

## **Understanding the Continuance Usage Intention of Distance Learning during COVID-19: An Empirical Study on Tourism Academic Staff and Undergraduates in Egypt**

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### **Abstract**

Lockdown measures in response to COVID-19 have disrupted the education system worldwide, where universities quickly have replaced face-to-face classes with distance learning. This paper aims to determine factors that predict tourism academic staff and undergraduates' continuance usage intention of distance learning in Egypt during the COVID-19 era. The effects of perceived usefulness and perceived ease of use on attitude toward distance learning, the influence of attitude on satisfaction with distance learning, the effects of attitude and satisfaction on continuance usage intention of distance learning are explored. The survey data is obtained from 87 academic staff and 350 undergraduates and analyzed with SmartPLS software utilizing the partial least square method. The results indicate that continuance usage intention of distance learning is predicated by attitude towards distance learning and satisfaction with distance learning; together, these variables explained almost 70% of the variance of continuance usage intention ( $R^2 = 0.695$ ). Also, it is found that attitude towards distance learning is the strongest predictor, compared to satisfaction, of continuance usage intention of distance learning. This research provides insightful understandings and empirical evidence on the factors that influence the continuance usage intention of distance learning.

**Keywords:** Distance learning; tourism; Egypt; COVID-19.

### **Introduction**

The novel Coronavirus (COVID-19) has left a profound impact on education systems on a scale never seen before. According to the UN (2020) and UNESCO (2020) around 1.6 billion students were affected by the closure of universities and schools all over the world owing to the spread of the novel Coronavirus (COVID-19) in 2020. These closures of educational institutes had affected 94% of students around the world, with rates as high as 99% in low-income and developing countries. Consequently, as a measure to contain the virus spread, governments forced educational institutes, universities, and schools, to go online, based on the UNESCO suggestion to make use of distance learning programs and open educational applications during this pandemic (Gopal et al., 2021). Distance learning, often known as distance education, is an educational approach that focuses on integrating technology and instructional systems in the delivery of education to students, where instructors and students communicate on asynchronous or synchronous bases (Al-Arimi, 2014). In this, governments and educational institutions had been using distance learning systems to promote online learning, including providing instructions to students,

supporting teachers, providing guidance to families, delivering content, and addressing connectivity issues (Orville, 2020). Although the COVID-19 crisis enabled education to realize several benefits from better and more digital education solutions, there is a risk that a new sort of digital gap may emerge (Daniel, 2020). Allam et al. (2020) assumed that COVID-19 has put professors and students to the test in terms of their willingness to adopt and use technologies in their distance learning activities.

In Egypt, starting from March 15, 2020, as part of the Egyptian government's comprehensive plan to cope with the pandemic effects, the study at universities and schools was temporarily interrupted several times during the academic year 2019/2020 and was shifted to online mode (Ewiss, 2020). In this regard, many studies had been conducted investigating such situations from different perspectives within the COVID-19 context. For example, El-Sayad et al. (2021) studied the online learning engagement and satisfaction of undergraduate students in Egypt. Similarly, gauged undergraduates' perceptions on the change to online learning amid lockdown in Egypt. Also, undergraduate students' learning experiences and responses to courses that use social network websites and Microsoft-Teams as the sole remote learning platform. Zalat (2021) assessed university staff perceptions exploring factors impacting the acceptability and usage of e-learning in Egypt during the COVID-19 epidemic. However, to our knowledge, there is limited research on exploring academic staff and undergraduates' intention to continue using distance learning based on an integrated framework, especially for tourism education in Egypt. Hence, the main purpose of this present study is to investigate tourism academic staff and undergraduates' perception, attitude, satisfaction, and continuance usage intention of distance learning in the COVID-19 era. In specific, this study addresses the following questions:

1. What is the influence of tourism academic staff and undergraduates' attitudes on their continuance usage intention of distance learning during COVID-19?
2. What is the influence of tourism academic staff and undergraduates' satisfaction on their continuance usage intention of distance learning?
3. Are there significant differences between tourism academic staff and undergraduates in terms of attitude, satisfaction, and continuance usage intention of distance learning within the COVID-19 context?

