
ONLINE LEARNING SATISFACTION IN HIGHER EDUCATION STUDENTS DURING THE COVID-19 PANDEMIC: A CASE STUDY IN NEPAL

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ABSTRACT

Online education during the Covid-19 period was an inevitable solution in all educational institutions in Nepal. In this paper, the effectiveness of the use of online classes, the relationship between the satisfaction of students and information technology (IT) infrastructure, and the impact of online classes on mental health have been investigated, in the context of Nepal. An online survey among 443 higher education Nepali students was done for the investigation. The survey has been performed with the help of 16 main questions relating to the variables. Correlation analysis has been performed on the data obtained to find out the results.

Keywords: COVID-19 pandemic, effectiveness of online classes, students' satisfaction, mental health

1. INTRODUCTION

The year 2019 ended with the beginning of Covid-19, which changed the whole world forever. Because of the strict social separation rule along with lock down enforced by practically all nation in the globe, people were prohibited to come out of their home unless for any urgent situation. This shift in lifestyle also dramatically changed culture of several industries in which academic industry was the most effected one. Like any other country, Nepal also went through country wide lockdown form the first quarter of 2020. As a result, organizations who could work from home started to shift their workplace from office to homes. Significant number of educational institutes worldwide also started to work from home in the name of online education.

The term "online learning" refers to a means of spreading knowledge and learning using information technology and the internet (Zhou, Li, & Wu, 2020). Short period after nationwide lock down, many higher levels as well as secondary level education institutes of the country started conducting their classes virtually. However, those colleges and schools were mostly form urban and semi urban areas of the country. Mainly applications such as Microsoft teams, Zoom, Skype, Veda etc., were utilized for the intent of online learning. There are numerous merits of online learning particularly during the pandemic, safety form the virus, able to learn, flexibility, affordability etc. are among the several (Elshami W. , Taha, Saravanan, Kawas, & Abdalla, 2021). As it was also found that face to face classes was not preferred over online classes as per a study (Murad & Hassan, 2020). Likewise online learning also has some demerits tagged along with it. Main demerits being to those learners or students who are financially weak and lack behind in knowledge, access, and use of technology (Magomedov, Khaliev, & Khubolov, 2020).

Student's satisfaction can be described as their attitude which is outcome from an evaluation of their educational experience (Weerasinghe, 2018). Students' attitudes toward online learning may be impacted by their own personal experiences with it. There are a variety of aspects that might impact

their online learning experience, including mental health, ease of use, engagement, course, and IT infrastructure, some of which will be examined more in this research.

Covid-19 has had a detrimental influence on individuals across the globe, not just on their physical health but also on their mental health. As per data of Nepal Police about 16-18 people committed suicide daily in 2020 as a prevalence of psychological complications such as anxiety along with depression arose during Covid-19 (WHO, 2021). As universities decided to halt physical classes answering to the escalating concerns surrounding pandemic, this led to adverse psychological consequence among college students. Moreover, in research it was found that 3 out of 4 students were found unwell and one out of those 3 students had moderate to severe depression due to social isolation during the pandemic (R.M, Klimov , Juche , Möltner, & Herpertz , 2021). This negative impact on mental health on the students can affect their satisfaction towards online learning which will be further studied in this paper.

IT infrastructure, or information technology infrastructure, refers to all the components required to administer and run a technological system. In context of online learning, the infrastructure can be laptops or mobiles, software's such as Microsoft teams, Veda, Skype etc., headphones, microphones, broadband services, internet speed and so on which teachers and students using to conduct online classes. To have effective online learning it is very necessary to have better quality on those infrastructure as defective infrastructure as potential to create minor to major disturbance on online classes which can impact the satisfaction of students.

Ease of use is one of the most crucial characteristics which determines acceptance of any kind of technologies specifically when new. Online learning, particularly in developing countries like Nepal, is a new technology that must be simple to grasp and use to be fully utilized. Ease of use of online classes can be defined as how user on in context of this research extent of which student's find it easy to operate online classes, easy to record online classes, easy to take online assessments as well as easy to understand. This study will look at whether the ease of use of online classes affects satisfaction of students regarding online learning.

