

# E-Learning Needs Assessment among Students in the Colleges of Education

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## ABSTRACT

The purpose of this survey study was to clearly identify major gaps and needs of e-learning components among students in the Colleges of Education (one year Bachelor of Education or B.Ed. degree programme) affiliated by University of Mysore, India. A questionnaire was designed and validated by experts. A pilot test was carried out on a sample of 45 students and the Cronbach alpha value for the instrument was .89. Data were collected from 346 students selected through stratified random sampling method to gauge students' needs on learning e-learning components. Findings highlighted that in the ranking of needs for learning of e-learning components, Internet tools and video streaming ranked on the highest level also instructional theories and mobile technology graded as the lowest one. t- Test revealed a non-significant association between gender and needs to learning e-learning components. Moreover, One Way ANOVA test showed there is no significant difference among type of colleges (government / private aided and unaided) and different subjects (science / art / language) in needs for learning of e-learning components.

**Keywords:** *TPACK; professional knowledge; specialization; technology integration; technological knowledge.*

## INTRODUCTION

Advances in information technology, and changes in society, are creating new paradigms for education and training. These massive changes have tremendous impact on our educational and training systems (Reigeluth & Khan, 1994). To stay viable in this global competitive market, providers of education and training must develop efficient and effective learning systems to meet societal needs. The higher education sector can take greatest advantage of the increased use of technology, especially the Internet, in delivering educational products. Distance learning via the Internet will drive tremendous growth (Cappelli, 2003). Usage of new technologies, Internet and e-learning in development of higher education enable education of citizens familiar with Information and Communications Technology (ICT) and needs of living in the 21st century. The present study is a survey type involving descriptive research among students of colleges of education. The study includes assessing and evaluation of needs on e-learning system components from the viewpoint of students of colleges of education affiliated with the University of Mysore, India.

## E-Learning

Electronic learning or E-learning concept has been around for decades and is one of the most significant recent developments in the Information Systems (IS) industry (Wang, 2003). E-learning has been viewed as synonymous with Web-based learning (WBL), Internet-based training (IBT), advanced distributed learning (ADL), Web-based instruction (WBI), online learning (OL) and open/flexible learning (OFL) (Khan, 2001). E-learning system is implemented through several ways; however, the best practices among the various educational institutions have recommended developing a Web-based learning management system (LMS).

E-learning has been defined a number of different ways in the literature. In general, e-learning is the expression broadly used to describe "instructional content or learning experience delivered or enabled by electronic technologies" (Ong, Lai, & Wang, 2004). Some definitions of e-learning are more restrictive than this one, for example limiting e-learning to content delivery via the Internet (Jones, 2003). The broader definition can include the use of the Internet, intranets/extranets, audio- and videotape, satellite broadcast, interactive television (TV), and CD-ROM, not only for

content delivery, but also for interaction among participants (Industry Canada, 2001). More recently, this definition can be further expanded to include mobile and wireless learning applications (Kinshuk, Suhonen, Sutinen, & Goh, 2003; Lehner, Nösekabel, & Lehmann, 2003).

Many researchers in the field of integrating ICT in educational settings have attempted to define the concept of e-learning. Liaw, Huang, and Chen (2007) define e-learning as the convergence of technology and learning, and as the use of network technologies to facilitate learning anytime, anywhere. Davis (2001) has also defined e-learning as technology-enabled learning that covers various concepts, or a phenomenon delivering instructions through technology. Welsh, Wan Berg, Brown, and Simmering (2003, p. 246) define e-learning as the use of computer network technology through the Internet to deliver information and instruction to learners. Rosenberg (2001) refers to e-learning as using Internet technologies to deliver various solutions to learners. Holmes and Gardner (2006) point out that e-learning provides access to resources that promote learning on an anytime and anywhere basis. E-learning is simply defined as a delivery of course content via electronic media such as Internet, Intranet, Extranet, satellite broadcast, audio/video tapes, interactive TV and CDROMs (Urdan & Weggen, 2000). However, the most well-known definition that educators agree on is that e-learning is a set of synchronous and asynchronous instruction delivered to learners over technology (Colvin & Mayer, 2008). E-learning encompasses related terms such as online learning, virtual learning, web-based learning, and distance learning (Panda & Mishra, 2007). Obringer (2001) mentioned that the history of e-learning goes back to 1983 when Nova Southern University in Fort Lauderdale, Florida, offered online courses to students for credit, and since then, schools have made a serious move toward implementing e-learning into curricula. In 2005, nearly 32.2 million students took at least one e-learning course (Lin, Lin, & Laffey, 2008). In general, e-learning is the future of learning that focuses on both the individual learner needs as well as the delivered content (Colvin & Mayer, 2008).

