COVID-19 PANDEMIC MADE ME USE IT: ATTITUDE OF GENERATION Z TOWARDS E-LEARNING

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ABSTRACT

The ongoing COVID-19 pandemic continues to affect all segments of society in various ways. The necessity of establishing a balance between public health, and other services requires the evaluation of all aspects of the decisions taken. Because every step was taken in this direction straightly affects the work, education, and even social life of millions of people. As one of the services directly affected by this situation, the education sector suddenly had to switch to distance education models. In this process, it is important to know the attitudes of users, and other interest groups towards these decisions. From this point of view, the study aims to determine the attitude of Generation Z towards e-learning and to analyze whether this attitude has changed in terms of demographic factors. According to the results of the research, the students' attitude towards e-learning in the sample differs not according to gender, but in terms of other factors such as income, age, GPA. The study is important in terms of contributing to the necessity of knowing individual attitudes in order for the adopted practices to reach the desired performance.

Keywords: COVID-19, E-learning, Generations, Gen Z, Attitude measurement

1. INTRODUCTION

The coronavirus pandemic, also known as COVID-19, is an ongoing global pandemic of coronavirus disease which is caused by severe acute respiratory syndrome coronavirus 2. Due to the genetically related to the coronavirus responsible for the SARS epidemic in 2003, "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" is announced as the name of the new virus by the International Committee on Taxonomy of Viruses (ICTV) in February 2020. It is declared as an outbreak in January 2020 and then a pandemic in March 2020 by The World Health Organization (Gomes, 2020).

As the pandemic continues to profoundly transform society, it requires reconsideration of issues such as social and economic inequality. According to the United Nations report the pandemic, which caused the largest education disruption in history, affects 95% of the student population. Because to contain the spread of the epidemic, governments around the world had to take action to suspend face-to-face teaching in schools. New decisions to strike a balance between public health and education have affected all levels of education, from pre-school to university (Engzell et al., 2021). This means that Generation Z (Gen Z), who is currently in the education system, had to gain different educational experiences in the shadow of the pandemic for 2 years.

Generation Z, also known as Zoomers as a member of the social media generations, refers to babies born from the mid-1990s to the early 2010s (İnce, 2018a; Tarhan et al., 2021). Members of Generation Z, the first social generation to grow up with access to the internet and portable digital technology from an early age, are also named as "digital natives" (İnce, 2022). According to the Longitudinal Surveys of Australian Youth (*LSAY),* 62% of Generation Z in the region are studying, and 46% are doing undergraduate or postgraduate education (NCVER, 2021). On a global scale, Generation Z has been one of the generations most affected by the health and economic crises, as they are in the learning, education, and first job search stages (İnce, 2020b; Gonzalez et al., 2020). According to Parker and Igielnik (2020), Generation Z as teens and young adults is living a moment of uncertainty about its future.

Some factors such as uncertainty avoidance, and perceived risk have made it even more important to understand attitudes and intentions towards e-learning during the pandemic (Girish et al., 2021). Because the evolving emergency is forcing schools or universities around the world to close their campuses indefinitely and move their educational activities to online platforms. Since institutions are not ready for such a transition, it takes time to develop online learning processes (Engzell et al., 2021). The e-learning system, which is defined as a type of learning performed in a digital environment through electronic media or the internet, is actually the simultaneous presence of the interface design, evaluation, management, resource support with ethical, institutional, pedagogical, and technological dimensions (İnce, 2021).

Wangpipatwong (2008) finds that the intention of using e-learning is influenced by students' perception of e-learning and their attitudes towards the computer in a case study with university students. The proposed model is not only based on the Technology Acceptance Model, but also on the computer attitude scale. The abilities to use the computer, the perceived utility and e-learning ease of use, enjoyment of use, its perceived utility, and the enjoyment are tested in the research. The results affirm that all e-learning perception factors positively influence student's intention to use e-learning. It has been found that factors such as intention, access to resources, and ease of use may be associated with e-learning adaptation (Abdel-Wahab, 2008). The latest researches show that e-learning attitude and willpower have a significant positive influence on motivations. Also this attitude can influence e-learning effectiveness through e-learning motivation and strategy (Wang et al., 2021). Um (2021) reaches the familiar conclusion in the research on identifing how learners' attitudes towards e-learning are affected by diverse factors such as perceived e-learning usefulness, self-management of learning, and self-efficacy.

