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## **E-LEARNING AND STUDENT'S PERCEPTION: AN OUTLOOK OF VIRTUAL CLASSES AMID COVID-19 PANDEMIC**

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**ABSTRACT**

*This study explains the different dimensions of distance learning and its influence on the perception of students during pandemic. The sample size of this study is 200 students that are enrolled in various universities of Pakistan. The study has discussed the aspects of distance learning as an attempt to predict the behavioral intention toward e-learning among students. This study consider zoom as a platform of distance learning. The data is collected with the help of closed-ended questionnaire which is later analyzed through the Friedman Test and Kruskal Wallis by using the SPSS software. The identified factors of distance learning include perceived usefulness, perceived tech savvy, perceived time flexibility, and perceived ease of access. The implications of this research indicate that all the factors associated with distance learning have a direct and positive relationship with the student's behavioral intention towards E-learning. It is recommended for the institutes to transform some of their curricular activities from conventional to digital methods of teaching as an attempt to keep the engagement of students high and shaping their behavioral intention.*

**KEYWORDS**

*E-Learning, Distance Learning, Student Perception, Zoom Classes, and COVID-19*

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**INTRODUCTION**

Kainat Anwar et al. (2020) argues that distance learning and online learning is not an effective and don't produce the desired outcome in developing countries such as Pakistan. The outbreak of COVID-19 results in the replacement of traditional learning with online learning through Zoom Classes, in order to maintain social distance. All schools, colleges, and universities have adopted online mode to continue the education of students by various modules and video conferencing applications (Shahzad, et al., 2020). Online learning comes under the most used technology-based learning by using the Zoom app; Microsoft Teams, Moodle, and Adobe connect. In this time of pandemic online learning plays a positive impact on the learning system and is also known as a "paradigm shift in education."

The use of Zoom applications and other ways for online learning has reduced the challenges for educational institutes during this pandemic situation. Khadija Alhumaid et al. (2020) studied the perceptions of the teachers on acceptance of online learning in developing countries worldwide. Both teachers and students are equally responsible for the acceptance of online learning, in regards with the continuing learning process even during this pandemic situation.

Kasman et al. (2021) analyzed the use of the Zoom application in online learning and its effect on the interest of students in learning. Multiple scholars explored that shifting of this learning system from formal to informal way also brings the crisis in education. This urgent shift of learning mode should be tackled strategically so that it doesn't come into crisis but plays positive outcomes for both teachers and students.

In this context, the present study was proposed to understand the perception of students in regards with distance learning outcome. This study aims to measure the perception of students towards the intention to use Zoom applications and other software during a pandemic in Pakistan.

**LITERATURE REVIEW**

The outbreak of COVID-19 enhanced the concern of health; due to this pandemic situation the government has imposed the lockdown. The outbreak of COVID-19 was started from China and then it spread worldwide. The concern of the health of people increased day by day, considering this concern traditional learning has been replaced with e-learning worldwide. Most students and teachers have their numerous perceptions about e-learning during this pandemic situation (Aristovnik, 2020). Most of the students explained that online learning is not an effective mode of learning as they feel headaches, back pain, lethargy, and don't concentrate on their studies. While on the other hand, some studies have explained that online learning is an effective way of learning as in this way we can take education at any time at any place. Thus to

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measure the perceptions of students of e-learning multiple scholars have conducted their studies.

After recognizing the importance of online learning and the perception of the students towards online learning, the bigger part of literature signifies that a large number of researchers Kasman et al. (2021) & Shahzad, et al., (2020) has done their study to measure the impact of zoom application on the learning behavior of students. The perceived usefulness, perceived time flexibility, perceived ease of use and perceived tech-savvy plays its effect on the behavioral intention of students for e-learning. The educational institutes prefer online platforms for learning purposes and knowledge sharing during this pandemic situation.

