ANALYSING USER RESISTANCE TO DISTANCE LEARNING SYSTEMS BY ACADEMICS WITHIN THE COVID-19 PANDEMIC USING THE TECHNOLOGY ACCEPTANCE MODEL

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Abstract: The aim of this study is to determine academics' user resistance to distance learning, their perceptions of the distance learning systems and factors affecting their perceptions of the changes in the education system during the COVID-19 pandemic. The study's population consists of 440 academics working in 43 different universities in Turkey. The research sample were determined through convenience and snowball sampling methods. The data were collected using an online questionnaire form created within Google Forms. After validity and reliability analyses on the data, eight different hypotheses were tested using structural equation analysis. All eight hypotheses proposed within the study were accepted after receiving the results of this analysis. The results of the study show that user resistance has a significantly negative effect on the users that utilise distance learning. However, the perceived ease of use and usefulness have a significantly positive effect on attitude and behavior.

Keywords: *Covid-19 Outbreak, Technology Acceptance Model, Resistance to Chance, High Education, Academicians*

Covid-19 Sürecinde Uzaktan Eğitime Yönelik Akademisyenlerin Kullanıcı Dirençlerinin Teknoloji Kabul Modeli ile Analiz Edilmesi

Özet: Bu çalışmanın amacı COVID-19 sürecinde akademisyenlerin uzaktan eğitime karşı kullanıcı dirençlerini, uzaktan eğitim sistemlerine ilişkin algılarını, eğitim sisteminde meydana gelen değişikliklere yönelik algılarını etkileyen faktörlerin belirlenmesidir. Araştırmanın örneklemini Türkiye'de 43 farklı üniversitede görev yapan 440 akademisyen oluşturmaktadır. Araştırmanın örneklemi kolayda ve kartopu örneklem yöntemleriyle belirlenmiştir. Veriler Google Forms'da oluşturulan çevrimiçi anket formu kullanılarak elde edilmiştir. Veriler üzerinde geçerlilik ve güvenirlik analizleri yapıldıktan sonra yapısal eşitlik modeli kullanılarak 8 farklı hipotez test edilmiştir. Analiz sonucunda çalışma kapsamında önerilen sekiz hipotezin tümü kabul edilmiştir. Yürütülen çalışma kapsamında, değişime karşı direncin uzaktan eğitim sistemi kullanıcılarını önemli ölçüde olumsuz bir

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şekilde etkilediği bulgulanmıştır. Bununla birlikte, algılanan kullanım kolaylığı ve faydanın ise tutum ve davranışlar üzerinde olumlu bir etkisi bulunmaktadır

Anahtar Kelimeler: Covid-19 Salgını, Teknoloji Kabul Modeli, Değişime Direnç, Yüksek Öğretim, Akademisyenler

1. INTRODUCTION

The new Coronavirus Disease (COVID-19) is a virus that was first discovered in the Wuhan province of China in late December and identified in 13 January 2020 (Republic of Turkey Ministry of Health, 2020). It has been declared as a pandemic in March by the World Health Organization [WHO]. It has caused 4.539.723 deaths worldwide. The number of people that had the disease simultaneously was reported to be 218.946.836 (WHO, 2021). Thus, an infectious disease taking hold of our lives globally, COVID-19 has become a concept, unprecedented in the near past, threatening the health of everyone, and a disease spreading worldwide (Yang et al., 2020, p. 3809; Chayomchai, 2020, p.496).

Measures are taken during this time to increase social distance and maintain social isolation which is designed to diminish the destructive effects of the COVID-19 pandemic. In business, solution proposals are being developed in order to provide more business opportunities to "work at home" and operate organizational activities and procedures in the best capacity (Aguilera-Hermida, 2020, p.1; Alam, 2020, p.599; Ambarwati, 2021, pp.78- 88; Chayomchai, 2020, pp. 496-497). Therefore, one of the solutions that diminish the fast spreading and the pernicious effects of COVID-19 is to transfer the convenience of formal education into digital learning platforms (Asghar et al., 2021, pp. 84-86; Pal and Vanijja, 2020, pp.1-2). In other words, there is an immediate need for a transition into online learning (Alfadda and Mahdi, 2021, pp. 883-885; Gürler et al., 2020, pp. 1895). In the literature, technology acceptance model (TAM) has been used to determine user perceptions, attitudes and behaviors towards distance education. The TAM is a model linking cognitive beliefs to behaviors toward the acceptance of technology. TAM developed by Davis (1989). Furthermore, the main indicators of use of technology, and aim to explain receivers' behavior towards information technology, determine their technology acceptance levels and estimate their future behaviour (Ambarwati, 2021. pp.79-82; Pal and Vanijja, 2020, p.119).

Many researchers intended to put forth how willing both students (Briz-Ponce et al., 2017; Aguilera-Hermida, 2020; Akour et al., 2021; Baber, 2021) and educators (Alhumaid et al., 2020; Tandon, 2020; Asghar et al., 2021; Ngabiyanto et al., 2021) are to use technology within the COVID-19 emergency distant education based on the TAM. Thus, in order to determine user behaviours, intentions and attitudes towards the transition into distant learning systems, the technology acceptance model contributes to measuring both the benefits that users perceive, user behaviour, user attitude to online education and emotional situations for users such as trust, happiness known as external factors (Pal and Vanijja, 2020; Sukendro et al., 2020). In the light of these studies, external factors such as stress (Briz-Ponce et al., 2017), information sharing and communication, motivation (Alhumaid et al., 2020), fear of COVID-19 (Akour et al., 2021; Raza et al., 2021) have been investigated within the TAM.

