Emerging Trends in E-Learning in Punjab- Pakistan

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Abstract

Internet and mobile learning are necessarily emerging trends in education through last decade. They are mirroring vast changes and proliferation of update knowledge, which enhanced our learning productivity and real time world relevancy. Internet and mobile worked together to facilitate the self-learning process. In this study, there are three indicators set up to weigh the importance of E-learning; first, to investigate that the internet is an easy source of promoting and updating knowledge from university students' points of view. Second, to recognize that the E-learning is a time saving method of self-learning. Third, to facilitate gaining electronic sources of a specific study field through using different search engines.

A peer reviewed questionnaire was prepared and governed by specialist reviewers; who agreed on its content and semantic aspects of all questions, to collect the data from one hundred students enrolled at three public universities of Punjab in Pakistan. Results outlined that internet and mobile are used to fun and entertainment, gain knowledge, search materials, and to facilitate studies or researches of different disciplines.

Furthermore, the outcomes of the current study seemed different, which may be due to the focus of the current study upon perceived consequences rather than uses and practices of current users of mobile and E-learning. *The fact that apparently clear demonstrates that scholars and students mostly tend to such trends in Pakistan.*

Keywords: education, internet, mobile, knowledge,learning, E-learning

اتجاهات ناشئة في التعلم الإلكتروني في البنجاب– باكستان

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المستخلص

رافق التعلم عبر الإنترنت والجوال ظهور اتجاهات ناشئة في التعليم خلال العقد الماضي الامر الذي يعكس التغييرات الهائلة في انتشار المعرفة المحدثة التي عززت النتاج التعليمي وملاءمة العالم في الوقت الحالي. وعملت شبكة الإنترنت والجوال معًا لتسهيل عملية التعلم الذاتي. وفي هذه الدراسة وضعت ثلاثة مؤشرات لتقييم أهمية التعلم الإلكتروني الذاتي؛ أولاً، التحقق من أن الإنترنت مصدر سهل لتعزيز وتحديث المعرفة من وجهة نظر طلاب الجامعات. ثانيًا، إدراك أن التعلم الإلكتروني هو وسيلة لتوفير الوقت للتعلم الذاتي. ثالثًا، سهولة الحصول على مصادر المعرفة الكترونيا في مجال دراسة معينة ومن خلال استخدام محركات البحث المختلفة.

في هذه الدراسة تم إعداد استبيان راجعه النظراء وحكمه مراجعون متخصصون. الذين وافقوا على محتواه والجوانب الدلالية لجميع الأسئلة، لجمع البيانات من مائة طالب مسجلين في ثلاث جامعات عامة في البنجاب في باكستان. أوضحت النتائج أن الإنترنت والجوال يُستخدمان للتسلية والترفيه واكتساب المعرفة ومواد البحث ولتسهيل الدراسات والأبحاث في مختلف التخصصات.

علاوة على ذلك، بدت نتائج الدراسة الحالية متباينه، وهو ما قد يرجع إلى **فحوى الدراسة** الحالية والنتائج المحتملة من استخدامات وممارسات المستخدمين الحاليين للتعلم الإلكتروني والجوال. والحقيقة المثبته و بوضوح على أن العلماء والطلاب يميلون في الغالب إلى مثل هذه التوجهات في دولة باكستان.

الكلمات الدالة: التعليم، الإنترنت، الجوال، المعرفة، التعلم، التعلم الإلكتروني

1. Introduction

E-learning is the emerging trend in education which has made our students enabled, engaged and empowered with knowledge. In this mode of education, the idea of less borders and less boundaries has been emerged that make students get access to the world of education 24hrs./7days and anywhere around the globe. Over the past ten years, E-learning has become a vital source of expansion and learning. Due to the opportunities created by E-learning, teaching, and learning that might now occur anywhere at any time. The new media, like the internet has become one of the vital ways to make resources for research and learning available and accessable for both teachers and students in order to share and acquire information. E-learning has revolutionized the conventional method of

chalk and board style of learning imparted to the students. The known global applications of computer, media and mobile have become helpful and useful for both the teacher and students. ITs and mobile with its various versions founded in the market changed the entire learning environment of our world. For many developing countries, E-learning is considered as a solution of increasing demand for higher education. In Pakistan, online education is promoted and raised as "education for all" as it aims to reach out to all students living too far from the cities and unable to afford the cost of conventional higher education.[1] Mobile technology is not only tailored student's social and economic life but also boomed his educational world. This slim handheld weightless, wireless honest signaling smart device eventually used in pedagogical activities in the higher institution as in primary and secondary education.