### **Perception of Teachers towards Online Learning**

Khadijah Alhumaid et al. (2020) have done a study to measure the perceptions and behaviors of teachers toward the acceptance of online learning in developing countries. E-learning is a replacement for traditional learning that especially takes place during this pandemic situation. E-learning is an important and critical source to continue educational activities during this pandemic situation. A study was done to measure the perception of teachers toward online learning that is a substitute for formal and traditional learning. The Theory of acceptance model (TAM) was used in this study to measure the acceptance of this learning mode, especially in developing countries. The data for this study was collected by 30 university teachers from Rawalpindi and regression analysis is done to measure the hypotheses of this study.

The results of this study explained that there is a positive relationship present between the technology acceptance model and online learning during this pandemic situation in Pakistan. This study explained that due to the presence of weak infrastructure of online learning the Educational Ministry of Pakistan has faced multiple challenges towards the implementation of this online learning system. This study concluded that the government should introduce some practical strategies about online learning that could enhance the e-learning system in Pakistan.

### **Effect of Zoom app on students' learning intention**

Cedric et al. (2021) conducted a study to measure the reflection of students about the use of Zoom applications during online learning. This study explained that the outbreak of COVID-19 has changed traditional learning to online learning. The learning management system supports online learning by adopting multiple video conferencing technologies. The implementation of the online mode in learning brings multiple challenges especially for students whether educational institutes implement e-learning effectively or not.

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The analysis and interpretation of data measured that the students have faced multiple challenges during e-learning and internet access is a major challenge of e-learning mode. Students only have a Zoom application to discuss the class lectures and didn't find other zoom functions for effective engagement with teachers and students. Thus the study concluded that there is a need to develop a policy for e-learning and also provide proper training to students about the use of technology for effective learning.

Kasman Kasman et al. (2021) have done a study to measure the effect of the Zoom app during online learning on the interest of students. This study is done to measure the effects of the zoom app on the interest of students during learning. 496 students participated in this study to measure the impact of the zoom app on students' learning. Three main techniques: interviews, questionnaires, post-test, and pre-test were used to collect the data for this study. Data analysis was done by using SPSS to measure the qualitative description of collected data. The results of this study explained that the interest of students increased by using the zoom app during this pandemic situation. Thus results explained that the zoom app plays a significant effect on students' learning during online classes.

#### **Advantages of E-Learning in COVID-19**

A study was done by Khadijah Mukhtar et al. (2020) conducted a study to measure the advantages, limitations, and recommendations of e-learning during the pandemic situation in Pakistan. The outbreak of this pandemic brings changes in the mode of learning and most educational institutes have started online classes in Pakistan. This study is done to analyze the perception of teachers and students about the limitations, advantages, and recommendations of e-learning. This was a quantitative study and data was collected from students and teachers of two medical colleges of Lahore. There were four focus groups made to conduct interviews, two groups of each student and teachers.

The results of this study determined that e-learning has multiple advantages such as ease of use, ease of access, comfort, and feasibility during taking the class. There are some limitations also present in this study such as it takes difficulty and inefficiency towards the maintenance of academic integrity. The research of this study concluded that e-learning has some advantages but it also has limitations so there is a need to focus to overcome these limitations and maintain academic integrity.

#### **Behavioural Intention: Theoretical Framework**

There are multiple tools to measure the perceptions of teachers and students towards the use of zoom applications during COVID-19. The choice of instrument is quite difficult as most of the instruments are the same but they have variations in context due to which they become irrelevant for the study (Khan, et al., 2020). It is quite

difficult to find the instrument that is used in more than one study across various countries to measure the validity of that instrument.