### **Literature review**

Lockdown measures in response to COVID-19 disrupted education where universities quickly replaced face-to-face classes with distance learning. Distance learning is the general term used to refer to many other forms of learning, such as online learning, web-based learning, e-learning, virtual learning, technology-mediated learning, online collaborative learning, etc. (Moore et al., 2011). Although distance learning is not a new notion, it was the possible alternative to continue educational activities during the soaring COVID-19 rates (Mishra et al., 2020). Al-Kumaim et al. (2021) said that universities in the COVID-19 period had no choice but to use advanced online information and communication technologies to complete their learning activities and keep interactions

between students and their professors securely to maintain social distance. During COVID-19, most online learning in higher education was conducted via recorded lectures and online platforms (United Nations, 2020).

Generally, there are numerous advantages to teaching and studying online. The temporal flexibility in attending classes makes learning more comfortable for students (Almahasees et al, 2021). Distance learning allows more flexibility in class times and saves a lot of time. If something was overlooked, students might use texting and streaming video technologies to go back and playback it. Students have the opportunity to rewind and replay pre-recorded lectures and audio PowerPoints (Basuony et al, 2021). Additionally, distance learning provides students with essential learning tools and lets them access educational platforms at any time, 24 hours a day, seven days a week. It is also a good tool for learning in terms of cost-effectiveness and flexibility, regardless of where you are. It also allows students to ask questions and receive answers more usefully, as well as receive observations on the content of the assigned courses (De La Varre et al., 2010; Gautam, 2020; Rosell, 2020). Nevertheless, distance learning during the pandemic has many downsides faced by academic staff and students, when it comes to using the distance learning platform. Examples of these downsides include limited internet access, lack of engagement, inadequate interaction between students and instructors or between students and classmates, inadequate training, connections issues such as lag or drop when attending an online class, unfamiliarity and insufficient experience with online learning platforms in use, lack of a process to assess online learning outcomes; and lack of experience developing online course content or converting courses from offline to online mode (Gautam, 2020; Al-Baadani & Abbas, 2020; Allam et al., 2020; Bozkurt & Sharma, 2020; Basuony et al., 2021; El Said, 2021;). In addition, universities in many countries were suffering due to insufficient experience and time to devise new formats for delivering education and assignments. Exams were also affected, causing interruptions in learning paths and progress in studies. Perhaps more importantly, the COVID-19 crisis exposed the value proposition of higher education institutions (Schleicher, 2020).

In this context, attitude is a vital component in the use of technology; hence, it plays an important role in shaping academic staff and students' intention to accept and adopt distance learning (Hussein, 2017; Singh & Tewari, 2021). The technology acceptance model (TAM) was the most frequently theoretical framework used in studying information technology, including distance learning technologies, adoption behavior. TAM was introduced by Davis (1989) and defined two beliefs that eventually lead to real use of new technology: perceived usefulness and perceived ease of use. The degree to which an individual believes that a certain technology would improve his or her performance, such as learning or teaching activities, is referred to as perceived usefulness (e.g., by cutting the time required for task accomplishment or delivering timely reports). The degree to which an individual believes that utilizing a specific technology would be effortless is referred to as perceived ease of use (the smoothness with which technology works). In this sense, many prior studies confirmed empirically the positive and significant relationship between perceived usefulness and perceived ease of use of technology, and both elements influence attitude, which in turn has positive effects on

behavioral intention to use technology for education (Eastman et al., 2011; Shroff et al., 2011; Cheung & Vogel, 2013; Sujeet & Jyoti, 2013; 2015; Lemay et al., 2018). Therefore, the following two Hypotheses were proposed:

*H<sub>1</sub>. Perceived usefulness has a significant and positive influence on tourism academic staff and undergraduates' attitudes toward distance learning during COVID-19.*