Resistance to change as an external factor was an issue chosen through both occupational experience and literature review. Because resistance does not only occur due to change but also a serious opposition, cognitive unacceptance and refusal against new systems during this change. Therefore, the effects of this resistance should be analyzed to maintain the status quo within the change (Kamal et al., 2020, pp.1-5)

Taking the explanations given above into consideration, purpose of the study is to state what degree academics accept systematic changes and to what degree they have a tendency to resist change for transferring traditional education to digital education platforms during COVID-19. Accordingly, the answer to the research question "what are the factors affecting academics' perceptions, behaviours and attitudes towards using technology in online emergency education?" is sought. The population of the research consists of academics working in Turkish universities. A total of 440 academics were chosen using through convenience sampling and snowball sampling methods. Hence, the research model and hypotheses will be discussed primarily. Afterwards, the research method will be explained, and the study will be concluded with discussion and future recommendations.

2. DEVELOPING THE RESEARCH MODEL AND HYPOTHESES

Developed by Davis F. D in 1986, the Technology Acceptance Model (TAM) is a theory used to measure how users accept using computers. It has been utilised in many studies since 1980 such as application tests for smartphones (Zhang and Adipat, 2005; Ji et al., 2006; Aryana and Clemmensen, 2013), finding factors that affect product life cycle (Jin et al., 2013), mobile trade (Zhou and Lu, 2011a; Türker ve Türker, 2013; Seyhun ve Kurtuldu, 2020)**,** evaluating services by mobile service providers (Zhou and Lu, 2011b), internet banking (Doğan vd., 2015), mobile payment (Bozpolat ve Seyhan, 2020), cloud computing (Hamutoğlu, 2018), acceptance levels of virtual reality technologies (Lin and Yeh, 2019; Sagnier et al., 2020), internet-based learning applications (Zaharias and Poylymenakou, 2009; Menzi et. al., 2012), user perceptions towards health information and communication applications (Asan and Carayon, 2017; Vassli and Farshchian, 2018), autonomous tools (Hegner et al., 2019), digital storytelling (Alexandrakis et al., 2020), online learning (Kurt, 2015; Kim et al., 2020). Therefore, The TAM allows useful structure and research in analysing factors affecting technology users' perceptions in different fields of research (Handy et al., 2001, p.104).

Technology or information systems indicates a person's decision to accept or refuse to use information technology systems in completing a series of tasks (Ambarwati, 2021, p.81). Accordingly, the TAM has four main components. They are perceived ease of use, perceived usefulness, attitude toward using technology and behavioural intention (Davis, 1989, p.320; Amoako-Gyampah and Salam, 2004, p.733).

2.1. The Relationship of Resistance to Change to Perceived Ease of Use and Perceived Usefulness in COVID-19 Distant Emergency Education

One of the main problems that enable resistance to change is educators' persistence in resuming traditional education. The idea that the change brought by the pandemic could threaten jobs is another reason why users resist switching to and utilising a new system (Alfadda and Mahdi, 2021, pp.884-885; Almaiah et al., 2020, p.5262). More importantly, there was a lack of experience in communicating and interacting with students considering the social factors (Aguilera-Hermida et al., 2021, p.6828). One of the substantial reasons for resistance against change is that there are uncertainties regarding using the system, classes, homework and grading exams for both educators and students as the Turkish education system is mostly traditional meaning exercised face-to-face (Almaiah et al., 2020, pp.5264-5268; Gürler et al., 2020, p.1898). For this reason, ease of use and usefulness perceived by people in terms of the system use are important factors. For instance, Almaiah et al. (2020, p.5272) claimed that students will demonstrate resistance when they use a web-based learning system, if they think the system unfriendly and difficult to use.

Build upon the related literature review, the first hypothesis of this study was created as shown below with the research model and hypotheses indicated in Figure 1.

H1: There is a significantly negative relationship between users' resistance to change and perceived ease of use.

Users' perceptions of usefulness shape their attitude towards using technological devices positively or negatively (Alfadda and Mahdi, 2021, p.887). Almaiah et al. (2020, p.5274) stated that confidence in using distant learning systems and motivation to use it in the future as well help perceived usefulness.

H2: There is a significantly negative relationship between users' resistance to change and perceived usefulness.

2.2. The Relationships between Perceived Usefulness, Perceived Ease of Use, Attitude towards Use and Behavioural Intention within Distant Emergency Education in COVID-19 Pandemic

Perceived ease of use towards the online learning system that is being used by educators mainly affects their intentions. For this reason, certain behaviours could increase the usefulness of the system (Alhumaid et al., 2020, pp.104-105). The behavioural intention of a technology is influenced by two sources. The first one is perceived usefulness which is described as expectation that the technology will be beneficial. The other one is ease of use, which is defined as the use of technology freely without much effort (Fusilier and Durlabhji, 2005, pp.243-244). An analysis of primary literature using technology acceptance model puts forth significantly positive relationships between perceived usefulness and perceived ease of use within online emergency education during the COVID-19 pandemic (Alfadda and Mahdi, 2021, p.892; Kusumadewi et al., 2021, p.283). Additionally, facilitator elements such as infrastructure, technical support and equipment are important factors in shaping the intentions of individuals in using technology (Razif et al., 2020, p.798). Although educators prefer traditional education methods when the technology-based education is considered easy to use, the communication with the learners strengthens, and the changed attitudes and behaviours increase the benefit provided by online learning in quality information sharing (Alhumaid et al., 2020). Alfadda and Mahdi (2021) conducted a study in which 75 students were taught English with distant learning that concluded that there was a significantly positive relationship between their perceived usefulness and use of technology within the provided education through technology (ZOOM).