Given the variety of definitions of e-learning, it is difficult to estimate the size of the market. However, e-learning is believed to be the fastest growing sub-sector of the \$2.3T USD global education market, with the market for online higher education expected to grow to \$69B USD by 2015 (Hezel Associates, 2005). Many reasons account for the growth of the higher education e-learning industry, both from the institutions' and students' perspectives. Globally, the demand for post secondary education is increasing. For example, in the United States, college enrollment among high school graduates increased from 56% in 1980 to 67% in 2003 (Morrison, 2003). With the limited capacity of existing classrooms at academic institutions and the prohibitive cost of building new facilities, e-learning is an attractive alternative (Werbach, 2000). According to Kleiman (2004), "e-learning can contribute to addressing each challenge by enhancing the preparation of new teachers, providing high quality and readily accessible professional development opportunities for active teachers, and making the teaching profession more attractive (e.g., by providing online resources for teachers and new connections to colleagues and mentors) to help address the teacher recruitment and retention problem".

### **E-Learning Components**

Khan (2001) pointed out that an e-learning program can be described in terms of various components and features conducive to learning. Components are integral parts of an e-learning system. Features are characteristics of an e-learning program contributed by those components. Components, individually and jointly, can contribute to one or more features. Khan (2005) has organized e-learning components into seven categories, namely:

1. Instructional Design (ID)
2. Multimedia Component
3. Internet Tools
4. Computers and Storage Devices
5. Connections and Service Providers
6. Authoring/Management Programs, Enterprise Resource Planning (ERP) Software, and Standards
7. Server and Related Applications

### **Needs Assessment**

Mitchell (1993) describes needs assessment/analysis as "an examination of the existing need for training within an organization". It identifies performance areas or programs within an organization where training should be applied. A needs analysis identifies the problem or need and then proceeds to identify the aims, content, implementation, target population and outcome of an intervention (Cohen, Manion, & Morrison, 2007).

Needs assessments have occurred in various settings including community organizations (Rahtz & Sirgy, 2000; Torma, 1998), government agencies (Holton, Bates, & Naquin, 2000; Noll & O'Dell, 1997), health care facilities (Barry, Doherty et al., 2000; Thorton, 1995; Lockwood & Marshall, 1999) as well as education institutions (McCaslin & Lave, 1976; Stabb et al., 1995). In higher education, the needs assessment process appears in several contexts. This process

has been applied to distance education, to various student organizations or faculty work groups (Bishop, Bauer, & Becker, 1998; Kruse, Elacque, & Rapaport, 1998). Witkin (1984) utilized a general definition of needs assessment namely that any systematic approach used in setting priorities for future action constitutes needs assessment.

Kaufman (1985) contends, in a specific way, that needs assessment focuses on identifying and justifying gaps in results and how these gaps are prioritized for attention. The results of needs assessment will be an important part of the information used in decision-making about training, but it will not be the only information used. Needs assessment is one of the main investigative tools institutions use to identify actual needs, gaps, and hidden parts in the system and other activities. Needs assessment can help institutions to match the needs of their target audience with the e-learning courses and programs they plan to market. Any institution venturing into e-learning should conduct a needs assessment survey to find out its expected customers' (i.e., learners') willingness to enrol in its e-learning courses. Needs assessment will help institutions analyze the short-term and long term needs for their e-learning initiatives, and in turn will be instrumental in developing their e-learning strategies. Needs assessment can also provide information about the technological and other support services needed for their e-learning initiatives. Through a comprehensive needs assessment process, an institution can establish its e-learning goals (Khan, 2005).