In the literature reviewed, it can be seen that a great number of studies have aimed at determining the effects of COVID-19 pandemic on the various sectors (İnce, 2020a). According to Daniel (2020), the pandemic is a huge challenge to the education sector, and it gives institutions limited time to prepare for a distance teaching regime. Chakraborty et al., (2021) ask the Indian students' opinions on different aspects of online education during the ongoing pandemic and find that online education can be stressful and can affect users' health and social life. As children and youth around the world prepare to return to school, an unprecedented number of ongoing emergencies are pushing millions of education systems to work in uncertainty. At this point, it can be said that change is progressing towards new experiences in the future. Reimers (2022) affirms that this pandemic has shocked the education systems in most countries around the world. On the other hand, this sudden change requires a reconsideration of educational opportunities for many young people at all levels, especially poor, disabled or marginalized students.

According to the "Action Plan for 2022", more efforts should be made to close the digital gap based on individual and sociocultural differences in the accelerated digital learning process (UNESCO, 2021). For this reason, understanding individual differences is important in terms of interpreting the effects of practices such as e-learning, which are adopted as an emergency action plan in an extraordinary situation such as a pandemic. The way individuals who are classified in different ways perceive and interpret the situation is one of the most determining factors of their attitudes towards the relevant situation. According to the theory of planned behavior (TPB), this attitude will guide the individual in performing a certain behavior and achieving the desired result (Ajze, 1985; İnce, 2018b). From this point of view, the attitude of Generation Z towards the e-learning practices they have adopted during the ongoing global pandemic is analyzed in this study.

2. RESEARCH and METHODOLOGY

First of all, the aim of the study and the hypotheses developed for this aim are presented, then the analysis of the data obtained within the scope of the sample is given in this title. Finally, several general conclusions and recommendations are made based on the findings.

2.1. Research Hypotheses and Objectives

The main aim of the research is to examine the attitude of Generation Z' students towards e-learning in the COVID-19 Pandemic. It is also desired to determine whether this attitude differs according to various factors. The research hypotheses developed for these objectives can be listed as follows:

Hypothesis: There is a statistically significant difference between the groups in terms of attitude towards e-learning.

Hypothesis (a): There is a statistically significant difference between the gender groups.

Hypothesis (b): There is a statistically significant difference between the family income groups.

Hypothesis (c): There is a statistically significant difference between the GPA (grade point average) groups.

Hypothesis (d): There is a statistically significant difference between the age groups.

2.2. Procedure and Participants

The study group of the research consists of university students who participated in an awareness course held in the fall semester of the 2021-2022 academic year. The data collected by the complete inventory method

are obtained through a questionnaire form. The form is distributed to the participants who volunteered for the study. The study purpose is explained to the participants, and then a brief explanation is given about the data collection tool. They are given 25 minutes and asked to fill the measurement tools. The researcher is in the classroom while the participants filled the data collections tools, and answers the questions asked by the participants. The data collection process is completed within one and a half weeks. After recovery and conversion, 300 surveys are considered as the research data. As Generation Z, those born in and after 2000 and those born before 2000 are considered as two groups, and it is desired to determine if there is a difference as Millennials. Basic statistical data about the participants are detailed in the results title.

2.3. Data Collection Instruments

In order to determine the attitude, and achieve the other objectives of the research, the scale developed by Yıldırım et al., (2014), and also used in various studies such as Tanış et al., (2018) is preferred. Attitudes towards e-learning in the scale inludes 4 sub-dimensions as the personal suitability, effectiveness, instructiveness, and familiarity. On the 5-point Likert scale, there are 18 items such as "e-learning is suitable for my lifestyle", and "e-learning is more effective than traditional education". Besides, the personal information form developed by the researcher is used to collect students' personal information. This form includes the age, sex, grade point average, and monthly family income. The independent t-test is used to determine whether the students' attitudes towards e-learning differ according to students' ages, gender, GPA, and family income. Also, the Pearson correlation coefficient is used to measure the statistical relationship between variables. The significance level is accepted as 0.05. In addition to all these, SPSS 28.0 software is used for statistical analysis.