*H<sub>2</sub>. Perceived ease of use has a significant and positive effect on tourism academic staff and undergraduates' attitudes toward distance learning during COVID-19.*

Likewise, one of the most important cornerstones of distance learning quality is academic staff and student satisfaction (Wang, 2006; Sampson et al., 2010; Dziuban et al., 2015). Previous research had found a significant association between student satisfaction and the success of distance learning. Students' learning performance and results have been improved as a result of increasing their satisfaction through improved distance learning quality (Choe, 2019; Wei & Chou, 2020; Puriwat & Tripopsakul, 2021). Moreover, students and academic staff satisfaction are inextricably linked, as student satisfaction is influenced by interaction with their academic staff, and technology acceptance and readability, which demand academic staff to exert additional effort to engage students online, in addition to the requirement for competent techno pedagogical abilities (Elshami et al., 2021). In terms of the link between attitude and satisfaction with distance learning, many empirical findings confirmed a significant positive relationship. For example, Liaw (2008) found that student satisfaction with distance learning systems was positively influenced by perceived usefulness and attitude variables. Mohammadi (2015) revealed that user satisfaction of distance learning systems was influenced by both predictors of attitude, perceived usefulness, and perceived ease of use. This is also supported by Malkawi et al. (2020) and Suryani and Sugianingrat (2021) who confirmed the significant relationship between attitude towards distance and satisfaction with it, during COVID-19. Accordingly, we suggested the following hypothesis:

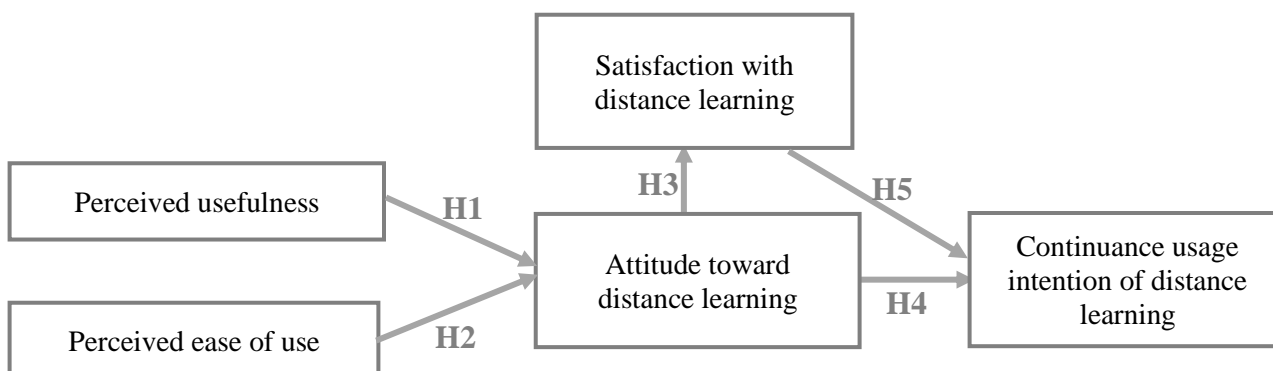
*H<sub>3</sub>. Tourism academic staff and undergraduates who have a positive attitude towards distance learning would be more satisfied with distance learning during COVID-19.*

In terms of continuance usage intention towards distance learning, Bhattacharjee (2001) stated that the satisfaction gained after experience and actual use is the key determinant of continuation intention. Several researchers found empirical support for this argument. In their study of undergraduates in 5 countries (Bangladesh, Iran, Oman, Romania, and Malaysia), Taghizadeh et al. (2021) found that satisfaction significantly affected university students' continuance usage intention with online learning. Similarly, Rajeh et al. (2021) found that satisfaction was the strongest predictor of students' intention to continue with distance learning. Besides, satisfaction, Lee (2010) concluded that attitude was among the influential factors on the intention to continue using online learning systems; this result was supported by Ruangkanjanases et al. (2020). According, the following hypotheses were established:

*H4. Attituded toward distance learning has a significant and positive influence on tourism academic staff and undergraduates' continuance usage intention.*

*H5. Satisfaction with distance learning has a significant and positive influence on tourism academic staff and undergraduates' continuance usage intention.*

The current study's research model is depicted in Figure 1.