1.1 **Literature Survey**

Advanced mobile devices such as smart cellular telephones are very popular among students because they are wireless and portable. It has multiple, dynamic and ever-changing functions to play a profound role on visionary educators, designers, and developers who ought to begin to consider the implication of these devices for the recent renewable necessary teaching and learning environments.[2] This mobile technology is not time-bound and classroom-bound, but having characteristics of omnipresence. It reaches you wherever you are desired. Its affectivity becomes too universal to necessary be admitted.

The E-learning becomes beneficial and economical for all sections of society. The extra ordinary expansion of the educational system twisted with computer and net added innovation and alternative for the educationally deprived section of society. The E-learning market in India was worth $247 million in 2016, which is expected to grow about $1.96 billion by 2021. That is a compound annual growth rate of 52%. The number of users enrolled for various online learning courses is estimated to be 1.6 million in 2016, which is expected to grow about 9.6 million by the end of 2021.[3] Altbach and knight (2007) observed that E-learning is neither a supplement nor an alternative to the conventional system, but a new stage in the evolution of education which recognized the fact that in many situations, it is easier to transmit knowledge to the people rather than transport people to the place of knowledge.[4] The enrollment of the E-learning is very high and give a chance to the students choosing their courses and accommodating their time and learning capacity accordingly. Later, the credit goes to the universities which accommodate the students through e-learning and certified them globally. Johnston, et al (2013) said that Education becomes a commodity making consumers of students and putting them in a position to shop for the best deal. Then, today adult learners differ from traditional college-age students.[5]

In Thai E-learning context, Thai students showed a positive relationship between acceptance of E-learning and self-regulation. Specifically, students who are more self-regulated also believed that online learning is a useful and easy method of learning. This finding aligns with research emphasizes self-regulation as a critical success factor for online students. [6]

Moore (1990) stated that such system never wastes or discourages any students. The main quality of this system is to accommodate, encourage, accelerate and prepared

the students for the adventure of learning.[7] This system is easily portable, transmittable and accessible. Every student has different caliber and comprehension skill. Teacher and learner contacts are the utmost necessities to maintain and sustain the system of E-learning. An effective E-learning course always takes this learning style into account and navigates the subject material. Mobile technologies are also playing an increasingly profound role in students' academic lives. Mobile devices; such as smartphones, tablets, and e-books etc., connect users to the world instantly by heightening access to information and enabling interactivity. The recent age brings radical changes with computer and small portable cellular. This smart micro technology resulted a profound change in every sphere of life. This technology revolutionized our life, our thinking, our observation, our communication, and our angle of vision that altogether changed. Nowadays, mobile computing devices (smart phones, tablets, etc.) become common used. The access to broadband internet improves not only the educational and corporate environments in the urban areas, but also, in the rural areas. It has been revealed through surveys and questioners that teenagers i.e. from 16 to 18 years are more eager for electronic learning or on-line learning [8]

1.2 Research Questions

The practical part with discussion developed to answer the following questions:

1. To what extent do the internet available services assist learners in gaining knowledge?
2. To what extent does E-learning facilitate the learning process in general?
3. To what extent does the internet facilitate teaching and learning process in Pakistan?

1.3. Research Methodology

Simply, this study is a statistical frame analysis. The practical part of this study relied on preparing a governed electronic questionnaire included seventeen questions shared with 100 students, as a work population who have common characteristics of research from several study programs at universities in Pakistan. The questionnaire was a tool for collecting data and feedbacks from students who were chosen randomly. The questionnaire form link had been posted for seventy days at students' groups. Then, Pakistani students of BSc, MA, and MSc. are the target groups to investigate the research problem. The data are allocated and calculated in details followed by a deceptive analysis of the findings. The study suggested recommendations based on the calculated data. At the end, the questionare is attached with its seventeen questions.

1.4 Data Collection Method

The researcher gathered the required data from the research population included in the sample. The form link had been opened for seventy days. This study was conducted by administrating questionnaires on emerging trends in education; E-learning and mobile learning targeted both male and female students from the Islamia University Bahawalpur, UOS Bahawalpur Campus, BZU and the Punjab University Lahore in Pakistan. Data were collected and analyzed by using statistical package for social science (SPSS). This application helped in finding percentage, frequencies and means of students' responses on each time were being calculated. The findings were presented in the following section in terms of percentage and means.

