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Students' Perception of the Effectiveness of E-learning Environment on Higher Education in Nepal

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Abstract: The study aimed to analyze students' perceptions of the effectiveness of e-learning in higher education in Nepal. The study adopted a quantitative research approach. Data were obtained using an online survey from 83 students of Pokhara University studying in the School of Development and Social Engineering. Both descriptive and inferential statistics were used to analyze the data. The results indicated that the majority of the students have a positive attitude towards e-learning. Adequate skills to operate an e-learning system was found to have a profound role in shaping students 'attitude, the feeling of usefulness and ease of use of the e-learning system. Instructors' collaboration and support were identified to play the paramount role in setting a positive attitude, instilling a sense of usefulness towards e-learning and easing its use. The study revealed a significant positive correlation between students' attitudes towards e-learning, the quality of the e-learning system, usefulness, and ease of use of e-learning system.E-learning embraced as an alternative to traditional forms of teaching and learning, was found to have an enormous value to offer in this globalized world where internet penetration along with other ICT advancements in every part of the world has a significant role. The study concluded that the students at the tertiary level are very positive toe-learning, so, universities in Nepal can make a grand shift in the way of teaching and learning shifting from conventional to full -fledged e-learning practices.

Keywords: E-learning environment; effectiveness; higher education; perception

Introduction

Technology has been proven a boon for teaching learning activities. The 21st century students and teachers who are global citizens need not be necessarily bounded to one geographical location for their instructional activities (Boyer & Crippen, 2014). Due to emerging technology, knowledge sharing has become instantaneous. New generations of learners are more competent with technology and have accepted new learning methods with few problems due to prior knowledge (Silverstone, 2012). As technology is rapidly growing more important, the concept of e-learning is also emerging in schools, colleges and universities. E-learning could be explained as a wide

set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms and digital collaboration including the delivery of content via Internet, intranet/extranet, audio and videotape, satellite broadcast, interactive TV, CD-ROM, and more (Singh et.al.,2003 as cited in Boezerooij, 2006). Kahiigi et al. (2007) define e-learning by comparing it with conventional learning. Conventional learning is a face-to-face means of learning where learners and instructors are presented in the same place at the same time whereas e-learning is ICT-based learning which is ubiquitous. So, the learners can have access to knowledge from any corner of the world. E-learning has been proven the most effective pedagogical strategy of the 21st century, the world having been transformed into a single village due to the interconnectivity of telecommunication. Knowledge at present is no longer limited to certain boundaries. It transcends beyond geography. Mamattah (2016) describes the impact of Information Technology (IT) in every sector, including education, and states that IT has made teaching and learning increasingly complex and widespread, enabling learners to learn without sitting in a conventional classroom. No one can deny the significance of technology in teaching and learning in the 21st century where technological advancement has gained momentum. Popovici and Mironov (2015) state that with the emergence of the Internet and new technologies, e-learning has become the most promising solution for universities to ensure quality education. In higher education, where many students are enrolled from diverse regions, e-learning is the best solution to meet the aspirations of the students. Physical presence may not be compatible in this globalized world with learners residing in any part of the globe.

Before universities adopt an e-learning environment, it is important to gather feedback from students. It is true that, through e-learning, students can learn more effectively as it promotes the learners' autonomy and interactivity. However, the most important issue yet to be addressed is how these new methods of delivering education will replace face-to-face learning, and impact student learning and students' perception of the learning (Al-Fadhli, 2009). In the same line, Ahmed et al. (2018) state that students are always at the center of teaching and learning activities, it is crucial to gather feedback from students regarding their experiences in the learning environment. As feedback from the students occupies an important space in quality assurance, many universities conduct research to understand the perception of the students about their university's learning environment (Herrmann, Bager-elsborg, & Parpala, 2016). Learning environment-related research studies done to assess the students' perception appropriately guide teachers to devise the best teaching strategy for the improvement of the overall academic environment (Bakhshi et al., 2015). Students' behavior, sense of well-being, academic progress (Bassaw et al., 2003), academic achievement, satisfaction and success is positively correlated with the educational learning environment (Genn, 2001). In order to improve the educational environment, the perceptions of the students should be given the highest priority (Mayya & Roff, 2004).