2.4. Results

The 18 items of the scale show high coherence, so it can be said that there is a high internal consistency ($0.93 \leq$ Cronbach's $\alpha \leq 0.94$) which leads to a reasonable construct validity for the scale. After the validity of the scale, descriptive statistics results can be displayed.

Table 1. Descriptive statistics concerning the sub-dimensions of e-learning attitude

Variables	Personal suitability	Effectiveness	Instructiveness	Familiarity	Total attitude of e-learning
Mean	2,72	2,26	2,09	3,78	2,71
Sd	1,190	1,128	1,104	0,912	0,830
N:300					

In the data set which the sample number is 300, it is seen that "familiarity" has the highest value in terms of sub-dimensions with a score of 3,78 out of 5. After the mean scores are obtained, the group distribution of the participants, and the frequencies of these distributions can be examined.

Table 2. Distribution of the participants according to their individual properties

Variables	Groups	Frequency	Percentage
Gender	Female	188	62,7
	Male	112	37,3
Family Income	2000-4999tl	211	70,3
	5000-7999tl	89	29,7
GPA	2,00-2,99	145	48,3
	3,00-4,00	155	51,7
Age	1995-1999	230	76,7
	2000-2004	70	23,3
Total		300	100

According to Hair et al. (2013); "Skewness measure of the symmetry of distribution, in most instances the comparison is made to a normal distribution. A positively skewed distribution has relatively few large values and tails off to the right, and a negatively skewed distribution has relatively few small values and tails off to the left. Skewness values falling outside the range of -1 to +1 indicate a substantially skewed distribution". Besides, a kurtosis value between ±1.0 is considered excellent for most psychometric purposes, but a value between ±2.0 is in many cases also acceptable, depending on the particular application (George and Mallery, 2012). So, it can be said that the set of data is normal and the scale is also fit with 0,674 Skewness, and -0,144 Kurtosis values. After the determination of whether the data set is well-modeled by a normal distribution, the group test of the variables can be analyzed.

Table 3. Group test results of attitude towards e-learning

Independent Groups t-test	Variables	t-value	Degrees of freedom (df)	p-value	Hypothesis
Attitude towards e-learning	Gender	0,731	298	0,466	a. (-)
	Family income	2,886	298	0,004 *	b. (+)
	GPA**	3,082	298	0,002 *	c. (+)
	Age	2,486	298	0,013 *	d. (+)
* p< 0.05					
**GPA: Grade Point Average					

The second income group has a higher level of e-learning attitude (2,92 ±0,93) than the first one (2,62 ±0,76). So, there is a significant difference in the scores of family income (t(298)=2,886; p<0,05; F:8,041). Otherwise, mean scores of participants who have very good and excellent GPA levels (2,85±0,84) are higher than the mean scores of participants (2,56 ±0,79) who have passing and good GPA levels (t(298)= 3,082; p<0,05).

In addition, mean scores of participants who born in and after 2000 (2,93±0,87) are higher than the mean scores of participants (2,65±0,80) who born before 2000 (t(298)= 2,486; p<0,05; F:0,526). Besides these, means scores in terms of gender are 2,69 for female and 2,76 for male groups, but according to the t-test results the difference between groups is not significant (F:0,004; p:0,949).

According to the correlation analyze results, the attitude scale score is not correlated with the gender factor, while it is correlated with the family income (r:0,165; p<0,01), GPA (r:0,176; p<0,01), and finally the age (r:0,143; p<0,05).