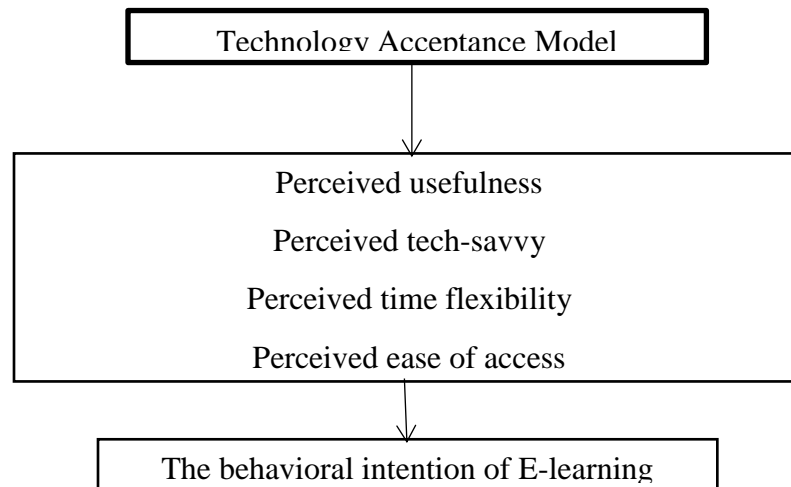


Figure 1: Technology Acceptance Model

The use of the technology acceptance model is important in e-learning as Maslian Masrom et al. (2007) explained the technology acceptance model and e-learning are significantly correlated with each. This study explained that TAM is proposed for two main factors: perceived ease of technology and the usefulness of technology for its users. The study is done to measure the relationship between the TAM model and e-learning and it explained that e-learning becomes more popular in higher education due to the rapid growth of technology and the acceptance of this technology. This study explained that e-learning doesn't replace traditional learning but it provides new opportunities to students to interact with other students and instructors (Ibrahim, 2017). This study focused on whether an individual has accepted e-learning as an effective learning tool.

### **Perceived usefulness**

In accordance with Revythi and Tselios (2019), usefulness is a subjective viewpoint of the user while experience and adapting certain technology as an attempt to elevate their performance and functionality. In the context of E-learning, the usefulness of online studies play a significant role in increasing or decreasing the interest of students in learning their respective courses (Chao, 2019). Therefore, it is recommended by Muqtadiroh, Herdiyanti and Puspitasari (2020) that enhancing the perceived usefulness among students an impact their behavioral intention towards attending the online sessions.

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**Perceived tech-savvy**

Tech savviness refers to the familiarity user has with the technology involved, including its interface and useability (Asvial, Mayangsari and Yudistriansyah, 2021). As noted in Faisal et al (2020), individuals who are not familiar with the technology tend to experience difficulties navigating through their purpose, which further leads to the negative experience. In addition to this, the research of Revythi and Tselios (2019) has also suggested that tech savviness adds ease to the process of learning and attaining the optimum efficiency level. On the other hand, behavioral intention of the students is also influenced by their ability to navigate through the system on technology during online sessions and e-learning, as positive experience led to positive influence on behavioral intention (Chao, 2019).

**Perceived Time Flexibility**

Perceived time flexibility in relation with e-learning has been closely associated with perceived usefulness of the technology (Al-Emran and Teo, 2020). As noted in Lu, Kin, and Chen (2017), perceived time flexibility refers to the ease of access the student has to the course contents and education material. Perceived time flexibility also offer convenience to students as they can learn at their own pace and at the comfort of their homes on the time they deem fit (Costley and Lange, 2017). Perceived time flexibility has also been found to have a positive effect on behavioral intention of students as it enables them to optimize their learning process by opting for time and pace as they perceive most efficient (Al-Rahmi et al, 2019).

**Perceived Ease of Access**

As Costley and Lange (2017) noted, perceived ease of access refers to the extent at which a specific technology is deemed as effortless in usage by the user. Perceived ease of access in the context of e-learning or online classes reflects on the perception of user that indicate whether or not the technology is beneficial or easy to use and access (Chao, 2019). In addition to this, Al Rahmi et al (2019) has concluded that ease of access is significantly influential in positively influencing the students towards e-learning. Subsequently, lack of perceived ease of access may generate negative feelings for the user in regards with the overall learning experience (Lu, Kin, and Chen, 2017).