**Figure (1): Research framework**

## **Research methods**

### **Study instrument**

A quantitative research approach was used in this present research. Since the study aimed to understand the continuance usage intention towards distance among tourism academic staff and undergraduates in Egypt, two separate survey forms were designed. Each questionnaire form consisted of 3 sections. In section 1, questions related to respondents' profiles and information on used distance learning tools during the last period, were asked. The second section contained 22 statements about the study's constructs: perceived usefulness, ease of use, attitude toward distance learning, satisfaction with distance learning, and continuance usage intention of distance learning. These statements were adopted from relevant previous (Umrani-Khan & Iyer, 2009; Davis, 2017; Joo et al., 2018; Munoz-Carril et al., 2021; Rajeh et al., 2021; Taghizadeh et al., 2021; Wang et al., 2021) that provided validity evidence, with only some changes made to fit the setting of the current investigation. The participants' replies on these 22 statements were graded on a 5-point Likert scale, with 1 indicating strong disagreement and 5 indicating strong agreement. The third section of the study's questionnaire included two sets of questions about obstacles and areas of improvement concerning the usage of distance learning in tourism education in Egypt.

### **Participants**

Primary data were collected using online Microsoft Forms between October 18th and December 1st, 2021. Invitations were sent to target participants including academic staff and undergraduates in tourism and hotels faculties in Egypt. Although responses were

collected from academic staff across most tourism and hotels faculties in Egypt, we were not able to collect data from undergraduates except those in the Faculty of Tourism and Hotels at Minia University. A total of 437 responses were received, of which, 87 responses were from academic staff and 350 responses were from undergraduates. According to the minimum R2 method (at a statistical power of 80%) suggested by Hair et al. (2017), the sample size was adequate for both study groups. In the study model, the maximum number of arrows pointing at a latent variable was 6, and the minimum R2 in the model was 0.259, thus 75 was the minimum sample size required. For the academic staff sample, 62.1% were females, 48.3% were affiliated with the tourism studies department, and about 30% were associate professors. As for the sampled undergraduates, 64.6% were females, 42.9% belonged to the tourism studies department, and 50.9% were in the 3rd study year. Table 1 showed details on the respondents' profile.

### **Data analysis**

Using the statistical program SPSS version 25, data were analyzed providing descriptive statistical analysis. The analysis of the study's measurement and structural model, path coefficients, was conducted using SmartPLS 3.3.3. To ensure the validity of the measurement model, convergent and discriminant validity were examined first. The structural model was then investigated to determine the strength and direction of the links between the theoretical constructs.

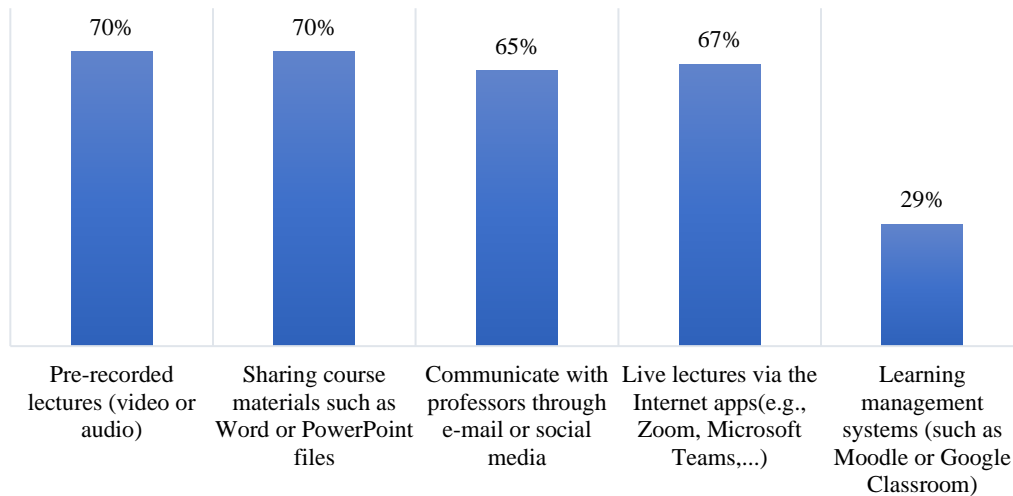
**Table (1): Characteristics of the study participants**