Nepalese education is still dominated by conventional methods of instruction with geophysical presence in the classroom (Pangeni, 2017), and the adoption of e-learning is an ongoing process. In this context, this research aims to explore the students' perception of e-learning at Pokhara University of Nepal. This research provides the lifeline for overall e-learning practices in the context of higher education

in Nepal.

Data and Method

This study has adopted the quantitative research design. Data for the study were gathered from primary sources using online questionnaires from 83 students studying humanities and social sciences programmes at Pokhara University. Although the population was 286 and the sample size calculated was 167, the data were collected from 83 students because of the low response rate on online survey and also due to the inability of the researcher to have face-to-face interviews with the students during the time of COVID-19. The Cronbach's alpha was used to measure the internal reliability of the dimensions' items mainly attitude, quality, usefulness and ease of use of the e-learning systems. The reliability coefficients of all the constructs were found to be above 0.7 which is acceptable (attitude-0.92, quality-0.86, frequency of use- 0.9, usefulness-0.92, ease of use-0.863). Both descriptive and inferential statistics were used to analyze the data as per the objectives of the study.

Result and Discussions

Student's attitude of E-learning

Table 1 revealed that most of the students liked the idea of e-learning. Over two-thirds of the total students agreed that they liked the idea of e-learning (68.9 %). Likewise, a very few of the students (12.8 %) appeared to disagree that they liked the idea of e-learning. Similarly, over two-thirds of students (68.7%) agreed e-learning as an innovative concept that must be applied in higher education, however, about one fifth of them appeared to disagree the same. Similarly, over three-fifths of the students (62.6%) agreed that the learning was fun when accompanied by technology. About one-fifth of them (22.8%) did not enjoy it. Likewise, over a half of students (57.9%) accepted that e-learning positively supported the students' academic achievement. However, about one quarter of them (26.5%) did not agree that e-learning had wide range of positive impact on academic performance.

Table 1

Students' attitude towards e-learning

Variables	Strongly disagree		Somewhat disagree		Undecided		Somewhat agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
I like the idea of e learning	9	10.8	10	12.0	7	8.4	35	42.4	22	26.5
E-learning as an innovative concept must be encouraged in higher education	12	14.5	6	7.2	8	9.6	32	38.6	25	30.1
Learning is fun using e-learning technology	9	10.8	10	12.0	12	14.5	26	31.3	26	31.3
E-learning has wide range of positive impact on academic performance	10	12.0	12	14.5	13	15.7	35	42.2	13	15.7

Source: Field Survey, 2021

Students' Self-efficacy and Skills to Use E-learning

Table 2 disclosed that a great majority of the students (86.7%) can use e-learning system independently and about three-fourth of the students (72.3%) had adequate skills for the operation of the system. However, there were some students (13.3%), who needed assistance to use e-learning systems and over one-fourth of them (7.7%) did not possess sufficient skills to use the system.

Table 2

Students' self-efficacy and skills to use e-learning

Variables	Yes		No	
	N	%	N	%
Can use e-learning independently	73	86.7	10	13.3
Have necessary skills for using e-learning systems	60	72.3	23	27.7

Source: *Field Survey, 2021*

Students' Perception of the Quality of E-learning System

The quality of the e-learning system comprises the quality of internet access, ICT infrastructure, technology, and support. According to around half of the students (47%), the quality of the internet access in the institution was average. Around one-fifth of students (20.5%) felt that the quality of the internet access in the institution is good. However, 14.5% of them viewed it to be poor and 15.7% of them viewed it as very poor. A very insignificant number of students perceived internet access in the institution as very good (2.4%) (Table 3).