2. A. Model of E-learning as a Prototype

The E-learning domain in China ought to be highlighted for its impact on regional neighboring states like Pakistan. China is an extra-large country with diverse demography. Its population has various social and economic features. the Chinese Ministry of Education works hard to educate the whole nation and to improve the contents and quality of e-books material for E-learning. China makes great progress and does huge efforts to provide the signals for every citizen especially in remote areas.

However, since two decades of development, China has achieved clear growth in the field of E-learning and on more than one educational level, as it has currently adopted E-learning in both primary and higher education. The Chinese government has the flexibility to enhance, maintain and improve the quality of E-learning materials. . China has made a significant contribution in using mobile phone technology to improve E-learning specifications and tools. Millions of Chinese students learned through virtual classes via the free available platforms. China crossed the threshold of success by adopting distance education through publishing printed books and broadcasting educational programs on television and radio. The statistical indicators outline such development and its necessities. Recently, Chinese government intends to provide entire student communities with electronic tools. Millions of students enjoy more than 200 topics through the e-learning models for education.

Virtual, Comsat and Allama Iqbal Open universities are the leading universities which launched the adoption of E-learning and distance education programs and produced good stuff for people with quality education and easy access. Virtual and Comsat universities based on E-learning completely, but Allama Iqbal Open university based on hybrid mode of learning. It is based on distance learning and E-learning. The potential of E-learning is ever-growing and can meet the challenges of educational industry. Pakistan is under-developed country that continued battling on many educational fronts, such as challenges of infrastructure, E-Learning software, management cost, improved signaling, computer handling skills, its software's and hardware's issues, quality assurance, financing, curriculum development, and learning outcomes coupled with attitudinal factors among users. So, established hi fi labs, networking infrastructure and highly trained staff are mostly common problems and constant challenges for Pakistani university graduates. In addition to these challenges, the unusual distracting of e-mode gadgets is also another trend by using the services of available search engines. The question here, is the fair use of internet and mobile can make progress and put the nation on the academic excellence? Accordingly, the impact of virtual and AIOU contributed directly or indirectly in national stream of education. Comsat , for example, is efficient university that devoted efforts to improve and promote the nation academically especially in the field of computer literacy.

2.1 The necessity of adopting E-Learning during the global pandemic of Covid-19

Education becomes one of the key factors in building a good nation. The outbreak of the COVID-19 virus has caused a sudden suspension of all academic progression all over our globe. Amid of such hard times, teachers have been utilizing E-learning platforms to impart education to the students. It was first used in 1999 at a CBT systems seminar. It offered a way to share reading materials by using internet

through emails, documents, presentations or webinars. IT trends become an important part of modern education and they showed huge involvement of ICT in the present teaching-learning process.

Deadly, Covid-19 changed the every paradigms of teaching and learning. So, willingly or unwillingly everybody shifted to the mode of E-learning. Therefore, E-learning became the best choice during the Covid-19 pandemic. During that period, mobile technologies played an increasingly important role in students' academic lives. So, E-learning gained popularity among working adults who are in search of higher qualification without losing their earning power and leaving their jobs.[8] The applications that run on these e-devices let the users not only consume, but also discover and produce relevant contents for their studies and jobs. Accordingly, the findings of recent research state that the use of mobile devices to support learning activities gives several benefits, including the ability to improve students' skills of communication and collaborative interaction, to encourage active learning, to enhance the learners' feedback process, to acquire content quickly, and to provide an educational environment in which learners can learn without limits of time or place. However, through the disastrous situation of pandemic, techniques of E-learning were the best solutions to continue teaching-learning march.

4. Results and Discussion

The analysis of the data discussed below in the following tables:

Table 1. shows students' responses about using internet as a main source for studying

Item	Responses in Percentage					Mean	SD	Variance
Internet is the main source of learning for university students	Option		F	%	Total			
	No	Never	8	1				
		Seldom	39	7	8			
	Yes	Often	106	19		3.63	.458	0.447
		Always	409	73	92			

It is clear from the data that 92% of respondents agreed that only 8% disagreed to the statement. The mean score is 3.63; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: University students prefers the Internet as the main source of learning.

Table 2. shows students' responses about the content searching.