**RESEARCH OBJECTIVES**

1. Understand the implication of perceived usefulness on behavioral intention in the context of covid-19 and need for e-learning
2. Understand the implication of perceived tech savvy effect on behavioral intention in e-learning
3. Understand the way perceived time flexibility contributes in behavioral intention of students in e-learning

4. Understand the effect of perceived ease of access on behavioral intention of students in e-learning environment during pandemic.

### **RESEARCH QUESTION**

1. What is the student's perspective related to distance learning on the behavioral intention during Pandemic?

### **Subsidiary Questions**

1. How does the factor of perceived usefulness affect the behavioral intention of E-learning for joining online classes during pandemic?
2. How does the factor of perceived tech-savvy affect the behavioral intention of E-learning for joining online classes during pandemic?
3. How does the factor of perceived time flexibility affect the behavioral intention of E-learning for joining online classes during pandemic?
4. How does the Perceived ease of access factor affect the behavioral intention of E-learning for joining online classes during pandemic?

### **RESEARCH METHODOLOGY**

Research methodology refers to the steps and procedures taken in order to conduct research in most efficient way that provides accuracy and unbiased conclusions (Mohajan, 2018). This is a quantitative and descriptive study in which both primary data and secondary data is used. The sample of this study is collected by using a modified questionnaire from 200 students of numerous universities of Iqra University, Ilma University, and Baharia University. The students actively participated in all classes using e-learning platforms during this pandemic situation. There are two sections of the questionnaire, section A is related to the personal information of students while section B is related to the factors that affect behavioral intention of e-learning during this pandemic situation.

Quantitative research methods require statistical analysis to ensure that the results are comprehended with mathematical accuracy (Apuke, 2017). The validation and analysis of collected data are done by using SPSS and other statistical techniques. The Friedman test was used to measure the effect of more than two factors. Moreover Kruskal-Wallis test was used in this study to analyze the effects of above two levels of just one factor. The researcher has used SPSS (version 25) to measure the students' perception towards online learning during this pandemic situation.

Student perception value scale consisted of 15 item which make 4 factors related to perceived usefulness, perceived tech savvy, perceived time flexibility, perceived ease of access and behavioral intention of E learning. The Likert scale was used with 1-5 range where, 1 represent strongly disagree and 5 represent strongly agree. The

Friedman test and Kruskal-Wallis Test was used to analyze the factors related to behavioral intention of E-learning during pandemic.

**RESULTS**

**Friedman Test**

**Table 1: Ranks**

Variables	Mean Rank
Perceived Usefulness	3.06
Perceived Tech Savvy	2.85
Perceived Time Flexibility	3.52
Perceived ease of access	2.86
Behavioral intention of E-learning	2.71

The ranks indicated in table 1, shows that the variance and influence is most prominent for the construct of perceived time flexibility as the mean rank its mean rank is highest among all other constructs. It is followed by the notion of perceived usefulness with the mean rank of 3.06. The mean rank for perceived tech savvy and perceived ease of access is 2.85 and 2.86 confirming the influence on other variables.

**Table 2: T-Statistics**

N	200
Chi-Square	40.285
Df	4
Asymp. Sig.	.000
a. Friedman Test	

The findings presented in table 2, based on the Friedman test, which indicates the number of participants (N) as 200. The Asymp. Sig. refers to the p value which is 0.000, suggesting that the influence and correlation between the aforementioned variables is significant. Lastly, the value of Chi Square is 40.285 also the sig value is less than 5% that represents a higher level of significance found in results of Friedman test.