Some researchers who conducted research on the TAM within emergency online education reached the following conclusions: According to a study by Kusumadewi et al. (2021) on 155 parents, perceived usefulness has a significant and positive relationship on behavioural intention and usage behaviour. It was concluded that ease of use has a positive effect on perceived usefulness, but ease of use has no effect on usage behaviour, and usage behaviour has a significant and positive effect on behavioural intention. According to Alshurafat et al. (2021), Lazim et al. (2021) perception of use has a positive effect on the attitude towards perceived behaviour, and that behavioural intention affects the behaviour of use. In a study conducted on 333 students by Tunku Abdul Rahman University using structural equation modelling, it was discovered that perception of use has a significant and positive effect on perceived usefulness and online learning attitude, perceived usefulness has a significant relationship with online learning attitude and acceptance of online learning behaviour. A study by Akour et al. (2021) conducted with 1880 participants from universities in the United Arab Emirates included the perceived COVID fear, subjective norm, and perceived behavioural control variables. It was concluded that

there is a significantly positive relationship between perceived ease of use and perceived usefulness and subjective norm; perceived ease of use has a significantly positive effect on attitude and subjective norm.

Upon viewing the literature research, the following hypotheses were formed.

H3: There is a significantly positive relationship between perceived ease of use and perceived usefulness.

H4: There is a positive relationship between perceived usefulness and attitude towards use.

H5: There was a significantly positive relationship between perception of use and behavioural attitude.

H6: There is a significantly positive relationship between perceived usefulness and behavioural intention.

H7: There is a significantly positive relationship between attitude towards use and behavioural intention.

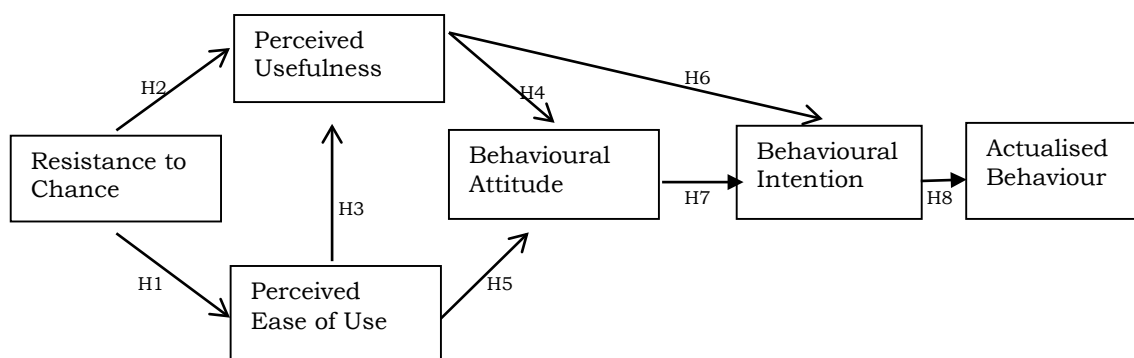H8: There is a significantly positive effect between behavioural intention and actual behaviour.

Figure 1. Research Model

3. RESEARCH METHODOLOGY

3.1. Research Design and Sampling

The research was designed both based on professional experience and due to a gap in the literature. Therefore, the research process was initiated with the memorandum dated 30.09.2020 and numbered 95674917-108.99-E.33572, the decision taken from the scientific research and publication ethics committee meeting of Gümüşhane University numbered 2020/09. The research sample consists of 181.096 academicians working at a total of 207 universities in Turkey between 2019 and 2020 (Yüksek Öğretim Bilgi Yönetim Sistemi, 2021). Letters were sent to inform all universities in Turkey between the dates of 2.10.2020 and 25.02.2021 by using the electronic information sharing system in order to share the surveys and collect data. The research was conducted, upon receiving permission letters from 43 different universities, through the online survey method created via the Google Forms platform using the convenience and snowball sampling methods. As a result, 440 academicians were reached. According to Baş (2008, p. 40), the sample size of 384 people will be sufficient in the 95% confidence interval for the research population with a target population of 100,000 – 1,000,000. Thus, the sample size is considered sufficient.

52,5% (n=231) of the participants in the study were male and 47,5% (n= 209) were female. 4,1% (n=18) were aged between 18 and 25, 40% (n= 176) aged between 25 and 35, 30% (n=132) aged between 36 and 45, and 18.9% (n= 83) aged between 46 and 55 years, and 7,0% (n= 31) were aged 56 years and older. 6,1% (n= 27) of the participants had a bachelor's degree; 38,6% (n= 170) graduate; 55,2% (n= 243) have a doctorate or higher education level. 43,6% (n=192) of the participants had a monthly income between 0 and 7000 TL; 28,6% (n= 126) between 7001 and 9000 TL; 17,5% (n= 77) 9001 to 11000 TL; 3,9% (n=17) have 13001 TL and 6,4% had higher (n= 28). 75% (n= 330) of the participants work as personnel in their institution and do not have an administrative authority. 18,2% of the participants (n= 80) are working as middle-level managers and 6,8% (n= 30) are working as senior managers. As for their experience in their jobs, 47,7% (n= 210) had been working between 1 and 5 years, 28,4% (n= 125) between 6 and 10 years, 10,7% (n= 47) between 11 and 15 years, 7,7% (n= 34) between 16 and 20 years and 5,5% (n= 24) 21 years and more. 28,9% (n= 127) of the volunteers participating in the research are single whereas 71,1% (n= 313) are married.

3.2. Variables

Question items for perceived usefulness, perceived ease of use, behavioural attitude, behavioural intention, actualised behaviour and user resistance were obtained from different sources. Basic information about these variables is presented below.

Perceived Usefulness: The frequently-used question expressions in the "Technology Acceptance Model" developed by Davis (1989) and used by Teo (2012) were preferred for the questions regarding the perceived usefulness variable. There are three expressions in total. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The reliability coefficient of the scale is 0,95.