Characteristics	Academic Staff		Students	
	Frequency		Frequency	
	n= 87	(%)	n= 350	(%)
Gender				
Male	33	37.9	124	35.4
Female	54	62.1	226	64.6
Department				
Tourism Studies	42	48.3	150	42.9
Tourism Guidance	15	17.2	90	25.7
Hotel Management	30	34.5	110	31.4
Academic staff degree				
Professor	16	18.4		
Ass. Professor	26	29.9		
Lecturer	24	27.6		
Ass. Lecturer	9	10.3		
Demonstrator	12	13.8		
Undergraduate study year				
2nd year			68	19.4
3rd year			178	50.9
4th year			104	29.7

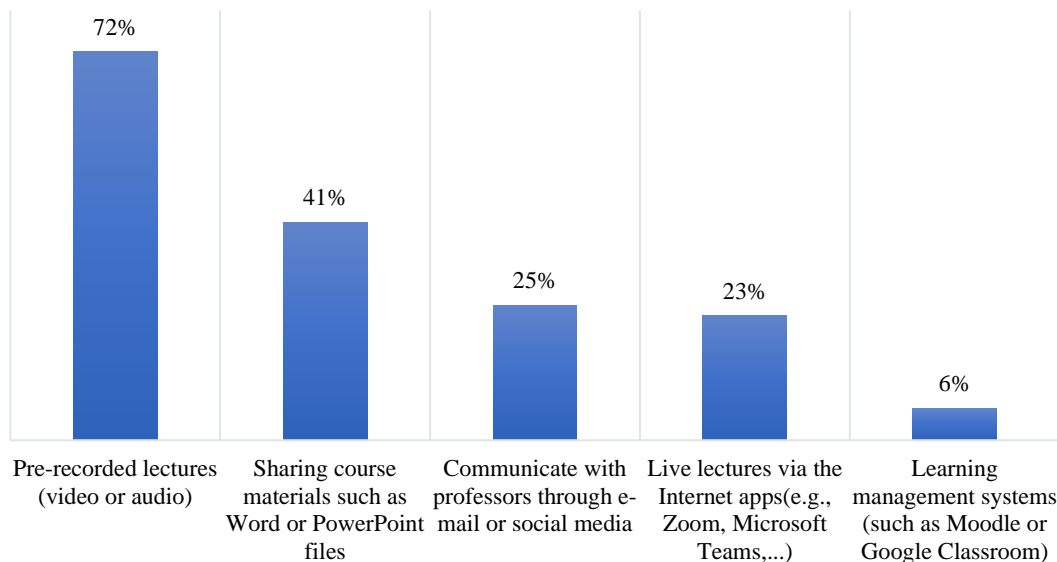
## Results

### Descriptive analysis results

The majority of sampled academic staff and undergraduates reported that pre-recorded audio or video lecture was the most common distance learning tool used during COVID-19, followed by digital course materials in Word or PowerPoint format. However, distance learning management systems such as Moodle or Google Classroom were the least used tool (Figure 2 & 3).



**Figure (2): Distance learning tools used during COVID-19**



**Figure (3): Distance learning tools used during COVID-19 according to Undergraduates**

Tables 2 and 3 showed frequencies, means, and standard deviations of academic staff and undergraduates' responses for the 22 items used in this study. Surprisingly, academic

staff and undergraduates reported low to moderate levels regarding the study constructs. In specific, academic staff had moderate levels of perceived usefulness, perceived ease of use, attitude, and satisfaction with distance learning during COVID-19. Also, they expressed a low intention to continue using distance learning in the future (Table 2). Similarly, undergraduates had a low level of attitude towards distance learning, and they reported moderate levels for perceived usefulness, perceived ease of use, satisfaction, and continuance usage intention of distance learning (Table 3).