Approximately half of the students (49.4%) viewed the status of ICT as of medium standard while around one-fifth (21.7%) students considered it as a poor standard. Similarly, less than one-fifth of them (18.1%) perceived it as good followed by 7.2% very poor and only 3.6% very good (Table 3).

Over one-third of students (33.7%) viewed the quality of technology used in the classroom as good. Less than one-third of them (30.1%) viewed it as average. However, around one-fifth of them perceived the quality of technology used in the classroom as poor. Surprisingly, an equal number of students (8.4% each) indicated that the quality of the technology used in the classroom was very poor and very good (Table 3).

The highest number of students (31.3%) perceived that the quality of technological support provided in the institution was average. It was felt good by more than a quarter of them (27.7%) followed by around one-fifth (21.7%) feeling it as poor. The same number of students (9.6% each) indicated that the quality of the technological support provided in the institution is very poor and very good (Table 3). The differences in students' perceptions regarding the quality of Internet access, ICT infrastructure, technology and support in the institution might have been influenced by their experience of using the ICT at their homes or outside the institution and their quality expectations in the institution. The results indicate a need for an improvement in internet access, ICT infrastructure, technology and support in the institution.

Table 3
Students' perception of the quality of e-learning technology

Variables	Very poor		Poor		Average		Good		Very good	
	N	%	N	%	N	%	N	%	N	%
Quality of the internet access in the institution	13	15.7	12	14.5	39	47.0	17	20.5	2	2.4
Status of the necessary ICT infrastructure	6	7.2	18	21.7	41	49.4	15	18.1	3	3.6
Quality of the technology used in classes	7	8.4	16	19.3	25	30.1	28	33.7	7	8.4
The quality of technological support provided	8	9.6	18	21.7	26	31.3	23	27.7	8	9.6

Source: *Field Survey, 2021*

Students' Perception of the Accessibility of E-learning Technology

Accessibility of the e-learning technology determines the quality of the teaching-learning environment. This study had included desktop computers, laptops, mobile phones, and the internet as important technologies for e-learning. Table 4 displays the students' perception of the accessibility of e-learning technology. An overwhelming number of students (85.5%) had full access to mobile for e-learning followed by laptops (51.8%) and desktop computers (30.1%). They could use these technologies for e-learning as they wished. Nearly three-fifths of students (59%) could use the internet without any hurdles. However, there were still some students who were fully deprived of internet access (7.2%) or had limited access (33.7%) which was not good enough to support their e-learning. It indicated that some students still did not have a sufficient environment for e-learning system. The reason behind this could be the lack of internet access in rural areas of Nepal.

Table 4
Students' perception of the accessibility of the e-learning technology

Variables	No access		Limited access		Full Access	
	N	%	N	%	N	%
Desktop computer	32	38.6	26	31.3	25	30.1
Laptop	16	19.3	24	28.9	43	51.8
Mobile phone	1	1.2	11	13.3	71	85.5
Internet	6	7.2	28	33.7	49	59.0

Source: *Field Survey, 2021*

Usefulness of e-learning system

Table 5 shows the students' perception of the usefulness of the e-learning system. The study revealed the significant usefulness of e-learning systems in higher education. A large majority of students perceived a moderate or higher level of usefulness of e-learning systems for accessing course materials and literature, PowerPoint presentation emails, course information and news, online collaboration, application

sharing, video conferencing, online tests, social networks, accessing result, and time table and assignment conveniently. Among all, the students appeared to highly use the e-learning system for social networks (57.8%) followed by accessing timetables and assignments (51.3%), email (50.1%), course information and news (49.7%), PowerPoint presentations (48.2%), results (48.1%), video conferencing (43.4%), online collaboration (42.1%), application sharing (42.1%), course materials and literature (37.3%), and online test (28.9%)