Perceived Ease of Use: The frequently-used question expressions in the "Technology Acceptance Model" developed by Davis (1989) and used by Teo (2012) were preferred for the questions related to the perceived ease of use variable. There are three expressions in total. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The reliability coefficient of the scale is 0,91.

Behavioural Attitude: The expressions used in the research of Wu et al. (2011) and Ajzen (2002) and adapted into Turkish by Çam (2012) were used. There are five expressions in total. As this scale was asked in the way to include negative statements, the answers to the items of the questionnaire were reversed during the analysis. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The reliability coefficient of the scale is between 0,71-0,76.

Behavioural Intention: Utilising the study by Lee (2009), expressions adapted to Turkish by Doğan et al. (2015) were used. There are five expressions in total. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The construct reliability coefficient of the scale is 0,89.

Actualised Behaviour: The expressions used in the research of Laderer et al. (2003) and Hu et al. (2002) and adapted into Turkish by Çam (2012) were used. There are four expressions in total. The analysis was carried out by reversing the last two items of this variable. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The reliability coefficient of the scale is between 0,68 and 0,70.

Resistance to Change: The "health information system user resistance model scale" in the study by Kim and Kankanhalli (2009) was adapted to Turkish by Cici Karaboğa (2008) and was used in this study. There are four expressions in total. The answers were obtained on a 5-point Likert scale (1. Strongly Disagree → 5. Strongly Agree). The reliability coefficient of the scale is 0,88.

3.3. Validity and Reliability

The Cronbach-Alpha reliability coefficient was examined in order to determine the reliability of the variables in this research. The Cronbach-alpha value for perceived usefulness is 0,89; for perception ease of use 0,85; for behavioural attitude 0,80; for behavioural intention 0,94; for actualised behaviour 0,73; and for user resistance the Cronbach-alpha value is 0,79. When the variables are examined one by one, it can be observed that they have a value higher than 0,60 which is accepted as the lower limit of the Cronbach-alpha coefficient (Kalaycı, 2010, p. 405).

Exploratory and confirmatory factor analyses were done to test the construct validity of the research model formed using different sources. Exploratory factor analysis helps determine whether the scale prepared for a specific theoretical structure, the factors that emerged as a result of the factor analysis as the result of the answers obtained from the participants have behaviourally the same factor result as the measurement tool in the literature. In order to determine the suitability of the dataset for factor analysis, mainly four stages are required. 1) determining the suitability of the data set for factor analysis (creation of correlation matrix, Barlett test and Kaiser-Meyer-Olkin (KMO) sample adequacy criterion); 2) obtaining factors; 3) factor rotation should be provided, 4) factors should be named (Thompson, 2004; Kalaycı, 2010, pp. 321-323). The results of the factor analysis are shown in Table 1, and factor loadings of the variables, total variances of these factors and KMO values are provided based on these results.

Tablo 1. Model Factors

Construct	Item Code	Factor Loads	KMO	Variance %	Cronbach
	PU		0,693	82,575	0,894
Perceived usefulness	PU1	0,850			
	PU2	0,947			
	PU3	0,927			
	PEU		0,659	80,231	0,859
Perceived ease of use	PEU1	0,941			
	PEU2	0,945			
	PEU3	0,794			
	BA		0,745	57,805	0,804
	BA1	0,812			
Behavioural Attitude	BA2	0,724			
	BA3	0,573			
	BA4	0,838			
	BA5	0,824			
	BI		0,500	94,566	0,943
Behavioural Intention	BI1	0,972			
	BI2	0,972			
	AB		0,716	57,366	0,736
	AB1	0,852			
Actualised Behaviour	AB2	0,489			
	AB3	0,837			
	AB4	0,794			
	UR		0,645	63,517	0,797
	UR1	0,806			
User Resistance	UR2	0,871			
	UR3	0,769			
	UR4	0,735			

Confirmatory factor analysis is the measurement tool prepared based on the preliminary literature review and was used to ensure the construct validity of the structure to be measured with the

obtained data and to test the verification of the measurement tool information using the preliminary literature review (Thompson, 2004; Büyüköztürk, 2002; Harrington, 2009; Brown, 2015). One-factor confirmatory factor analysis was performed to examine the construct validity of the variables. Model fit indices were discussed based on the study by Kline (2005) indicated in Table 2. Among the model fit indices, Normed fit index (NFI), Comparative fit index (CFI), Goodness-of-fit index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Tucker-Lewis index (TLI), Root Mean Square Error of Approximation (RMSEA) values were included. After a review of the fit indices of the variables, the fit index results stated in Table 2 were obtained by making modifications between e1 and e3, e1 and e2, e2 and e3 for the behavioural attitude variable, e2 and e3 for the actualised behaviour variable, and e3 and e4 for user resistance.

Tablo 2. Confirmatory Factor Analysis Results for The Variables

Variables	x^2\df	RMSEA	NFI	GFI	AGFI	CFI	TLI
Perceived Usefulness	2,268	0,062	0,995	0,997	0,970	0,997	0,990
Perceived Ease of Use	1,226	0,023	0,998	0,997	0,986	1,000	0,999
Behavioural Attitude	0,206	0,000	1,000	1,000	0,997	1,000	1,009
Actualised Behaviour	1,759	0,042	0,996	0,998	0,980	0,998	0,990
User Resistance	0,015	0,000	1,000	1,000	1,000	1,000	1,007

Consequently, the validity and reliability tests for the variables of the study were completed through the correlation analysis as shown in Table 3.