1.1. Problem Statement

Since pandemic of Covid-19 has hit this world, the number of people suffering from various mental health problems has escalated dramatically. In a study it was found that students were on utmost risk of having psychological issues because of social isolation (Lischer, Safi, & Dickson, 2021). Anxiety, tension, sadness, and stress, among other mental health concerns, affected patients more quickly than the corona virus. If we talk about Nepal, mental health is one of those topics which is still considered taboo. Also, there is lack of sufficient papers or studies which are dedicated towards mental health issues of Nepali students during the pandemic and its relationship with satisfaction amongst student regarding online learning. Hence, identifying relationship between mental health of the student and their satisfaction with online learning is one of the problem statements of this research.

Several studies have indicated that unfriendly technology, financial situation, mental preparedness, student environment, amount of interaction, and other factors influenced the comfort level of online classes in various countries throughout the world during Covid-19 (Acharya, et al., 2020) (Zia, 2020)(Almaiah & Al-Khasawneh, 2020). Among them technological factor has been emphasized in a significant number of literatures. In a study done on Iraq it was found that student having quality of IT infrastructures such as quality of gadgets like laptop, mobile phone, headphones etc., quality of internet, webcam and so on were satisfied with their online education (Al-Azawei, Parslow, & Lundqvist, 2016). Similarly in a study done in Vietnam it was found that the students with bad IT infrastructure showed dissatisfaction towards online learning (Dinh & Nguyen, 2020) . In context of Nepal a study

found that more than half of the participants in a in Nepal did not have quality of IT infrastructure (Thapa, 2021). But there is gap in linking IT infrastructure of students and their satisfaction with online learning. Hence, to recognize the association between IT infrastructure of students and their satisfaction regarding online learning is another problem statement of this study.

Similarly, the TAM model, which assesses a user's adoption of any form of technology, includes perceived ease of use of technology as one of the criteria. Perceived ease of use has been linked with the satisfaction of students regarding online learning by various scholars (Turan & Cetintas, 2020). Where in a study done in UAE it was discovered that apparent comfort of use indirectly influenced satisfaction of students (Al-hawari & Mouakket, 2016).

Similarly, research done on higher education institutes regarding TAM also demonstrated positive link among perceived ease of use and students' satisfaction regarding virtual education (Valdehita, Medina-Merodio, & Plata, 2019). However, there is gap on research concerning the "actual ease of use" and satisfaction of students regarding online education especially in context of developing countries like Nepal. Hence, analysis of relationship between the ease of use of online classes and satisfaction of students regarding online learning is final problem statement of this study.

1.2. Research Objectives

The Objectives of this research report are as follows:

General objective

The general objective of this research is to analyse the satisfaction of students regarding online learning and its relationship with 3 crucial factors.

Specific objective

The specific objectives of this research paper are listed as below:

1. To study if there is any significant relationship between the IT infrastructure and students' satisfaction with online learning.
2. To analyze if there is any significant relationship between the student's ease of use of online classes and their satisfaction with it.
3. To examine if there is any significant relationship between the mental health issue of the student and their satisfaction with online learning.

1.3. Research Questions

The following are the questions that this research is trying to answer:

1. Is there any significant relationship between IT infrastructure of students and their satisfaction with online learning?
2. Is there any significant relationship between student's ease of use of online classes and their satisfaction with online learning?
3. Is there any significant relationship mental health issue of students and their satisfaction with online learning?

1.4. Scope of the Research

The main purpose of this research is to evaluate the satisfaction of students as well as its relationship with variables like ease of use, mental health, and IT infrastructure regarding online learning during Covid-19. The target population of this survey are higher education students who are currently studying from intermediate level to master's level in Nepal. This study is done by analysing the result of the survey done on 443 participants from various part of the country who are above the age of 16.

1.5. Significance of the Research

Covid-19 and impact of it on multiple sectors is the most burning issue in present scenario. It has undoubtedly influenced the educational system. The student's satisfaction influences whether the educational system is effective. The motive of this study is to identify the role of ease of use of online classes, IT factor, and mental status of student on their satisfaction towards online learning. Through this paper educational institutes will have better perspective student satisfaction on online learning and the critical factor influencing it. As virtual learning seems to be consistent until the pandemic is over this will help the managers to enhance the condition of education through understanding the convenience, technological, and mental factor contributing it. Similarly, this paper will also help the researchers who want to enhance the online learning system for the students by understanding the possible challenges coming through convenience technological, and mental health perspectives.