Item 2	Responses in Percentage					Mean	SD	Variance
Content searching is easier to me by using the internet	Option		F	%	Total			
	No	Never	40	7				
		Seldom	105	19	26			
	Yes	Often	141	25		3.16	0.969	0.938
		Always	276	49	74			

It is clear from the data that 74% of respondents agreed that only 26% disagreed to the statement. The mean score is 3.16; that indicates students' positive opinions about the statement. Then, such percentage proves the statement: Contents searching is easier by using the internet search engine.

Table 3. shows students' responses about the latest knowledge sources.

Item 3	Responses in Percentage					Mean	SD	Variance
The Internet provides a facility of latest knowledge	Option		F	%	Total			
	No	Never	35	6				
		Seldom	62	11	17			
	Yes	Often	145	26		3.33	0.905	0.818
		Always	320	57	83			

It is clear from the data that 83% of respondents agreed that only 17% disagreed to the statement. The mean score is 3.33; that indicates students' positive opinions about the statement. Then, such percentage proves the statement: The Internet provides the facility of latest knowledge and contribute in students' update knowledge.

Table 4. shows students' responses about distance learning or E-Learning.

Item 4	Responses in Percentage					Mean	SD	Variance
E-learning improves the ability of computer learning	Option		F	%	Total			
	No	Never	24	4				
		Seldom	76	14	18			
	Yes	Often	155	27		3.33	0.865	0.748
		Always	307	55	82			

It is clear from the data that 82% of respondents agreed and only 18% disagreed to the statement. The mean score is 3.33; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: E-learning improves the ability of computer learning.

Table 5. shows students' responses about E-books and sources.

Item 5	Responses in Percentage				Mean	SD	Variance
E-books are a facility for learners through internet websites	Option		F	%	Total			
	No	Never	35	6				
		Seldom	62	11	17			
	Yes	Often	145	26		3.33	0.905	0.818
		Always	320	57	83			

It is clear from the data that 83% of respondents agreed that only 17% disagreed with the statement. The mean score is 3.33; that indicates students' positive opinion about the statement. This explores that learners are more familiar with e-books available on internet websites. Then, such percentage proves the statement: E-books are a facility for learners through internet websites.

Table 6. shows students' responses how does s/he feel when using the internet unnecessarily.

Item 6	Responses in Percentage				Mean	SD	Variance
I dislike the unnecessary use of the internet	Option		F	%	Total			
	No	Never	35	6				
		Seldom	62	11	17			
	Yes	Often	145	26		3.33	0.905	0.818
		Always	320	57	83			

It is clear from the data that 83% of respondents agreed while only 17% disagreed to the statement. The mean score is 3.33; it indicates that students have positive opinions about the statement. Then, such percentage proves the statement: I dislike the unnecessary use of the internet.

Table 7. shows students' responses about using internet for studying.

Item 7	Responses in Percentage				Mean	SD	Variance
I dislike the unfair use of mobile	Option		F	%	Total			
	No	Never	49	9				
		Seldom	119	21	30			
	Yes	Often	195	35		2.96	0.953	0.908
		Always	199	35	70			

It is clear from the data that 70% of respondents agreed with the statement and that only 30% disagreed with the statement. The mean score is 2.96 that indicates students' positive opinions about the statement. Then, such percentage proves the statement: I dislike the unfair use of mobile.

Table 8. shows students' responses about using the internet for learning.

Item 8	Responses in Percentage				Mean	SD	Variance
I prefer to search learning on mobile	Option		F	%	Total			
	No	Never	73	13				
		Seldom	112	20	33			
	Yes	Often	120	21		3.00	1.085	1.178
		Always	257	46	67			

It is clear from the data that 67% of respondents agreed and only 33% disagreed to the statement. The mean score is 3.00; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: I prefer to search for learning on mobile or on-line.

Table 9. shows students' responses about chatting on mobile with colleagues or supervisor.

Item 9	Responses in Percentage				Mean	SD	Variance
I prefer to chat on mobile with my fellows and supervisor	Option		F	%	Total			
	No	Never	8	1				
		Seldom	39	7	8			
	Yes	Often	106	19		3.63	.458	0.447
		Always	409	73	92			

It is clear from the data that 92% of respondents agreed and only 8% disagreed with the statement. The mean score is 3.63; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: I prefer to chat on mobile to my fellows and supervisor.

Table 10. shows students' responses about their confidence when using E-learning platforms.