Table 3. The Mean Value, Standard Deviation Values and Correlation Coefficient

Variables	Mean	SD	PU	PEU	BA	BI	UR	AB
PU	3,302	1,198	1					
PEU	4,162	0,899	0,401**	1				
BA	2,315	0,925	-0,578**	-0,412**	1			
BI	3,537	1,139	0,603**	0,474**	-0,540**	1		
UR	1,919	0,861	-0,304**	-0,463**	0,552**	-0,393**	1	
AB	3,368	0,952	0,626**	0,385**	-0,620**	0,785**	-0,417**	1

Correlation is significant at the 0.01 level (2-tailed).**
PEU: Perceived ease of use; PU: Perceived usefulness; BA: Behavioural Attitude; BI: Behavioural Intention; AB: Actualised Behaviour; UR: User Resistance.

3.4. Findings

3.4.1. Structural Equation Model

Modifications were made on the research model in order to ensure that the model fit values reach the desired level. As a result of these modifications, the factor fit values were established as shown in Table 4.

Table 4. Goodness-of-Fit Criteria for The Research Model

Fit Criteria	Ideal Fit Criteria	Acceptable Fit Criteria	Factor Fit Values
x^2	P>0,05		595,134
x^2/df	x^2/df≤2	x^2/df≤ 5	3,480
RMSEA	0,00<RMSEA<0,05	0,00<RMSEA<0,10	0,075
AGFI	0,90<AGFI<1,00	0,80<AGFI<0,90	0,850
CFI	0,95<CFI<1,00	0,90<CFI<0,95	0,937
TLI	0,95<TLI<1,00	0,90<TLI<0,95	0,923
RFI	0,90<RFI<100	0,85<RFI<0,90	0,895

The Chi-square value of the model tested using the Amos 20 package software was calculated as 595,134, the degree of freedom was 171 and the level of significance was 0,00. It could be seen in Table 4 that the x²/df value is at the level of 3,480. The model fit criteria were measured as GFI: 0,889 and AGFI: 0,850. The NFI value was 0,915. The CFI index is 0,937. The TLI index is 0,923. The RMSEA value was 0,075. The RFI value is 0,895. After the model goodness of fit measures, the measurement errors were evaluated as well. The non-standardised Amos output of the structural equation model is shown in Figure 2 whereas the standardised Amos output is demonstrated in Figure 3.
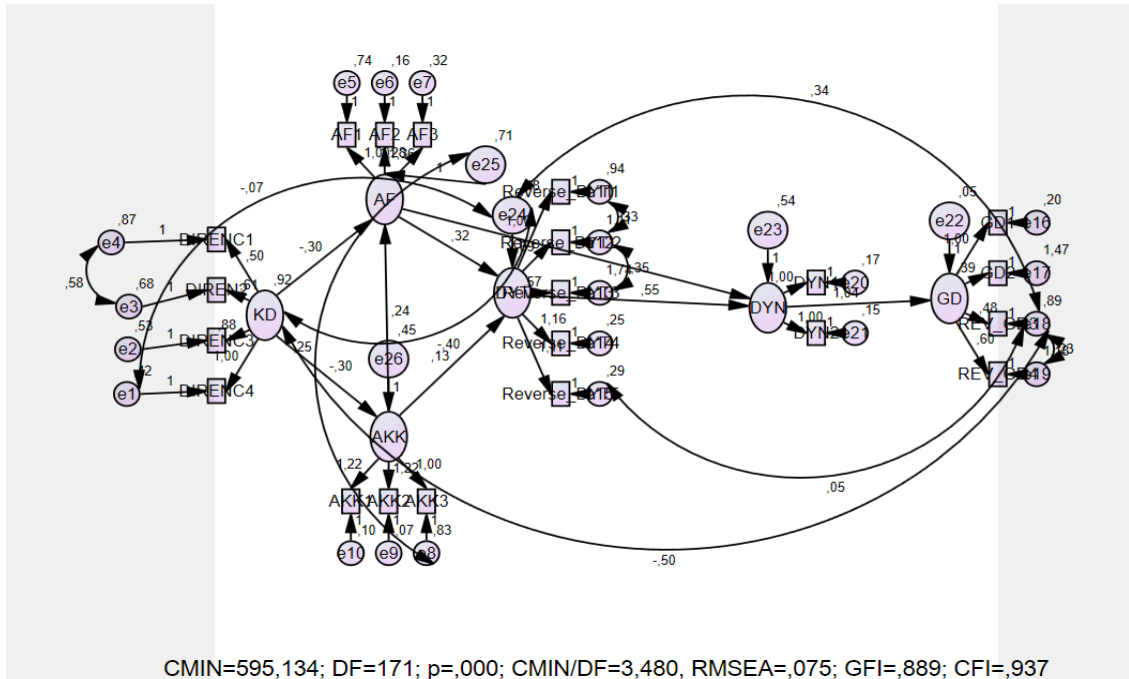