### **One Year Bachelor of Education (B.Ed.) Program**

The Bachelor of Education program, generally known as (B.Ed.), is a professional course that prepares teachers for upper primary or middle level (classes VI-VIII), secondary (classes IX-X) and senior secondary (classes XI-XII) levels. This program is offered by teacher training colleges which mainly designed to prepare effective secondary school teachers. The program essentially aims at providing student teachers with an insight into the educational scenario in the world with a specific reference to India. NCTE (The National Council for Teacher Education) prescribed minimum percentage of marks for admission as 45% in the qualifying examination. The duration of study for the B.Ed. degree is extended over a period of one academic year as a regular course of not less than 180 working days of which at least 40 days shall be for practice teaching in about ten schools at upper primary / secondary / senior secondary levels. The medium of instruction and examination in the B.Ed. program is Kannada (local language of Karnataka state, India) or English.

### **Need and Significance of the Study**

The present research is among the first efforts to determine the needs assessment of e-learning among students of colleges of teacher education. The results of this study will be significant for several reasons. Teachers play a very important role in a student's life. It is, to a great extent, the teachers who decide the shape a student's life will take. So, it is very necessary to be adequately equipped with resources that will make the teacher a perfect role model to the students. To achieve this, the Bachelor of Education program was introduced, which will teach a person about teaching and the various aspects associated with teaching. Candidates who complete the Bachelor of Education training are awarded the B.Ed. degree.

Curriculum, administration, and assessment are all affected as members of the educational community experience changes in communication and commerce resulting from the explosive expansion of the Internet (Austin & Mahlman, 2001). Thus, many educators are looking at how ICT and Internet-based learning can provide flexibility and convenience. Internet-based learning can overcome some traditional barriers such as time and place. A student can study independently online or take an instructor-led online class, which combines the benefits of self-study with those of more traditional classroom-based learning (Ryan, 2001). For working adults occupying an increasingly large percentage of our college population, and with greater numbers of students having computers and Internet experience prior to entering college, opportunities are being made to better meet their needs, interests, and work schedules through online classes (Cooper, 2001). As university-level technology education programs begin to offer more online classes and degree programs, technology education professors may be in the position to develop online offerings (Flowers, 2001).

Technological advancement has been the major inspiration for change, beginning with the integration of radio broadcasting in the 1920s (Huynh, Umesh, & Valachich, 2003). More recently, the advent of the Internet has enabled tremendous innovation in the delivery of post secondary education (Gunasekaran, McNeil, & Shaul, 2002; Teo & Gay, 2006). With time, more people gain access to the Internet, the cost of computer ownership decreases, and overall computer literacy increases (Huynh et al., 2003). These trends provide educational institutions with an ideal channel for delivering educational content. Integrating e-learning technology in education, having skilled faculties and students as future teachers should be an integral part of the Teacher Training colleges' curriculum to develop in Information Technology (IT) and knowledge based societies.

Having a clear profile of needs assessment on e-learning components of students (as future teachers) of colleges of education provides vital information about the situation in colleges of education. Through a comprehensive needs assessment process, an institution can establish its e-learning goals. Findings of the study would facilitate the decision-

making process and planning of usage and implementation of e-learning in teacher education colleges. Clarifying potential differences or similarities on gender, type of institution, and type of subject would show a mirror with a full feature of selected sample and finally population of B.Ed. colleges in the area and even at state level. Therefore, according to the literature we reviewed regarding assessment of needs of e-learning at the teacher training level, with confidence and certainty it can be said that; this research project was the first one in the field around the state and even the country. According to the advantages of using e-learning, importance of having basic information on B.Ed. colleges mentioned in the above paragraphs; conducting this study was not only essential but indispensable and vital to planning for developing and preparing teacher education to enter the ICT world and information & knowledge based society.

### Studies Related to E-learning Needs

A survey study was undertaken to analyze the needs assessment in Open and Distance Learning (ODL). Glasgow (2011) found the existence of a relationship (correlation) between program choice and level of educational attainment. Respondents with the highest qualifications opted for the academic programs while those with lower qualifications selected technical, vocational and skill based programs. However, respondents with the lowest qualifications (incomplete primary/secondary education and ODL certification) were the ones who selected literacy courses. Ailing Qiao and Nan Wang (2009) explored in their study that the majority of respondents were required to learn computing skills on web design software, Learning Management System, and electronic resources for teaching; only a few needed to learn basic computing skills such as e-mail and Internet. A more important issue was that respondents wanted to learn how to integrate ICT in classroom teaching effectively and efficiently.