2. LITERATURE REVIEW

Today's current style in academic world is online learning; however, this style is not new and has been utilized for a long period all over the world (Kopp, Gröbinger, & Adams, 2019). Prior to COVID-19, however, online learning was not widely available in Nepal. Because of the pandemic, the government of Nepal had to impose lockdown and educational institutes had to physically close. As a result of this crisis, Nepal's education system had to undergo a metamorphosis and choose a digital platform (Dawadi, Giri, & Simkhada, 2020). People find it difficult to adjust to any form of change, but it is more difficult for them to adapt to a new way of learning. Many students are facing a major difficulty because of the rapid shift to virtual learning, while those who have prior experience and understanding can simply adapt (Rizvi & Nabi, 2021).

Student satisfaction can be described as interest from pupils produced by the association among perceived influence of a learning with the anticipated value (Budur, 2019). Student's satisfaction performs a foremost importance on determining the accomplishment of virtual learning. Financial issues, technological variables, interaction level, diverse learning, atmosphere, infrastructure, and other elements all impact student satisfaction levels when it comes to online learning (Coman C. , Tîru, an-Schmitz, Stanciu, & Bularca, 2020). Students' economic condition have a key influence on their satisfaction. One of the most important elements in Nepal is the financial factor, which was exacerbated by Covid 19 when most inhabitants were obliged to take a sabbatical (Gautam & Gautam, 2021). Furthermore, students with poor economic health have less control over an effective internet connection, which has an immediate effect on the excellence of virtual learning and ultimately leads to student discontent (Adedoyin & Soykan, 2020).

Technology has become biggest aid for education sector during Covid-19. The responsibility of digital technology is very substantial in permitting teachers to educate students from physical distance which lets communication to retrieve understanding tools and to execute shared and cooperative interests (Shonfeld, Prestridge, & Cervera, 2021). Even though multiple resources have been trying to incorporate technology into academic sector it's only the emergency that the pandemic created the obligation to fully run the education with technology. This implicates how educational institutes all over the globe were not ready to adapt and regulate virtual classes (Reimers & Schleicher).

Student facing financial problems will have psychological burden regarding their education expenses which can adversely affect the student's attendance (Qayyum, Zipf, Gungor, & Dillon, 2019). A good financial support helps students to buy smartphones, tablets, computers, pay for internet as well as electricity which helps on smooth functioning of online education. Which is one of the reasons why lack

of financial challenges is the threat in the upliftment and effectiveness of virtual learning (Paschal, 2020).

Technology might have given opportunity to learn during this lockdown, but it also plays a major role on maintaining quality of online learning. Knowledge of students, teachers or supervisors about computer use and internet navigation skills are very important to establish the efficacy of online learning and the satisfaction student get from using it (Wei & Chou, 2020). In a research paper done in China, it was shown that academics' happiness with online learning platforms was impacted indirectly or directly by their computer self-efficacy, as well as the simplicity of use and utility of the technology they were utilizing (Jiang, Islam, Gu, & Spector, 2021). Among them ease of use is very much vital to satisfy the educational need of students.

Students' reported ease of use of online classes had a favourable influence on their perceived utility, contentment with online learning, and eventually acceptance of the virtual learning system, according to research. The study defined ease of use of online classed in terms able to use the online classes easily, effortless to be trained to use online classes and easy to understand by what method to utilize the online classes using various technological infrastructure (Han & Ji Sa, 2021). Similarly, as per another study Ease of use of online learning technology has positive but not strong role on influencing students' satisfaction (Satyawati, 2020).

IT infrastructure in context of online learning refers to components such as hardware, networking components, data storage etc., which are utilized for organizing virtual classes. Such infrastructures can be software such as software such as Zoom, Skype, Veda etc., hardware's, quality of IPS etc. that student is using for their virtual classes. Students' levels of satisfaction are heavily influenced by IT infrastructure. Software, hardware, system security, electrical connectivity, and other significant IT infrastructures have been identified (Al-araibi, Mahrin, & Yusoff, 2018). Whenever student possesses technological superiority such as greater internet quality, access to technical assistance, higher-quality gadgets such as headphones, webcams, and better system apps, they will be happier with their e-learning experience. (Al-Azawei, Parslow, & Lundqvist, 2016).