CMIN=595,134; DF=171; p=,000; CMIN/DF=3,480, RMSEA=,075; GFI=,889; CFI=,937

Figure 2: The AMOS Output of Non-Standardised Structural Equation Modelling

CMIN=595,134; DF=171; p=,000; CMIN/DF=3,480, RMSEA=,075; GFI=,889; CFI=,937
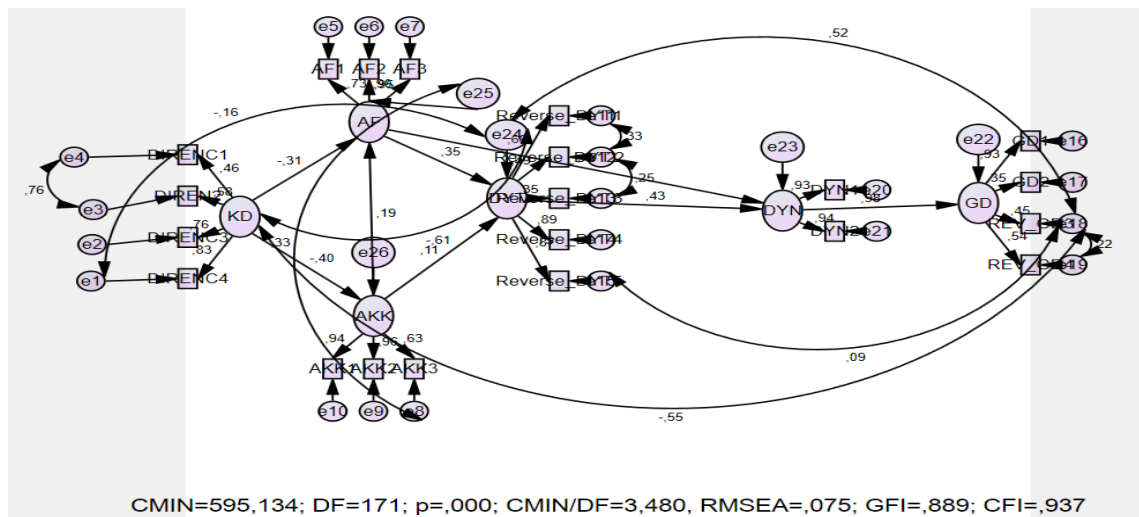
Figure 3: The AMOS Output of Standardised Structural Equation Modelling

Structural equation modelling is a combination of factor and path analysis because it contains both internal and external latent variables. In its most basic sense, this model consists of arrows showing the cause-effect relationship between observed and unobserved variables. In the

structural model of the research, there are 5 latent variables as shown in Figure 2 and Figure 3. User resistance to change is an exogenous latent variable. Actualised behaviour is an endogenous latent variable whereas perceived usefulness, perceived ease of use, behavioural attitude and behavioural intention are both intrinsic latent and extrinsic latent variables. Because these variables are included in the research model as both affected (dependent) and influencing (independent) variables.

Table 5 exhibits the standard and non-standard regression loads, the values to be used in the evaluation of the hypotheses, the evaluations whether the relations between the variables are significant and whether the relations are in the desired direction. As shown in Table 5 where the analysis results after the modifications are demonstrated, the relationship "Perceived Usefulness <--- Resistance" signified with H2 was found to be significant at the p<0,05 level. Therefore, the H2 hypothesis in the model was accepted because it was supported statistically after the modifications. H1, H3, H4, H6, H7 and H8 hypotheses were significant at the p<0,05 level. These hypotheses were also accepted as they were statistically supported.

Table 5. Evaluation of The Model Hypotheses

Structural Relationships	Non-Standardised Loads	Standardised Loads	Standard Error	Critical Ratio t value	P value	The Hypothesis Result
H1: PEU <-- UR	-0,400	-0,305	0,044	-6,868	0,00	Accepted
H2: PU <--- UR	-0,307	-0,297	0,055	-5,422	0,00	Accepted
H3: PU <--- PEU	0,186	0,236	0,064	3,689	0,00	Accepted
H4: BA <--- PU	0,348	0,319	0,043	7,339	0,00	Accepted
H5: BA <--- PEU	0,109	0,127	0,048	2,670	0,008	Accepted
H6: BI <--- PU	0,397	0,465	0,058	0,001	0,00	Accepted
H7: BI <--- BA	0,432	0,552	0,068	8,118	0,00	Accepted
H8: BA <--- BI	0,981	1,038	0,031	33,925	0,00	Accepted

PEU: Perceived ease of use; PU: Perceived usefulness; BA: Behavioural Attitude; BI: Behavioural Intention; AB: Actualised Behaviour; UR: User Resistance.

4. DISCUSSION AND CONTRIBUTIONS

4.1. Research Findings

This study started out with a preliminary literature review on resistance to change and Technology Acceptance Model which led to studies by Nov and Ye (2008), Siegel et al. (2017), Basyal and Seo (2017) and Kamal et al. (2020). According to the results of the analysis, a negative relationship was found between technology's ease of use and individuals' resistance to change. Similarly, it was discovered that there is a negative relationship between perceived usefulness and users' tendency to resist change.

As a result of the preliminary review, although there was no positive and significant relationship (H3) found between the perception of use and perceived usefulness in the studies by Nam et al. (2013), Vladova et al. (2021), Ngabiyanto et al. (2021), in this study, a positive and significant relationship was found between perceived ease of use and perceived usefulness. In line with this finding, Khan et al. (2020), Su and Chiu (2020), Lazim et al. (2021), Kusumadewi et al., (2021) have reached similar results in their research. As digital education platforms are one of the best solutions for protection from the COVID-19 pandemic and for education to continue without interruption, the perceived benefit will likely increase as the ease of use for academics towards the distance education system increases.

A significantly positive relationship was discovered between perceived usefulness and behavioural attitude (H4). This result was found in the studies by Vladova et al. (2021), Su and Chiu (2021), and Kusumadevi et al. (2021).

In the study by Kusumadewi et al., (2021), although there was no significant relationship between the perceived ease of use and behavioural attitude, Vladova et al. (2021), Su and Chiu (2021), and Lazim et al. (2021) discovered a significant relationship between the perception of use and behavioural attitude. This current research concludes a significantly positive relationship between the perception of use and behavioural attitude (H5). Therefore, the findings of this research are supported by the research conducted by Vladova et al., (2021), Su and Chiu (2021) and Lazim et al., (2021).

A significantly positive relationship was found between perceived usefulness and behavioural intention (H6). This result is in line with the research of Nam et al. (2013), Vladova et al. (2021), Khan et al. (2020), Ngabiyanto et al. (2021) and Kusumadewi et al. (2021).