Omwenga (2004) carried out a needs assessment of five universities in East Africa in order to determine their state of readiness to embrace ICT and educational technology. He reported on students' access to computer facilities, the percentage of staff with computers in the offices; the networking of computers in the faculties of science and engineering, nature of link with the Internet, general computer literacy of staff and students and factors affecting ICT use as educational technology. This work determined in each university the resources (both human and material) required to enable the institution to use ICT as an educational technology; indicates the resources required for each level of ICT use as an educational technology and the level of within classroom interaction, at the level of interaction within departments, faculty and campus and the level of interaction with the wider world. Martin, Klein, and Igoe (2003) reported on the needs assessment conducted among the current graduate students, past graduate students (professionals) and faculty of Arizona State University to find their views on the course "Instructional Media Design" being offered online. Findings indicated that only 14% of the participants preferred a totally online setting for the course, more than 60% preferred a blended approach of online and classroom based learning.

The review of related literature has elicited widely accepted definitions of key terms and the variables used in the study. As made clear from the comprehensive literature review, just a few researchers worked on the e-learning needs assessing in higher educational level especially in teacher training colleges, while the present study was going to shed some light on the students, different subjects of studies in colleges, comparing institutional types of colleges with reference to their financial in/dependency on governmental supports. In the literature review, extant studies regarding awareness, perceptions and attitudes, gender differences address these issues, but remain inadequate to address Teacher Education in e-learning needs.

## RESEARCH METHODOLOGY

The objective of this study was to investigate:

The differences between the following categories of students with reference to their e-learning system components needs

- (a) Male and female students
- (b) Government, aided and unaided colleges students
- (c) Science, Art and Language subjects students

H<sub>0</sub>. There is no significant difference between the following categories of students with reference to their e-Learning system components needs

- (a) Male and female students
- (b) Government, aided and un-aided colleges students
- (c) Science, Art and Language subjects students

### Location of the Study

The present study is colleges of education affiliated with the University of Mysore, Karnataka state in India. There are a total of 194 colleges affiliated with the University. Numbers of Education Colleges are 35 which are distributed in different districts such as Mysore city, Mandiya, Kollegal, Acetate Town and Hassan. Details of selected colleges have been mentioned in the sample section.

### Sample of the Study

Determining an effective sample size is not an easy matter. Krejcie and Morgan (1970), quoted in Cavana, Delahaye, and Sekaran (2000), greatly simplified the sample size decision by providing a table which ensures a good decision model. According to Krejcie and Morgan's table, the optimal (effective and valid) sample size to represent students' population of 3500 is 346. This calculation of sample size agrees with Wimmer and Dominick's calculation (2005) at 95% confidence and 5% margin of error. To gather sufficient variables and to allow for the substantial sample size needed to provide an overview of needs assessment of e-learning, the survey method was clearly the most suitable approach. In particular, surveys are especially suitable when there is a need to study a large number of variables and to manage a large sample size (Galliers, 1991). Using surveys to obtain a broad perspective across a large number of organizations is a technique which has also been used successfully by other researchers. The survey approach, therefore, appeared to be the most appropriate approach for this research project.

To this end, data were collected by means of paper-based questionnaire– the survey was designed and randomly distributed to students studying in colleges of education affiliated with the University of Mysore. All the students, who were in educational colleges affiliated to University of Mysore, constituted the population of the present study. Sample size was calculated according Krejcie and Morgan (1970).

### E-Learning Needs Tool

Needs assessment is a form of applied research and furnishes information applicable for solving real problems (Powell, 1997). According to Westbrook (1997), qualitative research yields results that “centres on understanding rather than on predicting” (p. 144). Needs assessments are usually qualitative in nature, although some quantitative data may be collected for demographic purposes. Examples of qualitative data would be feelings, thoughts and ideas. Examples of quantitative data obtained in the needs assessment would be age, area of residence, academic level, and gender.

Several data collection methods, including four primary varieties of data collection can be used. These include: surveys, focus groups, individual interviews, and the Delphi technique. Each of these varieties of data collection has unique aspects. Regarding the targeted teacher training colleges of Mysore University, limitations of research and consulting with experts in the field and specialists, appropriate method was selected. In the present study, the researcher used a researcher made test to measure e-learning components of the e-learning for students. The needs assessment questionnaire for students has two divisions:

Part A: Demographic Information

Part B: Needs on e-Learning system components

Demographic Information had three main parts:

- 1) Gender: Male / Female
- 2) Type of institution: Government/PrivateAided /Unaided
- 3) Subject taught: Science /Art / Language

The Second Division of the tool was on finding out needs on three learning system components. How much a student needs to know about e-learning components?