Item 10	Responses in Percentage				Mean	SD	Variance
I feel confident while using E-learning tools on the internet	Option		F	%	Total			
	No	Never	52	10				
		Seldom	41	5	15			
	Yes	Often	120	25		3.36	0.966	0.934
		Always	349	62	85			

It is clear from the data that 85% of respondents agreed and only 15% disagreed with the statement. The mean score is 3.36; it indicates students' positive opinion about the statement. Then, this proves the statement: I feel confident while using e-learning tools on internet.

Table 11. shows students' responses about their feelings when doing survey literature.

. Item 11	Responses in Percentage				Mean	SD	Variance
I feel no stress on finding literature on the topics	Option		F	%	Total			
	No	Never	48	1				
		Seldom	67	7	8			
	Yes	Often	246	19		3.63	.458	0.447
		Always	409	73	92			

It is clear from the data that 92% of respondents agreed and only 8% disagreed with the statement. The mean score is 3.63; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: I feel no stress on finding literature on the topics.

Table 12. shows students' responses about using of ICT Learning.

Item 12	Responses in Percentage				Mean	SD	Variance
The use of ICT learning excites me a lot	Option		F	%	Total			
	No	Never	8	8				
		Seldom	39	12	20			
	Yes	Often	106	45		3.07	0.903	0.815
		Always	201	35	80			

It is clear from the data that 80% of respondents agreed and only 20% disagreed to the statement. The mean score is 3.07; that indicates students' positive opinion about the statement. Then, such percentage proves the statement: The use of ICT learning excites me a lot.

. **Table 13. shows students' responses about On-line lectures or meeting.**

Item 13	Responses in Percentage				Mean	SD	Variance
I prefer on line lectures	Option		F	%	Total			
	No	Never	31	6				
		Seldom	88	15	21			
	Yes	Often	192	34		3.18	0.890	0.793
		Always	251	45	79			

It is clear from the data that 79% of respondents agreed and only 21% disagreed with the statement. The mean score is 3.18; that indicates students positive opinion about the statement. Then, such percentage proves the statement: Students prefer on-line lectures.

. **Table 14. shows students' responses of using mobiles for academic purposes.**

Item 14	Responses in Percentage				Mean	SD	Variance
I like mobile for academic use only	Option		F	%	Total			
	No	Never	38	7				
		Seldom	87	15	22			
	Yes	Often	196	35		3.14	0.915	0.836
		Always	241	43	78			

It is clear from the data that 78% of respondents agreed that only 22% disagreed with the statement. The mean score is 3.14; that indicates students' positive opinion about the statement. Then, such positive percentage proves the statement: Students prefer using mobile for academic purposes only.

Table 15. shows students' responses of the cost of E-learning through mobile.

Item 15	Responses in Percentage					Mean	SD	Variance
E-learning through mobile is costly	Option		F	%	Total			
	No	Never	8	1				
		Seldom	39	7	8			
	Yes	Often	106	19		3.63	.458	0.447
		Always	409	73	92			

It is clear from the data that 92% of respondents agreed and only 8% disagreed with the statement. The mean score is 3.63; that indicates students' positive opinion about the statement. Then, such positive percentage proves the statement: E-learning through mobile is costly.

Table 16. shows students' responses about the difficulty of using searching engines.

Item 16	Responses in Percentage					Mean	SD	Variance
	Option		F	%	Total			
I feel no difficulty while searching for books on the internet	No	Never	51	9				
		Seldom	129	23	32			
	Yes	Often	196	35		2.72	1.028	1.056
		Always	186	33	68			

It is clear from the data that 68% of respondents agreed and only 32% disagreed with the statement. The mean score is 2.72; that indicates students' positive opinion about the statement. Then, such positive percentage proves the statement: I feel no difficulty while searching books on internet.

. **Table 17. shows students' responses of the ethical issues.**

Item 17	Responses in Percentage				Mean	SD	Variance
I take care of ethical issues while searching internet.	Option		F	%	Total			
	No	Never	80	14				
		Seldom	158	28	43			
	Yes	Often	156	27		2.73	1.039	1.080
		Always	168	30	57			

It is clear from the data that 57% of respondents agreed and only 43% disagreed with the statement. The mean score is 2.73; that indicates students' positive responses about the statement. Then, such positive percentage proves the statement: Students take care of ethical issues while searching internet.

5. Discussion

It is remarkable to note that in two prior research studies, both Siritongthaworn *et. al.* ([2006](#)) and Teo, *et al.* ([2011](#)) stated that the E-learning is acceptable and it was more than the known average. The students who tended to adopt E-learning were younger students armed with technological skills.[9],[10].