Table 5

Students' perception of the usefulness of e-learning system

Variables	Not at all		Little		Moderate		High		Very high	
	N	%	N	%	N	%	N	%	N	%
Accessing course materials and literature	5	6.0	15	18.1	32	38.6	21	25.3	10	12.0
Power point presentation	4	4.8	18	21.7	21	25.3	29	34.9	11	13.3
Email	2	2.4	14	16.9	22	26.5	25	30.1	20	24.1
Course information and news	2	2.4	9	10.8	28	33.7	28	33.7	16	19.3
Online collaboration	7	8.4	8	9.6	33	39.8	28	33.7	7	8.4
Application sharing	6	7.2	16	19.3	26	31.3	28	33.7	7	8.4
Video conferencing	7	8.4	9	10.8	31	37.3	23	27.7	13	15.7
Online test	15	18.1	11	13.3	33	39.8	16	19.3	8	9.6
Social network	2	2.4	9	10.8	24	28.9	30	36.1	18	21.7
Accessing result	6	7.2	11	13.3	26	31.3	30	36.1	10	12
Time table, assignment	5	6	8	9.6	25	30.1	31	37.3	14	16.9

Source: *Field Survey, 2021*

Ease of use of e-learning system

The study revealed that over two-thirds of students (66.2%) found the e-learning system very easy to use, but less than one-fourth of them (24%) did not feel easy to use. Over two-thirds of students (66.3%) believed that the e-learning platform was user-friendly, but some of them (16.8%) did not believe the same. It is interesting to note that, the largest number of students (67.1%) found it easy to get any required information using e-learning technology. However, there were still few students (13.2%) who found it difficult to get necessary information using e-learning technology.

Around half of students (47%) agreed that they could clearly comprehend all e-learning systems without any problem. In contrast to this, less than one-third of them (30.1%) did not have a clear idea about the e-learning system (Table 6).

Table 6
Students' perception of ease of use of e-learning system

Variables	Strongly disagree		Somewhat Disagree		Undecided		Somewhat agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
I find e-learning easy to use	10	12.0	10	12.0	8	9.6	31	37.3	24	28.9
I believe e-learning platform is user friendly	5	6.0	9	10.8	14	16.9	36	43.4	19	22.9
It is easy to get information using e-learning technology	4	4.8	7	8.4	13	15.7	22	26.5	37	44.6
I can clearly comprehend all the e-learning system without any problem	7	8.4	18	21.7	19	22.9	21	25.3	18	21.7

Source: *Field Survey, 2021*

Students' Perception Towards Instructors Regarding E-learning

More than three-fourths of students (75.9%) responded that their instructors immediately answered their queries in time of difficulties while, less than one-fourth of them (24.1%) responded that their instructors did not respond on time when they encountered with a problem while using the e-learning system. Similarly, in response to the cooperation of the instructors, a similar number of students (74.7%) had positive responses about the cooperation of the instructors in e-learning venture. Nonetheless, about one-fourth of students (25.3%) felt that their teachers did not cooperate in their e-learning. About two-thirds of students (65%) agreed that their teachers in virtual learning were supportive as much as in conventional face-to-face classrooms. However, around one-third of them were not still convinced that their instructors in online learning provided as much guidance as in traditional classrooms (Table 7).

Table 7
Students' perception towards instructors regarding e-learning

Variables	Yes		No	
	N	%	N	%
Prompt response of instructors in time of difficulties	63	75.9	20	24.1
Cooperation in e-learning system	62	74.7	21	25.3
Provide similar guidance in e-learning as in physical classroom	54	65.1	29	34.9

Source: *Field Survey, 2021*

Effect of Skills on the Attitude, Usefulness and Ease of Use

The study revealed significant differences between the attitudes of the students who possessed the required skills to use the e-learning system and those who did not have skills ($t=2.060$, $p<0.05$). Another significant difference that skills made was on the usefulness ($t=3.009$, $p<.01$) and ease of use of e-learning systems ($t=3.384$, $p<.01$) (Table 8). This result indicated that the students who had skills in using e-learning systems tend to have a positive attitude towards e-learning, could made wiser use of e-learning and used the e-learning system easily.

