 (0.87)	5 (2.17)	2 (0.87)	11 (4.78)	230 (100)

Preference for organisation of WBL platforms

In web-based learning, organisation of the platform is of crucial importance since it should facilitate interactive self-learning. The considerations centre around making decisions as to whether the available tools are to be integrated into one platform or provided in a linear progression with occasional links to other web resources. The WBL platform included WBL tools integrated together, customized WBL tools, linear progression of materials, links to web-pages, navigation bar on each page, online registration, feedback, student tracking, online testing and exam results, and automated response system. Table 15 lists the preferences of the sampled population of the learners about these tools. It may be noted that most of the IGNOU students highly favoured inclusion of online practice test, integration of WBL tools in one platform, online feedback form, link to other web pages, online registration, and linear progression of materials on priority. The YCMOU students highly favoured inclusion of integrated WBL tools in one platform, customisation of WBL tools, navigation bar on each page, student tracking, automated response system, and online registration.

Table 15: Preference for organisation of WBL platforms

Areas	Highly favourable		Favourable		Not favourable	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) WBL tools integrated in one platform	122 (55.0)	25 (59.5)	217 (9.5)	13 (31.0)	1 (0.5)	-
b) Customise WBL tools	47 (21.3)	23 (54.8)	102 (46.2)	13 (31.0)	4 (1.8)	2 (4.8)
c) Linear progression of materials	68 (30.8)	14 (33.3)	100 (45.2)	15 (35.7)	10 (4.5)	5 (11.9)
d) Links to Web pages	98 (45.4)	13 (31.0)	72 (33.3)	14 (33.3)	10 (4.6)	4 (9.5)
e) Navigation bar on each page	80 (36.7)	8 (19.0)	91 (41.7)	21 (50.0)	4 (1.8)	3 (7.1)
f) Online registration	99 (44.8)	12 (28.6)	79 (35.7)	16 (38.1)	5 (2.3)	3 (7.1)
g) Online feedback form	109 (48.2)	9 (21.4)	77 (34.1)	12 (28.6)	6 (2.7)	9 (21.4
h) Student tracking	83 (36.7)	5 (4.5)	87 (38.5)	19 (45.2)	7 (3.1)	7 (16.7)
i) Online practice test	126 (55.8)	8 (19.0)	59 (26.1)	15 (35.7)	16 (7.1)	6 (14.3)
j) Online exam and results	86 (38.2)	12 (28.6)	62 (27.6)	15 (35.7)	32 (14.2)	5 (11.9)
k) Automated response system	81 (36.2)	6 (14.3)	98 (43.8)	16 (38.1)	6 (2.7)	9 (21.4)

Note: Responses to the column 'undecided' have not been included in the analysis.

Student preference for use of web-based learning (Table 16) almost coincided for both IGNOU and YCMOU students (in order of priority): discussing issues in depth with teachers and students, developing alternative strategies and methods for learning, flexibility in how to learn, flexibility in where and when to learn, and working at one's own pace. These uses of the WBL platform are indicative of the openness and flexibility of the mode of learning itself, and lead to design of constructivist strategies and pathways in technology-enabled learning.

Table 16: Preference for using WBL

Preference	High favourable		favourable		Not favourable	
	IGNOU	YCMOU	IGNOU	YCMOU	IGNOU	YCMOU
a) Discussing issues in depth with teachers & students	167 (73.9)	26 (61.9)	37 (16.4)	14 (33.3)	3 (1.3)	-
b) Developing alternative strategies & methods for learning	94 (41.6)	17 (40.5)	93 (41.2)	18 (42.9)	7 (3.1)	-
c) Working at own pace	66 (29.3)	16 (38.1)	91 (40.4)	17 (40.5)	16 (7.1)	3 (7.1)
d) Flexibility in how to learn	101 (45.1)	13 (31.0)	89 (39.7)	14 (33.3)	7 (3.1)	3 (7.1)
e) Flexibility in where and when to learn	94 (41.8)	12 (28.6)	83 (36.9)	19 (45.2)	8 (3.6)	3 (7.1)

Note: Students' responses to 'neutral' option have not been included in the analysis.

Conclusions

- The main reason for students taking online/distance learning was to update knowledge and skills, followed by adopting a career outside one's present job.
- IGNOU students perceived the good aspects of online/distance learning to be its teaching materials, tutor access, assessment and quality assurance, and tutorial quality. YCMOU students rated tutor access, library resources and assessment mode as high.

- IGNOU students preferred WBL+f2f+other media, followed by CD+f2f, and WBL and other media shared equally. For the YCMOU students, the preferred mode included WBL and other media shared equally, followed by WBL only, and WBL+f2f+other media.
- To access Net, IGNOU students largely preferred Tele-learning Centres, whereas YCMOU students preferred their homes.
- Online learners had varied media preferences, depending on computer experience. While learners with 1-3 years of experience preferred web over other media, those with 4-6 years of experience preferred interactive CD. However, those having more than 6 years of computer experience were for web and f2f interaction to be given equal importance.
- While IGNOU students were willing to put in more than 6 hours besides the expected 12-hour work, YCMOU students preferred to devote 1-3 hours to self-study per week. This is reflective of their occupation with job, society and family. But by any standard it is not enough and encouraging.
- Computer-mediated learning was preferred largely for sharing ideas and for undertaking group projects. The major concerns in computer-mediated DE were self-competency in computer skills, availability of campus resources, group interaction, and teacher computer competency.
- With regard to support structure, majority of the students preferred *converged model of technology enabled education,* wherein printed course materials, email facilities, f2f tutor contact, interactive CD and web-based course materials, could be provided.
- The highly preferred web-based learning platform included images, interface, video clips, animation, audio, hyperlinks, and text with proper layout. The preferred modes of interaction in WBL included discussion groups, online feedback on assignments and tests, putting questions online, voice-based online chatting, and online mentoring support.

References

Dikshit, J., Garg, S. & Panda, S. (2003) Pedagogic effectiveness of face-to-face, interactive multimedia CD and online learning, *Australian Journal of Distance Education.* (submitted)

Panda, S. (2002) 'Virtual campus initiatives, and online education and training in Indian (open) universities', Paper presented at Second International Conference on Research in Adult and Distance Learning in Asia, Hong Kong, June.

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