**Kruskal-Wallis Test**

**Perceived Useful & Behavioural Intention**

**Table 3: Perceived Useful and Behavioural Intention**

Null Hypothesis	Test	Sig.	Decision
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1	Online learning offers the flexibility in studying is the same across categories of Perceived Usefulness.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	Online mode helps students to learn at their place is the same across categories of Perceived Usefulness.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	.Distance learning allows students to submit assignments and attempts tests easily. is the same across categories of Perceived Usefulness.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

The students were inquired about the perceived usefulness of zoom classes as the mode of distance learning. The Kruskal Wallis test results in table 3 indicate the value of sig to be 0.000 for all three distributions for perceived usefulness, rejecting the null hypotheses attached with the construct.

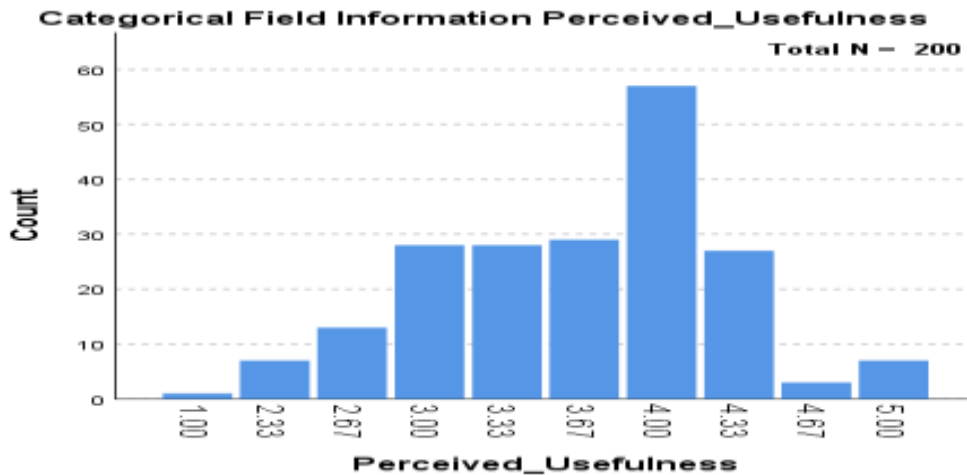


Figure 1: *Perceived usefulness on behavioural intention of e-learning*

Based on the mean value of results shown in figure 1, based on the responses gathered from 200 participants, perceived usefulness has a considerably high influence on behavioural intention of e-learning.

**Perceived Tech Savvy**

Table 4: *Perceived Useful and Behavioural Intention*

	<b>Null Hypothesis</b>	<b>Test</b>	<b>Sig.</b>	<b>Decision</b>
1	Through e learning system, I feel confident. is the same across categories of Perceived Tech Savvy.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	I feel confident while operating e-learning functions. is the same across categories of Perceived Tech Savvy.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	I feel confident while using online-learning content. is the same across categories of Perceived Tech Savvy.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

The table 4 above has evidently accepted the hypotheses for the relationship between perceived tech savvy and behavioural intention of e-learning, and thus, have rejected all the null hypotheses attached with the notion.

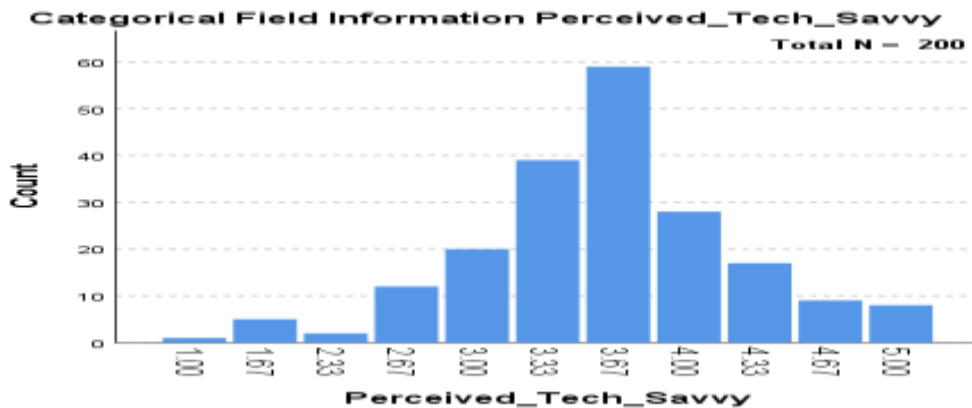


Figure 2: Perceived Tech Savvy statement 3

After the 200 responses the above figure 2 is graphical presentation, perceived tech savvy has a considerably high influence since technological knowledge makes students to use without any fear and thus it impact on behavioural intention of e-learning.