According to a research, students were extremely pleased with the communication as well as interaction given by online classes. (Elshami W. , Taha, Saravanan, Kawas, & Abdalla, 2021). Technological infrastructure quality was found to have major impact on student satisfaction while performing regression analysis (Harsasi & Sutawijaya, 2018). Especially in underdeveloped or developing countries with weak IT infrastructure factors such as internet connectivity, inexistence of IT platforms for virtual learning, disparities among areas has generated difficulties for lecturers as well as learners in other to have quality of education and negatively impacted their satisfaction (Salto, 2020).

Amongst the numerous issues the Covid-19 has brought mental health issue amongst of people is one of the most serious ones. Serious mental health problems like, stress, constant fear, anxiety, depressive thoughts, anger etc. are major issues seen during Covid-19 (Roy, et al., 2020). There has been increment of the level of stress of students as result of constant application of online learning during the pandemic along with pressure of online assessments (Thandavaraj, Gani, & Nasir, 2021). Students who find their college or campus like home harbour dissatisfaction, worry as well as anxiety during the closing of campuses during the lockdown. Owing to vagueness and sudden interruption of the classes' students experience distress and anxiety (YusenZhai & Xue, 2020). Moreover, the concern that comes with the fear of getting infected or family member getting infected of Covid-19 also creates negative impact on mental health on student (Pan, 2020). All this stress, fear, anxiety, depression or over all adverse effect on mental health of student can directly or indirectly impact the effectiveness of online learning.

Problem in concentration, decreased social interaction along with isolation, depressive feeling and stress that are disturbing the mental health of the student have an influence on the academic functioning of the learners (Son, Smith, Hegde, Wang, & Sasangohar , 2020). Furthermore, study have found that that

the students on quarantine or those who tested positive of Covid-19 while in pandemic were more prone to having mental health issues because of loneliness they felt while studying alone (Bolotov, et al., 2021).

Likewise, it was found that the pressure of continues online lectures which obliges students to constantly use online medias specially when freshly learned to use generates stress and worry among the learners. (Akhtarul Islam, Barna, Raihan, & Khan, 2020). In a survey done on United States about mental health of university students and its effect on their academic performance, it was found that significant number of students showed doubts relating to their performance academically however, but also showed less stress to the pressure of academics from the beginning of the pandemic. This may be the outcome of decision taken by the teachers as well as the universities to ease the students during the sudden transition from traditional to virtual learning system (Son, Smith, Hegde, Wang, & Sasangohar , 2020).

Similarly in a study done on graduate student's experience with e-learning it was found that student's psychological distress caused by the pandemic were indicated to be adversely linked with their fulfilment. Moreover, learners who are facing psychological hardship are noticed to be less satisfied with online learning (Danaoui, 2021). As per a report published during the pandemic, psychological therapy of students was emphasized as an acute need due to elevated level of anxiety as well as pressure causing from the drastic transformation that has appeared on the level of learning circumstances and potential of future job (Marshall & Wolanskyj-Spinner, 2020).

3. RESEARCH METHODOLOGY

Research Philosophy

As in this research there only 3 factors i.e., IT infrastructure, ease of use and Mental health of the student which can influence satisfaction of students towards online learning. And all these factors were tested using various questionnaires and tools and a concrete result was stated at last. Hence, this research leans towards Positivism research philosophy.

Research Approach

The study's methodology is described by the research strategy. It establishes the study's conceptual underpinning. This research used an inductive approach as for the association between independent and dependent variables, three main research issues were offered.

Research strategy (Survey/case study)

Research strategy is the third layer of onion model. There are various types of research strategies which are survey, case study, archival research, grounded research, ethnography, experimental and so on. This research was based on survey strategy where multiple questionnaires related to each variable and distributed. The data were obtained through the survey and further were tested and interpreted using various tools.

Research Choices (qualitative/ quantitative/mix)

For this research mono method (quantitative) was selected as research choice as here the relationship among the independent (IT infrastructure, ease of use and mental health) and dependent (satisfaction of student) variable were analysed.

Time horizon (longitudinal/ cross sectional)

Since the primary intent of this research was analyse the learner's satisfaction towards online learning based on 3 main factors, data were collected only at one point of time. Hence, cross-sectional time horizon was used.

Data collection and data Analysis

Data (Primary / Secondary)

For this research primary data was accumulated through survey method. However, secondary data were also collected for references from various journals and articles in literature review section.

Research Questionnaire

Research questionnaire is an instrument of research which includes of set of different types of question whose objective is to collect information from the participants. Research questionnaire are basically a mix of close ended as well as open ended questions.