- 1) Instructional Design (ID)
- 2) Multimedia Component
- 3) Internet Tools
- 4) Computers and Storage Devices
- 5) Connections and Service Providers

E-learning components based on Khan (2005) had seven categories, but after validity and reliability of the tool, the last two categories of that model were omitted, since they were so technical and difficult and were not understandable for students, so only the above five categories were analyzed. Scoring for each item starts with

minimum needs for learning (< 25%) and maximum needs on learning (100%).

**Validity and Reliability of Tool**

The tool was in English language but it was translated to Kannada language (local language of Karnataka state) to be more understandable and for easy answering. Before piloting the instrument, the tool was scanned and reviewed with the help of eight experts conversant in both English and Kannada language; and involved in the field of education, higher education, ICT and e-learning.

A pilot test was carried out to determine item reliability for the constructs being measured. The Cronbach alpha value for the pilot test was .89; hence the instrument was classified as having acceptable reliability. According to the Cronbach alpha Reliability Classification Index, these values are classified as acceptable and therefore no changes were made to the items (Kamarul Azmi Jasmi, 2010; Pallant, 2002; Sekaran, 2003).

The survey took 24 weeks to complete, from June to December 2012. The questionnaire returned by the participants was checked for any incomplete answers. PASW Statistics 18 software was used for data analysis. The results were analyzed and interpreted using the statistical techniques of independent samples *t*-test, one way ANOVA .

**FINDINGS**

A total of 374 students were selected through stratified random sampling of which 143 students were males (38.2%) and remaining 231 (61.8%) were females. Of the 374 students selected, 28 of them were studying in government college, 72 of them were studying in private aided colleges and a large majority of 274 of them were studying in private unaided colleges. Further, contingency coefficient test revealed a significant association between gender type and college type ( $CC=.151$ ;  $p = .013$ ), indicating more number of male students in private unaided colleges compared to government and private aided colleges, where we find more of female students. Of the 374 sample students selected, the majority of them were from the arts stream (53.7%), followed by 24.3% of them from language and the remaining 21.9% from the science stream. When the contingency coefficient test was applied to see the association between subjects and type of institute, a significant association was observed ( $CC = .177$ ;  $p = .016$ ). It was found that more language students were from government colleges; in contrast, more number of students from arts stream were in private aided and private unaided colleges. In the following Table 1, ranking of students in e-learning components needs was delineated.

Table 1. Descriptive Statistics Needs on Learning e-Learning Components Ranking

Needs on learning e-learning components		Mean	Rank	
Instructional Design (ID)	Learning theories	3.46	15	
	Instructional theories	3.50	14	
	Instructional strategies and techniques	3.56	11	
Multimedia Component	Text	3.63	2.5	
	Graphics	3.56	12	
	Audio Streaming	3.59	8	
	Video Streaming	3.63	2.5	
	Links (e.g., Hypertext links, Hypermedia links, 3-D links, image maps, etc.)	3.61	6	
Internet Tools	Asynchronous	3.63	4	
	Synchronous	Text-based (e.g., Chat, Messaging, etc.)	3.62	5
		Audio-Video Conferencing Tools	3.57	10
	Internet Navigation Tools	3.65	1	
Computers and Storage Devices	Search Tools & Engines	3.60	7	
	Operating Systems (Unix, Windows, Macintosh, Linux)	3.44	16	
	Hard drives, CD ROMs, DVDs, and so on	3.54	13	
Connections and Service Providers	Tablets, iPods	3.58	9	
	Mobile technology (e.g., connected wireless, wireless LAN, WAN, PAN or personal area network)	3.39	17	

When the needs on learning e-learning components were ranked, Navigation under Internet tools ranked 1, followed by Video streaming and text under Multimedia components ranked 2.5 each, and Asynchronous under Internet tools again ranked 4. The least ranking needs on learning e-learning components were Mobile technology under Connections and service providers (ranked 17), Operating systems under computer and storage devices (ranked 16), Learning theories under Instructional design (ranked 15), Instructional theories under Instructional design (ranked 14). and Hard drives, CD ROMs, DVDs under computers and storage devices ranked 13.