**Perceived Time Flexibility & Behavioural Intention**

**Table 5: Perceived Useful and Behavioural Intention**

	Null Hypothesis	Test	Sig.	Decision
1	I feel I have enough time to submit the assignment. is the same across categories of Perceived Time Flexibility.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	I can listen to my lectures anytime. is the same across categories of Perceived Time Flexibility.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	I timely manage my courses. is the same across categories of Perceived Time Flexibility.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

It is found through the table 5 above that students perceive time flexibility to be significantly stronger in distance learning. Most of the respondents said that they felt they have enough time to complete their assignments, while having the complete authority of accessing the lectures at their convenient time.

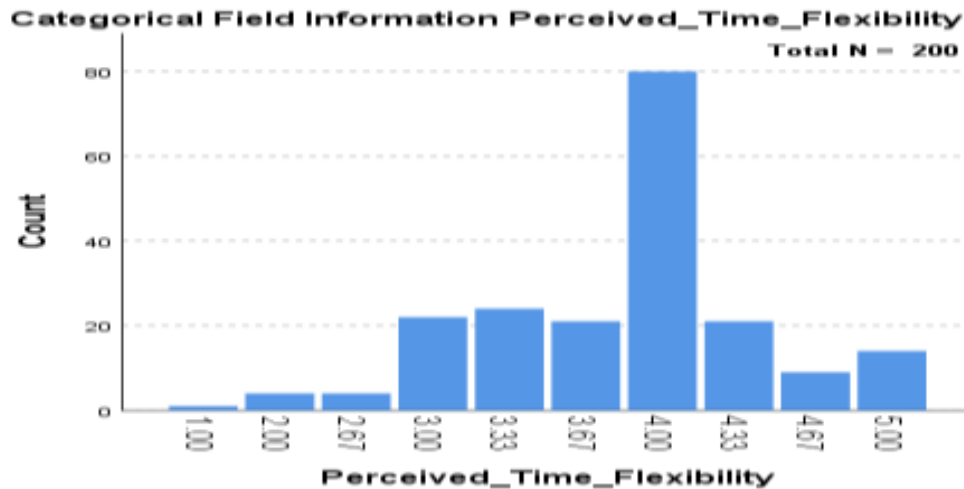


Figure 3: Perceived Time Flexibility

In accordance with the collective results of the distributions of figure 3, it has been found that perceived time flexibility is considerably influential on behavioural

intention of students in regards with the distance or online learning.

**Perceived Ease of Access & Behavioural Intention**

**Table 6: Perceived Useful and Behavioural Intention**

	<b>Null Hypothesis</b>	<b>Test</b>	<b>Sig.</b>	<b>Decision</b>
1	I observed that e learning platform is very easy. is the same across categories of Perceived ease of access.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	I believed that learning become easy with the help of e learning is the same across categories of Perceived ease of access.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	The portal facility are easy to access. is the same across categories of Perceived ease of access.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

In accordance with the results obtained from Kruskal Wallis test, the null hypothesis of the set of perceived ease of access is rejected. It implies that the perceived ease of access is significantly high in regards with the distance learning and behavioural intention of students.