A significantly positive relationship was found between behavioural attitude and behavioural intention (H7). This result is supported by the studies of Vladova et al. (2021), Kusumadewi et al., (2021), Su and Chiu (2021) and Tandon (2020). Regarding the last hypothesis, a positive and significant relationship was found according to the results of the analysis made for the relationships between and behavioural intention and actualised behaviour (H8). The result of this analysis is similar to that of the research conducted by Tandon (2020).

4.2. Limitations and Recommendations for Future Research

Current studies mainly focus on technology use for online learning during the pandemic. However, another important issue here is to leave the online learning and switch to face-to-face learning when the pandemic is over. For this reason, the sustainability of technology use is an important issue (Pal and Vanijja, 2020). Therefore, it is considered advisable to expand the research model by adding new normalization processes and new variables of technology information systems to the research model for the future studies. For example, after the transition to emergency distance education it has been revealed that giving practical courses via distance education is not efficient and solutions have been sought for this issue during the pandemic in Turkey. The first solution is to open the simulation chemistry and physics laboratories created by the Higher Education Council [YÖK] under the name of virtual laboratories for the use of universities. These laboratories are currently used by nineteen universities in Turkey by students and faculty members as if they were in a physical laboratory environment. The plan is to open this application to all universities if deemed necessary based on the course of the COVID-19 pandemic. Even if the COVID-19 epidemic is not over, universities in need of technical support can continue their education and training activities by providing virtual laboratory support during the normalization progress. In this context, a new research topic could include virtual laboratories and their use.

Considering the diversity in the education field, virtual laboratories should be developed in many scientific areas such as health, engineering and tourism and should have features that allow them to have ease of use. In the future, new practice opportunities can be created in line with the need for virtual laboratories and the training curriculum. These practice opportunities can also be combined with phone and game applications to create new software for both entertainment and learning. One of the ways to ensure the sustainability of education by integrating it into technology can be carried out in this way. Thus, it can be ensured that the user resistance against the use of technology can be prevented.

In the last phase of the pandemic, a hybrid education system was chosen while the applied courses are continued within the face-to-face education system, and universities were opened for physical classes. In this new normalization process, simulations of wearable technology methods can be developed and new research areas regarding such possibilities can be improved. Thus, by establishing a balance between traditional and remote working methods, new studies can focus on work transformations. Similarly, different variables such as readiness for the distance education system, personal innovation, performance expectation, effort expectancy, social impact, and service quality can be included in the current research model. While conducting this research, issues related to organisational behaviour such as job satisfaction and job alienation were not addressed. Most sectors preferred working at home including the education sector. In this regard, this issue can be analysed in more details such as working conditions at home, increasing job satisfaction or how alienation from work should be reduced. More investments could be made in remote technology use. However, human resources policies towards this issue should be accelerated by policymakers. Important to ensure employee protection should be accelerated by policy makers. This plays an important role in ensuring employee protection (Nagel, 2020).

A limitation for this research is that there is no mention of which technological device, for instance, a computer or a phone, users used during emergency distance education. Similarly, the differences in the distance education systems used by the universities were not included. For this reason, the research can be repeated on the basis of the device and the infrastructure of the education system for future studies. Such studies can expand this research model by considering the cultural differences of each region in Turkey as Turkey consists of seven regions. New research areas can be created by focusing on cultural differences in research.

5. CONCLUSION

The new Coronavirus pandemic that affected the whole world also had an effect on education systems which were carried out on digital education platforms in Turkey as well as in the rest of the world. Distance learning systems have played a very crucial role in the COVID-19 pandemic in areas such as facilitating information sharing and managing, planning, transmitting and supervising learning, thus providing continuous education (Almaiah et al., 2020). However, considering the technological infrastructure, social and economic contexts, it is a challenging task to provide a high-quality education for everyone and every institution on the basis of the conditions faced by educators (Aguilera-Hermida et al., 2021). As such, in this time of change all over the world, resistance follows. For this reason, the main purpose of this research is to determine the resistance levels of academics to change with regard to the changing education system during the COVID-19 pandemic. Thus, the technology acceptance model was used. The research was conducted with 440 academics. Accordingly, an answer to the research question "what are the factors affecting academics' perceptions, behaviours and attitudes towards using technology in online emergency education?" was sought.

It was concluded that the academics' user resistance towards this change of the transition to emergency distance education had a significantly negative affect on perceived usefulness and perceived ease of use regarding technology. Although one of the most important solution proposals against the negative impact of people's health due to the pandemic is to switch to the distance education system, user resistance within the education system in these mandatory circumstances is a worthwhile research subject for future studies. The results of the research demonstrated that there are significantly positive relationships between perceived usefulness and perceived ease of use, perceived usefulness and behavioural attitude and intention, perceived ease of use and behavioural attitude, behavioural attitude and behavioural intention and actualised behaviour.

Based on this result, the more ease of use the academicians perceive towards the digital education system, the more they will benefit from the system and as a result of this, their attitudes and behaviours towards using the education system will progress positively. Consequently, trainings and seminars should be organized to increase the skills of instructors in using instructional management systems. As a result of these trainings, problems in using the online education system will be eliminated and behaviours towards using the system will also develop positively. Considering the latest world order, we must prepare and develop distance education systems so as not to be blindsided by pandemics or such circumstances in the future. In addition to all this Current studies mainly focus on technology use for online learning during the pandemic. However, another important issue here is to leave the online learning and switch to face-to-face learning when the pandemic is over. For this reason, the sustainability of technology use is an important issue (Pal and Vanijja, 2020). The first solution to improve distant education was to open the simulation chemistry and physics laboratories created by the Higher Education Council (YÖK) for universities. These laboratories are currently used by nineteen universities in Turkey by students and faculty members as if they were in a physical laboratory environment. The plan is to open this application to all universities based on the course of the COVID-19 pandemic.