For this research set of questionnaires were made for each variable be it independent or dependent variable. For independent variable "IT infrastructure" 5-point categorical scale was used where 1 stood for very good and 5 for very bad. The variable had 3 questions in total. Similarly, the second independent variable "Ease of use" also had 3 questions and used dichotomous scale where answer was either "Yes" or "No". Whereas the last independent variable "mental health" and dependent variable "satisfaction of student" both included 5-5 questions each and were in 5-point Likert scale ranging from 1 as "Strongly Agree" to 5 as "Strongly Disagree".

Along with the questions related to the variable's other demographic questions such as age, gender, province, educational status, source of internet, type of gadget used for online classes and the type of software used for online classes were designed to obtain demographic information about the respondents.

Sampling (Method / population/ frame / size)

Convenience sampling (non-probability) method was utilized to pick the population size. The reason behind selecting convenience sampling method was limited cost and time. The target population of the survey were the students who are studying form intermediate level to Masters' level in Nepal. Questioners were distributed to over 500 students via Google Forms, however 443 of total participants filled the survey properly. Making the sample size of this study 443.

4. DATA ANALYSIS

The data collected through survey are coded and made ready for different test as per the requirement of research to analyse the significance and relationships of variables according to research objectives.

4.1 Overview of Questionnaire Responses

- among the 443 participants 48.8% which is 216 of them were male students making, 47.6% which is 211 of them were female and only 3.6 % which is 16 of them belonged to LGBTQI community.
- 69.3% of the students which is 307 were from age group of 21 to 29, 24.4% of them which is 108 were from age group of 16-20 and 6.3% of the total participants which is 28 were from the age group of 30 and above.
- 59.6% of students are from bachelor's level, 29.6% are from master's level and only 10.8% of the students are from intermediate level.
- 77.4% were using laptop, 21.7% of them used Mobile phone and only 0.9% of the students used Tablets.
- almost every respondent (95.5%) were using Wi-Fi as a source of the internet. But only 4.5% students among the 443 were using mobile data.
- 30.7% of the student use ZOOM for their online classes whereas majority of the students which is 44% used Microsoft Teams for online classes. 25.3% of the students used other software such as Veda, Messenger, Skype etc. for online classes.

4.2 Results Analysis

Descriptive Analysis

Frequency Distribution

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
IT INFRASTRUCTURE	443	1.00	4.00	2.1891	.67490	.525	.116	.268	.231
EASE OF USE	443	1.00	2.00	1.4265	.38159	.278	.116	-1.364	.231
MENTAL HEALTH SATISFACTION AMONG STUDENTS	443	1.00	5.00	2.8302	.82478	.011	.116	-.040	.231
Valid N (listwise)	443								

Table 1. Descriptive Statistics

For descriptive statistics, test mean, Skewness, Kurtosis, standard deviation, and frequency descriptive statistic were undertaken. The mean for independent variable "IT infrastructure" is 2.181, for "Ease of use" is 1.42 and "Mental health" is 2.83. Whereas mean of the dependent variable "Satisfaction among students" is 3.30. The Skewness of the variables is all less than 3 and the Kurtosis is all less than 7, indicating that the normal distribution requirements were satisfied.

Descriptive Analysis of Variables

IT Infrastructure

Questions	Very Good	Good	Neutral	Bad	Very Bad
Rate the gadget used for online classes	96 (21.7%)	223 (50.3%)	104 (23.5%)	20 (4.5%)	0
Rate your internet quality	60 (13.5%)	227 (51.2%)	200 (22.6%)	40 (9%)	16 (3.6%)

Rate the software you used for online classes	96 (21.7%)	240 (54.2%)	83 (18.7%)	24 (5.4%)	0
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Table 2. IT infrastructure

When asked the respondents to rate the gadget they are using, maximum no of students which is 50.3% of them answered "Good". Similarly, when asked to rate the quality of their internet majority of them which is 51.2% answered "Good" whereas only 3.6% of them answered "Very Bad". They were also asked to rate the software they use, and again maximum no of students which is 54.2% answered "Good".

Ease of Use

Questions	Yes	No
Do you find it easy to operate online classes	303 (68.4%)	140 (31.6%)
Do you find it easy to take online exams	267 (60.3%)	176 (39.7%)
Do you find it easy to interact during online classes	192 (43.3%)	251 (56.7%)

Table 3. Ease of use

Similarly, to measure the ease of use of online education, students were first asked if they find it easy to operate the online class and 68.4% said "Yes". They were also asked if they find it easy to take online exams and 60.3% of the students answered yes. Finally, when asked if they find it easy to interact during online classes majority of them which is 56.7% answered "No".