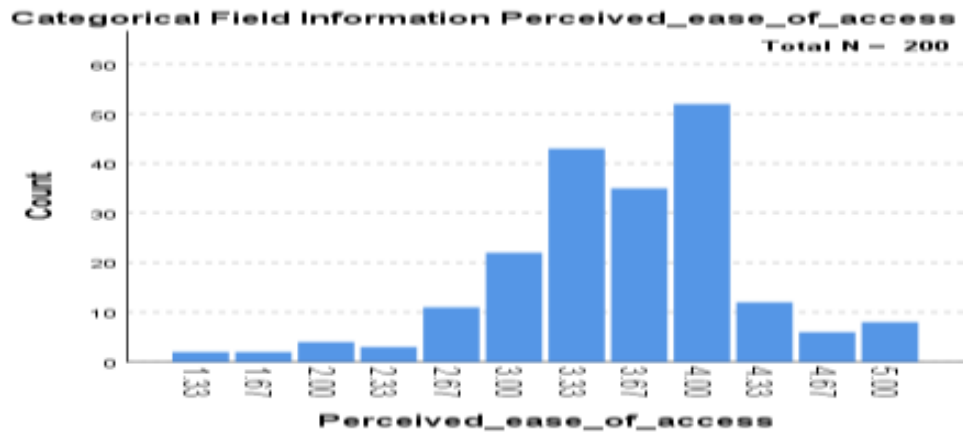


Figure 4: Perceived Ease of Access

Based on the responses of this research in figure 4, perceived ease of access can be deemed as one of the most significant elements for shaping the behavioural intention

of students as its impact on their perception of learning is considerably high.

**Behavioural Intention of E-Learning**

**Table 7: Perceived Useful and Behavioural Intention**

	<b>Null Hypothesis</b>	<b>Test</b>	<b>Sig.</b>	<b>Decision</b>
1	I intend to use e-learning to increase my knowledge. is the same across categories of Behavioural intention of Elearning.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
2	I use e learning platform to get help in my subjects. is the same across categories of Behavioural intention of Elearning.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.
3	As a free learning platform, I use e learning for my help. is the same across categories of Behavioural intention of Elearning.	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

The test results of Kruskal Wallis indicate that the hypothesis developed for behavioural intention of e-learning are accepted, which implies that all the null hypotheses attached with the construct are rejected. It indicates that distance learning prominently influences the behavioural intention of students towards e-learning.

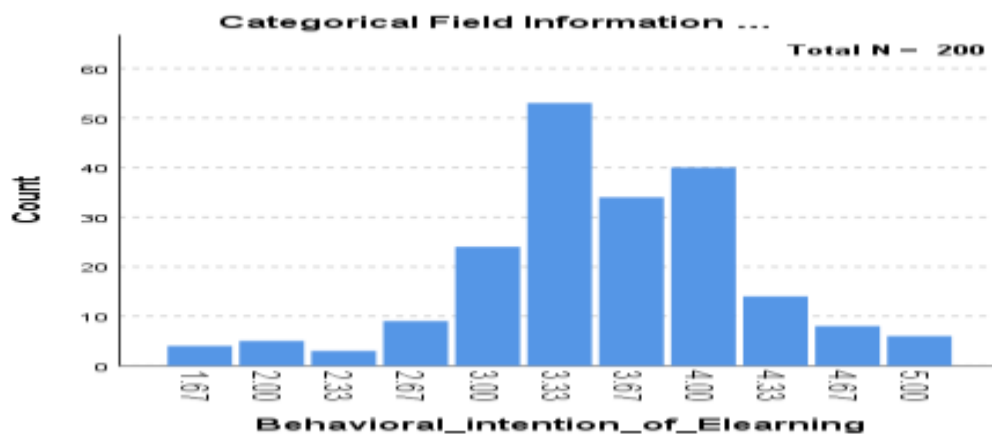


Figure 5: Behavioural Intention of E-Learning

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The figure 5 represents that the responses toward behavioural intention of E-learning is one of the most important element which was observed when new way of learning is in the process

## **DISCUSSION**

This study is insightful for its contribution in understanding the implications of distance learning on the behavioral intention of the students during a global pandemic. Evaluating these elements attached with the online learning requires institutional authorities to consider the long-term engagement that may provide better outcome and efficient results.