**Table (2): Descriptive statistics of academic staff’s questionnaire items**

Statements	SD	D	N	A	SA	Mean	STD	Perception
(PU) Perceived usefulness						2.9	0.94	Moderate
PU1 Using distance learning improves the quality education	9	27	13	27	11	3.0	1.25	Moderate
PU2 Distance learning allows me to complete my teaching tasks more quickly and effectively	8	32	14	27	6	2.9	1.15	Moderate
PU3 Distance learning helps improve communication with my students and colleagues	5	20	15	31	16	3.4	1.19	Moderate
PU4 Using distance learning improves and develops my academic work	11	28	16	24	8	2.9	1.21	Moderate
PU5 Using distance learning increases opportunities for positive evaluation of my teaching abilities	4	35	15	24	9	3.0	1.14	Moderate
PU6 Distance learning greatly reduces teaching burdens	20	40	6	15	6	2.4	1.21	Low
(PEOU) Perceived ease of use						2.7	0.81	Moderate
PEOU1 I find dealing with the distance learning environment is easy	18	36	12	20	1	2.4	1.10	Low
PEOU2 It is easy for me to become qualified to deal with the distance learning environment	23	42	14	5	3	2.1	0.98	Low
PEOU3 Using distance learning does not require much mental effort	9	15	10	44	9	3.3	1.19	Moderate
PEOU4 Distance learning allows me to easily obtain the information I am looking for	15	40	19	11	2	2.4	0.99	Low
PEOU5 Distance learning facilitates communication with my students and colleagues	7	19	20	27	14	3.3	1.20	Moderate
PEOU6 I see that dealing with the distance learning environment is clear and understandable	4	30	21	22	10	3.0	1.12	Moderate
(ATU) Attitude toward distance learning						3.2	1.28	Moderate



Statements		SD	D	N	A	SA	Mean	STD	Perception
ATU1	I prefer distance learning over traditional learning	12	7	19	24	25	3.5	1.35	High
ATU2	It is important to continue using distance learning even after the end of the COVID-19 pandemic	15	17	13	25	17	3.1	1.40	Moderate
ATU3	In general, I have positive feelings about the use of distance learning in education	13	30	15	15	14	2.9	1.33	Moderate
(SAT)	Satisfaction with distance learning						2.9	1.07	Moderate
SAT1	My experience using distance education during COVID-19 was good	17	35	16	16	3	2.5	1.11	Low
SAT2	I think the methods used in distance learning during COVID-19 has achieved the desired goals	10	25	21	21	10	3.0	1.21	Moderate
SAT3	I enjoy distance learning more than traditional education	9	20	10	26	22	3.4	1.36	Moderate
SAT4	In general, I am satisfied with distance learning during the last period	14	23	18	22	10	2.9	1.28	Moderate
(CUI)	Continuance usage intention of distance learning						2.4	0.90	Low
CUI1	I intend to continue using distance learning tools in the future	11	35	15	12	14	2.8	1.29	Moderate
CUI2	I plan to enhance my skills to make the most of distance learning in the future	20	41	14	7	5	2.3	1.08	Low
CUI3	I will contribute to the expansion of the use of distance learning applications in my faculty whenever I am asked to do so	19	52	9	6	1	2.1	0.84	Low

SD: Strongly disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly agree, STD: Standard division

**Table 3. Descriptive statistics of undergraduates' questionnaire items**

Statements		SD	D	N	A	SA	Mean	STD	Rank
(PU)	Perceived usefulness						2.8	1.04	Moderate
PU1	Using distance learning improves the quality education	109	87	74	48	32	2.4	1.30	Low
PU2	Distance learning allows me to complete my learning tasks more quickly and effectively	63	100	62	95	30	2.8	1.26	Moderate
PU3	Distance learning helps improve communication with my instructors and colleagues	76	120	65	68	21	2.5	1.20	Low