Various questions were asked to the students to analyze their mental health, firstly when asked if they had depressive thoughts during most of them which is 35.2% of them "Disagreed". When asked if they felt anxious during the pandemics or lockdown maximum of them which is 29.8% answered "Agree". Similarly, when asked if they found difficulties while concentrating during most of them which is 48.5% them answered "Agree". The students were also asked if they felt stress during the lockdown and majority of them which is 33.4% answered "Agree". Finally, the students were asked if they felt lonely and majority of them which is 32.5% marked "Neutral".

To measure the satisfaction of the students 5 questions were asked. When asked if they are satisfied with online learning, maximum of them which is 29.8% of them "Agreed" however the percentage of student who disagree is quite the same. Similarly, when asked if they think that online classes are more effective than face to face class maximum of them which is 42.27% "Disagreed". Likewise, students were also asked if they would like to continue online classes in the future and maximum number of students i.e., 42.4% of them "Disagreed". They were also asked if online classes had negative effect on their grades, the no of student who answered "Disagreed" as well as "Agreed" were same i.e., 22.6% each. Finally, the students were asked if participatory approach and discussion are better online classes and 164 of them "Disagreed".

Reliability Test

Reliability test of the variables was obtained with the help of Cronbach's Alpha (α) test. When the value of α lies between 0.6 to 0.8, the internal consistency is adequate. Similarly, if the value of α rests in the

middle of 0.8 to 0.9 than the internal consistency is considered as excellent whereas if the value of α is 0.5 or below than it than the internal consistency and reliability of the data is considered as unacceptable.

Reliability Statistics		
Variables	Cronbach's Alpha	No Of Items
IT infrastructure	0.716	3
Ease of Use	0.693	3
Mental Health	0.840	5
Satisfaction of Students	0.820	5
ALL	0.753	16

Table 4. Cronbach's Alpha Reliability test

Cronbach's Alpha value for over all data 0.753 which means the internal consistency is acceptable and reliable. Whereas the Cronbach's Alpha value of Mental health and Satisfaction of students are greater than 0.8 which means the internal consistency is excellent for both. Likewise, the value of alpha for IT infrastructure is 0.716 and Ease of Use is 0.693 which means their internal consistency is good and the data are very reliable.

Correlation Analysis

Correlations					
		IT INFRASTRUCTURE	EASE OF USE	MENTAL HEALTH	SATISFACTION AMONG STUDENTS
IT INFRASTRUCTURE	Pearson Correlation	1	.497**	.046	.502**
	Sig. (2-tailed)		.000	.335	.000
	N	443	443	443	443
EASE OF USE	Pearson Correlation	.497**	1	-.135**	.459**
	Sig. (2-tailed)	.000		.004	.000
	N	443	443	443	443
MENTAL HEALTH	Pearson Correlation	.046	-.135**	1	-.161**
	Sig. (2-tailed)	.335	.004		.001
	N	443	443	443	443
SATISFACTION AMONG STUDENTS	Pearson Correlation	.502**	.459**	-.161**	1
	Sig. (2-tailed)	.000	.000	.001	
	N	443	443	443	443

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5. Correlation of Variables

The above table shows the correlation between our independent variables with dependent variables as well as correlation among independent variables. As of the table it can be noted that IT infrastructure has the highest positive correlation value with satisfaction of students which is 0.502. Which means

more the student have good IT infrastructure for operating the online classes the more, they are satisfied. Similarly, Ease of use of online learning also has positive correlation value with satisfaction of students i.e., 0.459. Which means that the more the student find it easy to have online learning the more they are satisfied. However, it is less significant than IT infrastructure.

Though, the correlation value for mental health of the student and their satisfaction for online learning is negative with the value of -0.161. Meaning that the more the students have mental health issues such as stress, difficulties on concentrating, anxiety, depressive thoughts and loneliness during pandemic or lockdown the more they are dissatisfied with online learning. Which shows that the impact of mental health of student is very crucial to determine the satisfaction of the students.

5. CONCLUSIONS AND RECOMMENDATIONS

This part of the research consists of the findings that were obtained from the research, the conclusions that were drawn, the future works, the limitations of the work and future recommendations on the work that can further be approached in order to carry out another research following the trails of this research paper.