### **The Research: Distance Learning and Student's Perception**

The global pandemic has forced educational institutes to shift their knowledge deliverance from conventional methods to digital platforms. With considerations to the precautions required under the global crisis, students and teachers are compelled to make the best of their duties through online platforms, such as Zoom.

Before the pandemic, the benefits and implications attached with distance learning were not discussed on a larger scale. It was assumed that online learning was an option and not a necessity and that it may have fewer benefits in comparison with the conventional methods. This study in particular has discussed the perceived benefits and implications of distance learning or online learning to understand its influence on the behavioural intention of the students towards learning in a global pandemic.

### **Perceived Usefulness Is Significantly High in Distance Learning**

As evident through the results of this study, the perceived usefulness attached with distance learning is considerably high in the viewpoint of students as it allows them to study with flexible timings and pace. Furthermore, the notion is elevated because students perceive it as a positive sign that they are able to conduct their studies from the comfort of their homes. In addition to this, students found the ease of submitting their assignments and conduction of tests to be fairly easy and convenient, thus increasing the status of perceived usefulness associated with online learning.

### **Perceived Tech Savviness Is Considerably High in Distance Learning**

This study finds that students perceived tech savviness attached with distance learning has helped them become more confident. The confidence perceived by the students have stemmed from the use of technical and digital features and being able to access the content that was shared through electronic means. It implied that distance learning or online learning has encouraged and involved students to interact through digital medium, which added more value to their confidence in using technology for learning purposes. It can also be implied that extending the parameters of online learning can

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enhance the tech savviness among students, thus, affecting their behavioral intention.

### **Perceived Time Flexibility in Distance Learning is Significant in Behavioral Intention**

The perceived time flexibility in the context of distance learning is significantly high in the viewpoint of the students. This research finds that students perceive that they have ample amount of time for submitting their assignments, which reflects the illusion of longer deadlines and being able to work on their assignments from the comfort of their homes. Moreover, distance learning was found to be positively considered in regards with the perceived time flexibility, as students indicated that they have the accessibility to content at their preferred time. While some students may have experienced trouble complying with the deadlines and milestones, students in general suggest that they were able to manage their courses as well as their assignments more effectively in terms of time management. Hence, this research concludes that perception of students indicates time flexibility to be significantly higher in the context of distance learning.

### **Students Perceive High Ease of Access in Distance Learning**

In the context of this study finding, the perception of students was found to be contrasting with the initial assumption. Initially it was assumed that distance learning may create significant hurdles in deliverance and receiving of the information shared between teacher and the student. However, this research evidently concludes that students perceive the information shared on digital platforms in E-learning easy, and in extension, learning became easier through e-learning mediums. In addition to this, the results also indicate that students perceive accessibility to the portal and the features it provides have made the overall experience easier.

### **Behavioral Intention of Students in E learning**

Based on the results of this study, most of the students perceive that there are various benefits attached with distance learning and that it has helped them achieve their academic goals more efficiently. This study indicates that a student's behavioral intention is impacted because of various reasons that encourage them to participate in e-learning. Among a few, students perceive e-learning as an effective platform to gain knowledge about the subjects they are interested in. These platforms provide them ease of access to the knowledge that assists them in achieving their academic goals.

### **RECOMMENDATIONS**

1. Online learning or distance learning can never replace the essence and features of conventional classrooms. However, given that there are many perceived benefits attached with distance learning, therefore, it is recommended for the educational institutes to incorporate certain features from online learning in conventional methods

of education deliverance in order to maintain the balance between the two platforms.

2. Once the pandemic is over, and educational institutes resume their operations in the traditional manner, these are recommended to provide accessibility of lectures to students so that students can re-listen to the lectures and learn at their own convenience. This would also be helpful for students who may not be able to join classes because of any given reason.

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