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Analysing User Resistance to Distance Learning Systems by Academics Within the Covid-19 Pandemic Using the Technology Acceptance Model

ÖZET

Dünya Sağlık Örgütü tarafından salgın olarak belirtilen COVID-19 salgını sosyolojik, ekonomik ve psikolojik açıdan dünya genelinde ciddi sorunların meydana gelmesine neden olmuştur. Salgının yıkıcı ve zarar verici etkilerini azaltmak için bankacılık sektörü başta olmak üzere eğitim, lojistik gibi çoğu sektörün çalışma prensiplerinde yeni düzenlemelere gidilmiştir. Bu düzenlemeler temelde sosyal mesafeyi koruyacak ve sosyal izolasyonu sağlayacak nitelikte olmuştur. Bu düzenlemelerden biri ise evden çalışma yöntemidir. Örneğin, eğitim sektöründe ani ve hızlı bir şekilde uzaktan eğitim sistemine geçilmiştir. Uzaktan eğitim sistemi Anadolu Üniversitesi, İstanbul Üniversitesi, Atatürk Üniversitesi, Sakarya Üniversitesi, ODTÜ başta olmak üzere Türkiye'deki köklü üniversitelerde uzun yıllardır yürütülmekte olmasına rağmen ani ve plansız bir şekilde eğitim sisteminin değişmesi başta uygulamalı eğitim veren bölümler temelinde birçok sorunu da beraberinde getirmiştir. Bu sorunlardan birkaçı şu şekilde sıralanabilir: İnternet alt yapısının bazı öğrenciler ve akademisyenlerin yaşadığı bölgelerde yetersiz olması, eğitim esnasında bağlantı problemlerinin yaşanması, etkili bir eğitim sürecinin gerçekleştirilememesi, uzaktan eğitim sistemini kullanıcılarının teknoloji kullanımı ile ilgili yeterli kullanım bilgisine sahip olamaması, internet üzerinden uzaktan eğitim sisteminin kullanımı için gerekli teknolojik ürünlere (bilgisayar, laptop, tablet vb.) sahip olunamaması, uygulamalı derslere yönelik uygun simülasyon, sanal laboratuvar imkanlarının kısıtlı olması şeklinde örneklerin çoğaltılması mümkündür. İfade edilen bu sorunlar neticesinde ise acil uzaktan eğitim sistemi kullanıcılarında bu değişime yönelik dirençler oluşmasına neden olmuştur. Değişime karşı direnç gösterilmesi durumu ise, sağlığımızın korunması amacıyla yürütülen bu uygulamaların faydası ve uzaktan eğitime yönelik kullanım kolaylığının olumsuz yönde etkilemesine ve uzaktan eğitime yönelik faydaların göz ardı edilmesine katkı sağlamaktadır. Bu nedenle bu araştırma "acil uzaktan eğitim sürecinde, akademisyenlerin algı, tutum ve davranışlarını etkileyen unsurlar nelerdir?" araştırma sorusuna cevap aramaktadır. Bu kapsamda teknoloji kabul modeli (TKM) kullanılarak bu araştırma sorusuna cevap aranmaktadır. Teknoloji kabul modeli, bilgisayar, tablet, giyilebilir teknoloji olmak üzere birçok alanda kullanıcıların niyet, tutum ve davranışlarının belirlenmesi için geliştirilmiştir. Teknoloji kabul modeli, alan yazında kullanılan yaygın bir yöntem olması sebebiyle tercih edilmiştir. Bu araştırmanın özgün değeri, salgın sürecinde uzaktan eğitime yönelik algı, tutum ve davranışların tespit edilmesi, değişime karşı direnç konusunun kullanıcı algıları üzerindeki etkisinin ortaya konulmasıdır, çünkü değişime direnç ve teknoloji kabul modeli değişkenleri birlikte çok az araştırmacı tarafından araştırılmıştır. COVID-19 salgını sürecinde özellikle bu konunun incelenmesi geleceğe yönelik olası salgınlarda çalışanların sağlık durumları söz konusu olmasına rağmen teknoloji kullanımına yönelik direnç eğilimlerinin tespiti ve gelecekte bu konuya yönelik önlem alınması için, değişime direnç mevcudiyetinin ortaya konulması açısından önemli olacağı düşünülmektedir. Her ne kadar acil uzaktan eğitim sistemi beraberinde birçok olumsuz unsur oluştursa da eğitimciler için zamanın verimli kullanımı, esneklik, sertifikalı programların düzenlenmesi düzenlenen programlarda katılımcı sayısının artması şeklinde faydalı unsurların oluşmasına da katkı sağlamıştır. Acil uzaktan eğitime yönelik pozitif ve negatif durumlar bir arada ele alınarak COVID-19 sürecinde acil uzaktan eğitim sistemine yönelik eğitim süreci durumlarının akademisyenler perspektifinden değerlendirilmesi ve analiz edilmesi amaçlanmıştır. Bu amaçla, araştırmada kolayda ve kartopu örneklem yöntemi kullanılarak 43 üniversiteden 440 akademisyene ulaşılmıştır. Araştırmanın verileri Google Forms'da hazırlanan çevrimiçi anket aracılığıyla elde edilmiştir. Araştırmanın sonucunda yaşanılan pandemi sürecinde değişime karşı direncin algılanan kullanım kolaylığı ve algılanan fayda arasında negatif bir ilişkisi olduğu sonucuna ulaşılmıştır. Algılanan fayda ve algılanan kullanım kolaylığının uzaktan eğitim sisteminin tercih edilmesine yönelik tutumu artırırken,

algılanan faydanın kullanıcı niyetini, kullanıcı niyetininde gerçekleşen davranışı pozitif yönde artırdığı sonucuna ulaşılmıştır.