5.1. Research Findings

The findings concludes that majority of the students were neither satisfied nor dissatisfied with online learning during Covid-19. This can be due to both advantages as well as disadvantages tagged along with it. Online learning has advantage such as flexibility, convenience, and mostly safety from Covid-19. Whereas in country like Nepal it also has disadvantages such as lack of interaction, cost of technology, difficult in adaptability etc. However, the findings suggest that people who are dissatisfied with online learning are little bit higher than those who are not. This is an obvious finding as in Nepal online learning is fairly a new technology and to adapt and mold into new technologies is always tedious and may lead to dissatisfaction.

Similarly, the results shows that majority of the students had good quality of IT infrastructure the main reason behind it can be the variety of products which are found in market. Be it software, hardware, or internet all of this are sold in market at very affordable rate. One does not have to spend much to have all of this in a quality which can support online learning. The high and positive correlation between satisfaction of student and IT infrastructure have several explanations. One of the explanations can be that due to good quality of the gadget in terms of battery backup, audio, visual, memory and so on helps the student on smooth running of online classes without any disturbance. Similarly, a good quality of internet unwanted lags, disconnection during class, disturbance on audio as well as visual and disruption during online assessments which makes students more satisfied. Another explanation for the result obtained lies on the quality of software used. User friendly interface of software which allows the user to easily join, record, save, interact etc. can enhance the experience of student and hence increasing their satisfaction level.

The finding showed that students did not find it easy to interact during online classes which has proved as out one of the main draw backs of online classes. Interaction is one of the main if not the main essence of learning the physical distance and technological difficulties makes it very difficult to interact during online classes. The positive and significant correlation between student's ease of use and their satisfaction regarding online learning can be explained in many ways. One of the explanation lies on the ease of operation of online classes. When a student finds it easy and convenient to run and operate online classes it automatically saves energy and time which can come along with when they hassle to do the same. Similarly, exams are one of the crucial parts of any academic. So, it's sure that the ease or difficulty to sit for exams can directly influence students' satisfaction. Even though finding has suggested

positive relationship between satisfaction of students and ease of use but in comparison with IT infrastructure it is still slightly less significant.

Mental health is the rising issue of present generation. The surveyed also showed that significant numbers of people were feeling stress, lonely, anxious as well as had difficulties while concentrating during pandemic. The result seems to be very genuine as many lives were changed during the Covid-19 and most of the changes were adversely affecting the lifestyle of students and their family. The constant fear of getting the virus, financial problem during lockdown, insufficient health care facility in Nepal as well as lack of awareness and empathy towards mental health issues, isolation can automatically trigger mental health issues.

Negative correlation between mental health issue and students' satisfaction can be explained in many ways. When students have mental health issues such as stress, anxiety, loneliness etc. they will be hardly happy with anything in their life including online learning. Similarly mental health issue has capacity to degrade the grades of students as student may feel lack of confidence as well as lack inspiration while preparing and sitting for exams. Hence, students dealing with mental health issue during lockdown or pandemic are generally dissatisfied with online learning.

5.2. Answers to Research Questions

The answers of the research questions are as follows:

1. **Is there any significant relationship between IT infrastructure of students and their satisfaction with online learning?**
 - As per the result of this study there is high and positive relationship between IT infrastructure of students and their satisfaction with online learning. Meaning the better the quality of students IT infrastructure such as internet, gadgets, and software the more the students are satisfied with online learning.
2. **Is there any significant relationship between student's ease of use of online classes and their satisfaction with it?**
 - According to the findings of this study there is positive relationship between student's ease of use online classes and their satisfaction with it. Meaning the more the students feel it easy to operate the classes, interact on it and take online exams the more they are satisfied with online learning.
3. **Is there any significant relationship mental health issue of students and their satisfaction with online learning?**
 - As per the result of this study there is significant and negative relationship between mental health issue of students and their satisfaction with online learning. Meaning that the more students are dealing with mental health problems the more they will be dissatisfied with online learning.