Table 4. Correlation matrix of Pearson correlation coefficients

Variables	Family income		Age		Gender		GPA	
	r	p	r	p	r	p	r	p
Personal suitability	0,164**	0,004	0,171**	0,003	0,031	0,589	0,077	0,182
Effectiveness	0,197**	0,001	0,113	0,051	0,020	0,725	0,127*	0,027
Instructiveness	0,176**	0,002	0,075	0,194	0,031	0,589	0,140*	0,015
Familiarity	0,070	0,228	0,065	0,263	0,050	0,389	0,212**	0,000
Total attitude of e-learning	0,165**	0,004	0,143*	0,013	0,042	0,466	0,176**	0,002
N: 300								
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

While the correlations between the total attitude towards e-learning, and its sub-dimensions are very high and strong with values of r:0,877 for personal suitability; r:0,904 for effectiveness, and r:0,846 for instructiveness, the correlations between attitude and demographic factors are weak.

3. DISCUSSION and CONCLUSION

Although the effects of the epidemic still continue, some issues cause permanent changes in the lives of millions of students, employees, and retirees, and the direction of these changes are still unclear. Applications such as ongoing home-office work, curfews, and online education are among the clearest aspects of change. The effects of these decisions, whose indirect effects will become more evident in the long run, on both the economy and human psychology seem to be discussed for many years. When Generation Z, which is the biggest education segment affected by the pandemic, is evaluated in terms of the subject of the article, it is seen that even the e-learning applications have many sub-branches. From a social point of view, some problems such as the student's access to the internet and computer or the use of technology by the instructors are the first issues that attract attention, but there are also many sub-details. The ethical, institutional, pedagogical, and technological dimensions, interface design, evaluation, management, and resource support are some of the e-learning components that comprehensively illustrate the requirements. For this reason, it is important to understand the attitude of Generation Z, which has to realize the learning process online, as well as other generations who have to adapt more to technology in business and social life.

When the studies on generations and e-learning during the ongoing pandemic process are examined, it is seen that students' attitudes differ in terms of various factors. The results of the studies about health literacy (Tarhan et al., 2021), financial literacy (İnce, 2020b), self-management of learning (Um, 2021) contribute to the understanding of the new generation known as "digital natives". The analyzes conducted to determine the attitude of Generation Z towards e-learning, which is one of the main purposes of this study, showed that

there are attitude differences in terms of demographic factors, similar to the literature. According to descriptive analyzes and t-test results, the e-learning attitude of the university students in the sample differs in about three levels.

It should be noted that the total mean of the items of the attitude towards e-learning is 2.71, which is close to the value of the third or middle point. From the above data, it can be mentioned that the Generation Z students' attitudes towards e-learning are neutral in the positive direction. While this attitude does not differ according to the gender factor, it differs according to family income level (p:0,004), GPA (p:0,002), and age (p:0,013). The mean scores of participants who born before 2000 (2,65±0,80), have very good and excellent GPA levels (2,85±0,84), and have a higher income (2,92 ±0,93) are higher than the other groups. This means that respondents with relatively higher incomes, higher GPA, and older ages have a more positive e-learning attitude. Therefore, Hypothesis (b), Hypothesis (c), and Hypothesis (d) are accepted, while Hypothesis (a) is not evaluated statistically. In addition, according to the Pearson correlation results, the correlation coefficient (r) is 0,165 for the family income; (r) is 0,143 for the age; (r) is 0,176 for the GPA. The familiarity sub-dimension of e-learning and GAP have the highest correlation (r:0,212; p:0,000) between variables, while the effectiveness and total attitude towards e-learning have the highest correlation (r:0,904) between components.

For future studies, it may be recommended to conduct comparative studies using larger sample numbers first. Cross-cultural comparisons can add variety to the literature, and offer broad perspectives. It is also helpful to examine and compare different attitude items together. It can also be used to evaluate the effect of attitude on intention or behavior in terms of concrete outputs. In terms of the education sector, decision-makers, and other practitioners, it can be stated that it will be beneficial to provide positive attitudes in individuals so that applications such as e-learning can achieve the desired performance. For this reason, individuals can be prepared mentally by giving adaptation or information training to create a positive attitude. It is always helpful to understand people in order to contribute to humanity as a driving force for change.

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