Table 8
Perception differences based on skills to using e-learning system

Variables	Levene's test of equality of variance		t- test for the equality of means				
	F	Sig	t	d.f	Sig(2 tailed)	Mean differences	Std. error differences
Attitude	1.104	.297	2.060	81	.043	.496	.241
Usefulness	.296	.588	3.009	81	.003	.704	.234
Ease of use	.125	.725	3.384	81	.001	.782	.231

Source: *Field Survey, 2021*

Effects of Instructors' Collaboration on Attitude, Usefulness, Quality and Ease of Use

The impact of instructors' collaboration or non–non-collaboration on attitude, usefulness, ease of use and quality was also analyzed by using an independent sample t-test.

Table 9
Effect of instructors' collaboration on attitude, usefulness, quality and Ease of use

Variables	Levene's test of equality of variance		t- test for the equality of means				
	F	Sig	t	d.f	Sig(2 tailed)	Mean differences	Std.error differences
Attitude	.002	.961	2.186	81	.032	.541	.247
Usefulness	1.414	.238	3.692	81	.000	.868	.235
Ease of use	1.359	.247	1.973	81	.052	.491	.248
Quality	.019	.892	3.036	81	.003	.731	.241

Source: *Field Survey, 2021*

The study revealed significant differences between the student's attitudes towards e-learning systems (t=2.186, p<.05), the usefulness of e-learning systems (t=3.692, p<.01) and the quality of the e-learning system (t=3.036, p<.01 between the students who were getting instructors' assistance and those who were not getting appropriate support from their instructors. The instructor's cooperation also, though weak had an effect on the ease of use of the e-learning system (t=1.973, p<.10) (Table 9).

Relationship between Students' Attitude of E-learning, and its Quality, Usefulness, and Ease of Use

The study disclosed a significant positive correlation between the attitude of the students towards e-learning and its quality, usefulness and ease of use of e-learning. Student's attitude appeared to have a strong correlation with the usefulness of e-learning (r=.698, p<.001), a moderate correlation with ease of use (r=.530, p<.001), and a weak

correlation with the quality of e-learning (r=.374, p<.01) (Table 10). Similarly, the variables themselves also appeared to have a significant positive correlation among themselves. The perceived usefulness of the e-learning seemed to have a moderate positive correlation with the ease of use of e-learning systems (r=.486, p<.001), The quality of e-learning appeared to have a weak correlation (r=.223, p<.05) with the usefulness and the ease of use of e-learning systems.

Table 10. Relationship between students 'attitude, Quality, usefulness, frequency of use and ease of use of e-learning (Pearson correlation sig 2-tailed)

Variable	REGR Factor Score		
	Attitude	Quality	usefulness
Quality	.374**		
Usefulness	.698***	.224*	
Ease of use	.530***	.223*	.486***

Note: *p<.05, **p<.01, ***p<.001
Source: *Field Survey, 2021*

Results and Discussion

As e-learning has gained a pivotal space in higher education, this study, based on the data enumerated from the students studying in the humanities and social science programs at the undergraduate and postgraduate levels at Pokhara University derived some significant findings. The study revealed that the majority of the students studying humanities and social science programs at the undergraduate and postgraduate levels at Pokhara University liked the idea of e-learning systems and were convinced that the e-learning system enhances their academic performance. Most of the students were also found to possess adequate skills autonomously which supports the finding of (Huang & Liaw, 2007) in the case of central Taiwan. Some students were unable to use e-learning independently. They might have lacked previous experience of using e-learning or are not getting proper training in using e-learning. Skills were found to make significant differences in the attitude of the students to e-learning, usefulness and ease of use of e-learning systems. Students were likely to have a positive attitude towards e-learning if they possessed related skills. In the same way, if students have the required skills, they find the system easy to use.