H<sub>0</sub>. There is no significant difference between the following categories of students with reference to their e-learning system components needs

H<sub>0a</sub>. Male and female students

**Table 2.** Mean e-learning system components needs scores of male and female students and results of independent samples 't' test

Gender	N	Mean	SD	t value	p value
Male	143	61.13		11.83	
Female	231	60.21		11.31	
				.751	.453

*Note:* NS-Non-significant at 0.05 levels

Between male and female students, a non-significant difference existed in their mean e-learning needs as the observed t value of .751 was found to be non-significant (p = .453). Further, the mean values clearly revealed that male (mean 61.13) and female (mean 60.21) students had statistically equal scores on e-learning needs.

H<sub>0b</sub>. Government, aided and un-aided colleges students

**Table 3.** Mean e-learning components system needs scores of students studying in different types of colleges and results of one way ANOVA

Type of Institution	N	Mean	S.D	F value	p value
Government	28	64.78		10.51	
Private-Aided	72	60.51		10.81	
Private-Unaided	274	60.14		11.72	
Total	374	60.56	11.50	2.077	.127

*Note:* NS-Non-significant at the .05 level.

One way ANOVA revealed a non-significant difference in mean e-learning needs of the students studying in different types of colleges. The F value of 2.077 was found to be non-significant with probability value of .127. The mean e-learning need scores of the students studying in government, private aided and private unaided colleges were 64.78, 60.51 and 60.14 respectively, which were statistically the same.

H<sub>0c</sub>. Science, Art and Languages subjects students

**Table 4** Mean e-Learning System Components Need Scores of Students in Different Streams and Results of One Way ANOVA

Teaching subjects	N	Mean	S.D	F value	p value
Science	82	59.20	12.49		
Arts	201	61.40	10.99		
Languages	91	59.93	11.66		
Total	374	60.56	11.50	1.242	.290

*Note:* NS-Non-significant at .05 level.

## Students

studying different subjects did not differ significantly in their e-learning needs as the obtained F value of 1.242 failed to reach the significance level criterion of .05 ( $p = .290$ ). The mean e-learning needs of the students studying science, art and language were 59.20, 61.40 and 59.93 respectively, which were statistically the same, contributed for the non-significant F value.

**DISCUSSION AND CONCLUSIONS**

The purpose of this investigation was to find out needs of e-learning components and examine how certain demographic variables (male and female, type of institution and teaching-learning subject) affect e-learning needs assessment among students in colleges of education or secondary level (B.Ed.) affiliated with the University of Mysore.

When the needs on learning e-learning components were ranked for students, it was observed that navigation under Internet tools ranked 1, followed by video streaming and text under multimedia components ranked 2.5 each, and the least ranking needs on learning e-learning components were instructional theories ranked 17, mobile technology ranked 16, Asynchronous. The least priorities were given to mobile technology under connections and service providers ranked 17, operating systems under computer and storage devices ranked 16, learning theories under Instructional design ranked 15.

In needs to learning e-learning components system between male and female students, there was a non-significant difference. To studying in different types of colleges (government/ private aided / private unaided) had not a non-significant difference in mean of e-learning components needs for the students. To studying in different subjects (science/ art / language) had not a non-significant difference in mean of e-learning components needs for the students. Findings of this study support by Ailing Qiao and Nan Wang (2009). They showed that the majority of respondents were required to learn web design software, Learning Management System, and electronic resources e-mail and Internet. Instructional Design (ID) had medium ranking in needs of our samples which in Ailing's study the pedagogy for integrating classroom teaching and online learning had a high priority in teacher training in ICT. Based on the findings of this study, students, faculty members and management of colleges of education and educators can plan and conduct needed and related training programs to expand their own knowledge and proficiency in e-learning, Internet technologies and lead to more efficient utilization. Moreover, students (as future teachers) should be made aware of the potential of various e-learning technologies for enhancing the teaching and learning process. Clarifying the incentives and eliminating obstacles to fully integrate e-learning is needed. This study, while obviously focused on the one year B.Ed. college program experience, also has potential benefit to other teacher training colleges such as high schools, D.Ed. and B.P. Ed. colleges or even PG educational colleges and departments in M.A and M. Phil. Level. Decision makers and Heads can decide for the planning and designing workshops and intensive courses. It is suggested that institutions plan and conduct some non-credit courses and intensive workshops in faculties to improve students' acceptance of e-learning.

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