5.3. Conclusion

There were 3 main goals of this research, which were to analyse and detect the relationship between IT infrastructure of students, ease of use of online, mental health of the students with their satisfaction with online learning. The conclusion of this study are as follows. Firstly, it was found that majority of students are neither satisfied nor dissatisfied with online education, however the no of dissatisfied students is more than who are satisfied. Similarly, the relationship between students' satisfaction and their IT infrastructure to operate online classes such as gadget used, software and internet and high and positive relationship. It is concluded that the good quality of IT infrastructure is very important in order have effective online class and to satisfy students. Similarly, another conclusion was that there is also positive connection between ease of use of online classes and students' satisfaction. However, the role

of ease of use is slightly lower than of IT infrastructure of students in satisfying the students. Finally, it was seen that there is adverse relationship between mental health issues of the students and their satisfaction with online class. It is concluded that students who were struggling with mental health during Covid-19 were dissatisfied with online classes.

5.4. Limitations and Future Works

Though this research explores a significant conclusion, but it has few limits. Firstly, samples were assembled purposively from a particular focus populace which is higher education students. Hence, the finding may not be generalized for students who are on lower level. Additional study could be done applying longitudinal strategy in a wide perspective including all sorts of learners but just higher education learners. Similarly, only 3-3 questions have been selected to understand variables such as IT infrastructure and Ease of use understanding Nepali context. This variable can be broadly researched and surveyed adding multiple more questions. Though, it is not a bad start off for conceptualization in this perspective. Finally, to guarantee the efficiency of online learning modules and its satisfaction for higher education students, the standards of online learning model and factors influencing it should be thoroughly and frequently evaluated.

5.5. Recommendations

As per findings and conclusions of this study listed are some of the recommendations for government, colleges, students as well as for faculties which can be used to improve students' satisfaction towards online learning.

For government

-The results have concluded the importance of IT infrastructure on satisfying students regarding online learning is very high. As correlation between satisfaction of students and IT infrastructure was found to be of 0.502. However, in country like Nepal where most of the people reside on remote places and are not financially capable to afford gadgets and internet let alone the quality of IT infrastructure. But since online classes is the only alternative for getting educated during Covid-19, the lack of IT infrastructure becomes a huge barrier for those students. Hence, it is recommended to Government to provide internet and gadgets to villages and government education institutes as a donation so that the students belonging to those area can continue their education

-Government should conduct mental health programs in all the places from villages to urban areas by taking all the safety measures. As the results suggest that majority of student were going through stress and anxiety issues. But it's not only students but other people as well who are going through mental health.

For colleges

- As per the findings significant number of students were going through mental health issues during pandemic which also impacted their satisfaction towards online learning. In country like Nepal where mental health concerns such as stress, anxiety, loneliness, depression is considered abnormal and not talked about should be talked more especially among students. Colleges or academic institutes should conduct mental health awareness and aid classes. So, that mental health of the students can be understood more and be helped.

- It is recommended to academic institutes to consider mental health issues of students especially during lockdown and when online classes have been conducted. Since many students may be going through serious issues colleges should try its best to provide best circumstances during

classes which can help students. They should not give unwanted pressure to students as pressure can also trigger mental health issue. As such issue can adversely impact their academic which is not good for institutes as well.

- One of the main weaknesses of online classes was found to be interaction among the participants. As more than 50% of students thought that online class lacks on participatory approach. This not only affected the interest of students towards it but also decreased the effectiveness of online classes. This the section where college administration is suggested to work on increasing interaction of students.

- Similarly educational institutes train and teach students to operate online classes. This may help the new students as well as the old ones who are going to use online classes may feel easier to operate. As finding shows that ease of use also has positive correlation with fulfilment of students.

For faculty

- Faculties are the first and closest person in touch with the students form the organization. Being the first person in contact, it is recommended to them to talk with students not only about the course things but also about their mental health status. As there is strong chance that student may open with their teachers more than the management team of college about their mental health situation and work on it.

- Faculties are also recommended to assist those students who are finding it difficult to operate online classes as well as are having difficulties on giving online exams. As findings has showed that "Ease of use of online classes" have positive and significant relationship with online learning.

- Interaction between students and faculty member seems to be very weak in context of online classes. Hence, it is suggested to teachers to conduct their classes in such a manner which can grab involvement of all the class members which can result to increment on interaction.

For students

-It is recommended for students to select better internet plan if possible as the result has concluded that the quality of internet also matters along with software used to be satisfied with online learning. As good internet plan helps online class to run smoothly without any disconnection.

- It is suggested to students to show initiation to interact during online classes as lack of interaction and difficulties to interact has come out as one of the major drawbacks of online learning.

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