However, the quality of internet speed did not seem good to most of the students. This finding contradicts with findings of Shawaqfeh et al. (2020). Shawaqfeh et al. (2020) in a study conducted in Riyadh University in Saudi Arabia found well preparedness of ICT infrastructure after COVID-19. In the context of Nepal, it may be the reason why students encounter multiple technical hassles in between their e-learning like, poor internet quality, power cuts, and so on.

An overwhelming number of students had no problem with mobile access but there was the problem of good quality internet for a large number of students unlike in the case of Canadian universities where almost all students enjoy the highest-grade internet quality without any interruption (Fichten, Asuncion, Barile, Ferraro, & Wolforth, 2009). Very few students have access to very good quality internet in Nepal. E-learning practices are still a new concept for Nepalese students and are in an infancy state in contrast to developed countries which have been practicing full-fledged e-learning instruction for a long.

This study observed a significant correlation between students' attitudes and the quality of e-learning. Having good quality may lead to a positive perception of the students towards e-learning, more use of technology and a high level of perceived satisfaction. A significant number of students had access to mobile phones. More than half of the

students had internet access. Yet there were few students who were deprived of technological access which might have had negative consequences on their learning outcome. So, in order to make e-learning equitable and more just, this section of the students also should be considered.

Likewise, students' attitude of e-learning and its usefulness was moderately correlated. Positive attitude towards e-learning was correlated with perceived usefulness which shows consistency with the findings of (Song & Kong, 2017). About one-fourth of students were found feeling difficulty in using the e-learning system. They might need some technical assistance. Ease of use and usefulness were significantly correlated with each other. If students find e-learning more convenient, they find it more useful. This finding supports the finding of (Davis, 1989). Ease of use was also correlated with the attitude towards e-learning. Similarly, skills made significant differences on the attitude of e-learning which supports the finding of (Rhema & Miliszewska, 2014). Skills also exerted influence on ease of use and usefulness. Skills enable learners to access knowledge without any interference which is similar to the outcome of (Kahiigi et al., 2007, and Song & Kong, 2017).

More than three-fourths of students responded that their instructors immediately answered their queries in times of difficulty. On the flip side of this, around one-quarter of students replied that their instructors did not respond on time when they encountered with a problem while using e- learning system. The reason may be the lack of practices of instructors in this field of knowledge transmission. As instructors are the main architect of the e-learning system, their role is crucial. Instructors' cooperation made a significant difference in the attitude of the students to e-learning. If instructors do not cooperate with the students in their virtual learning, they may get discouraged from the use of the system. Consequently, they may instill a negative attitude to these learning practices. Likewise, their cooperation also exerted impact on the usefulness of the system. If they collaborate, students find the system easy to use. It proves that the facilitators' role is crucial in an e-learning system which is in the same line as the findings of (Zhang, Cao, Shu, & Liu, 2020).

Conclusion

The research was carried out to explore the students' perception of e-learning in Pokhara University which is widely considered as the alternative form of the conventional face-to-face method. Embraced as the most advanced and updated instructional strategy, e-learning has its own value in which the way of knowledge sharing transcends beyond geographical boundaries and time, enabling learners to access knowledge from anywhere any time in an autonomous way.

Since its inception, Pokhara University has focused on the ICT-based delivery of knowledge rather than solely through physical interaction. At present, e-learning is incorporated in every educational policy of schools, colleges or universities. The worldwide pandemic brought by covid 19 has also heightened the significance of e-learning. Maintenance of the quality of e-learning infrastructure and appropriate training to the faculties and students are the keys to making e-learning practices more appealing and fascinating. Without further delay, the focus of the university should shift not only to content delivery in a conventional way but to embrace the new and exciting challenges happening in the instructional pedagogy supported by technology and innovation. Equal emphasis given to e-learning would ease the academic journey of thousands of students scattered

all around Nepal and the world restricted by political boundaries, geography and time. As students are very positive about the different aspects of e-learning system, there should be no stone left unturned from the university to launch full-fledged e-learning practice.

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