The outcomes of the current study seem different, which may be due to the focus of the current study upon perceived consequences rather than uses and practices of current users of E-learning. *The fact that apparently clear demonstrate that in Pakistan, the current higher education infrastructure cannot accommodate the growing college-aged population. Pakistan is a developing country with remarkable annual increase of population. So, it is difficult to meet the requirements of conventional style of studying. The adoption of E-learning system is ultimately the best current solution and destination even it also accommodates the deprived portion of students. Nowadays, there is abrupt uplift of E-learners students to flow in the main stream of learning due to internet and mobile facilities. Moreover, Covid-19 as a global pandemic made situation most critical and the decision makers realized the utmost urgency of this system.*

The literature survey is replete with evidences of the growing demand for E-learning. The use of E-learning is multiple and encompassed with both the traditional continuing-education students (i.e., adult learners) and growing numbers of younger, on-campus students.[11] The study revealed that 50% of the students in online courses are 18 to 25 years old students. Kinley (2001) cited to Howell et al (2003) that today, even the distance education focus has dramatically shifted towards network-based technologies (in general) and Internet-based delivery (more specifically)". [12],[13].

Today, the Internet is being used more than other continuing education delivery strategies, such as Interactive Television (ITV), correspondences, and live-remote location combinations. [14] Online learning is not only more common now, but it

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increases 40% annually.[15] The main reason behind the increased growth is the fact that digital media is transferable, storable, and widely accessible.

6. Conclusions

Education has changed dramatically nowadays with the remarkable rise in E-learning, where teaching is conducted by distance and by using digital platforms.[16] Students use the internet and mobile to attend and join meetings. They may use the available E-learning tools less for learning or study but more for entertainment and fun, but serious and ambitious students use same accessible sources to study, gain, read and update their information. Scholars are pursuing open access sources through their researches. Diligent students use the internet and mobile to search e-books, journals and periodicals by advice of experts in their field of study. They search websites by mobile phones, computers, laptops, and iPods. Searching for content seems an easy access for them and it enhances their computing capabilities, organizing data and files, managing data storage, and processing skills by available software and applications.

The E-learning is not only pricey but also simple to trade or acquire again. the accessibility of the Internet, which enables a student, researcher, or scholar to use multiple search engines to look up topic matter in a particular field of study. At this point, it should be noted that students need to pay attention to moral concerns and the privacy policies terms and conditions that the user is frequently asked to agree to prior to using most applications and programs, as they may be used in intelligence areas and honest reports by international organizations the user is either aware of or is not aware of. Positive attitudes were reported by Siritongthaworn et al. (2006) based on interviews with university peers, instructors, professors, and students.[9] Many academics have come to the conclusion that online education is useful and acceptable. This study and the attached survey calculated percentages which showed on the tables mentioned on previous sections. The survey reveals that students; who are the target groups in the research from Pakistan, agreed with E-learning with satisfaction and acceptance and they considered the distance education is appropriate and effective.

Student enrollments are enormous growing to surpass the capacity of traditional institutions infrastructures. Learner profiles are changing and students are shopping for education that meets their needs. Traditional faculty roles, motivation, and training needs are shifting while workload compensation and instructional issues tend to lead E-learning mode of education. The institutional and organizational structure of higher education are recently updating and leading change to emphasize academic accountability, competency outcomes, outsourcing, content standardizing, and adaptation to learner-consumer demands. For this ultimate solution, the Internet and other information technology devices seem to be more ubiquitous and technological fluency becomes a common and acceptable method of learning.

CONFLICT OF INTERESTS
There are no conflicts of interest

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Questionnaire

The questionnaire shared with 100 students. It includes 17 questions as follows:

1. I feel easy to use internet for studying.
2. Content searching is easy to me by using the internet.
3. Internet provides facility of latest knowledge.
4. E-learning improves ability of computer learning.
5. E-books is a facility for learners through internet websites.
6. I dislike the unnecessary use of internet.
7. I dislike the unfair use of mobile.
8. I prefer to search learning on mobile.
9. I prefer to chat on mobile to my fellows and supervisor.
10. I feel confident while using e-learning tools on internet.
11. I feel no stress on finding literature on the topics.
12. Use of ICT learning excites me a lot.
13. I prefer on-line lectures.
14. I like mobile for academic use only.
15. E-learning through mobile is costly.
16. I feel no difficulty while searching books on internet.
17. I care ethical issues while searching on internet.