Statements		SD	D	N	A	SA	Mean	STD	Rank
PU4	Distance learning encourages me to learn more	75	110	57	79	29	2.6	1.27	Low
PU5	Distance learning increases my chances of getting higher grades	66	103	66	82	33	2.8	1.27	Moderate
PU6	Distance learning greatly reduces teaching burdens	38	49	75	124	64	3.4	1.24	Moderate
(PEOU)	Perceived ease of use						2.9	1.01	Moderate
PEOU1	I find dealing with the distance learning environment is easy	58	82	63	93	54	3.0	1.34	Moderate
PEOU2	It is easy for me to become qualified to deal with the distance learning environment	55	88	71	99	37	2.9	1.26	Moderate
PEOU3	Using distance learning does not require much mental effort	52	99	61	105	33	2.9	1.25	Moderate
PEOU4	Distance learning allows me to easily obtain the information I am looking for	52	81	67	117	33	3.0	1.24	Moderate
PEOU5	Distance learning facilitates communication with my instructors and colleagues	76	99	83	68	24	2.6	1.21	Low
PEOU6	I see that dealing with the distance learning environment is clear and understandable	60	93	84	88	25	2.8	1.20	Moderate
(ATU)	Attitude toward distance learning						2.5	1.23	Low
ATU1	I prefer distance learning over traditional learning	134	95	33	60	28	2.3	1.34	Low
ATU2	It is important to continue using distance learning even after the end of the COVID-19 pandemic	99	99	44	66	42	2.6	1.38	Low
ATU3	In general, I have positive feelings about the use of distance learning in education	70	86	81	80	33	2.8	1.27	Moderate
(SAT)	Satisfaction with distance learning						2.8	1.17	Moderate
SAT1	My experience using distance education during COVID-19 was good	64	72	67	102	45	3.0	1.32	Moderate
SAT2	I think the methods used in distance learning during COVID-19 has achieved the desired goals	73	72	88	84	33	2.8	1.27	Moderate
SAT3	I enjoy distance learning more than traditional education	103	104	47	56	40	2.5	1.36	Low

Statements		SD	D	N	A	SA	Mean	STD	Rank
SAT4	In general, I am satisfied with distance learning during the last period	77	86	60	89	38	2.8	1.33	Moderate
(CUI)	Continuance usage intention of distance learning						3.1	1.09	Moderate
CUI1	I intend to continue using distance learning tools in the future	64	95	70	81	40	2.8	1.29	Moderate
CUI2	I plan to enhance my skills to make the most of distance learning in the future	40	64	71	131	44	3.2	1.21	Moderate
CUI3	I will contribute to the expansion of the use of distance learning applications in my faculty whenever I am asked to do so	40	61	69	135	45	3.2	1.22	Moderate
SD: Strongly disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly agree, STD: Standard division									

### Measurement model results

Convergent validity was tested by means of ensuring that the item coefficients were significant on its theorized underlying factor (Lee, 2010). Three criteria have been used as proposed by Fornell and Larcker (1981) to evaluate the measurement model: 1) factor loadings should be higher than 0.5; 2) Construct/composite reliability should be more than 0.8; and 3) each construct's average variance extracted (AVE) should be greater than the variance attributable to measurement error (e.g., AVE should be more than 0.5). As illustrated in table 4, for the academic staff model, constructs had high internal reliability, where Cronbach's alpha values ranged from 0.773 to 0.939. Factor loading values of the measurement model were above 0.5. Furthermore, composite reliability values of constructs ranged from 0.869 to 0.961, and the AVE was greater than the variation attributable to measurement error, ranging from 0.554 to 0.891.

**Table (4): Measurement model results**

Factors	Academic Staff				Undergraduates			
	$\lambda$	$\alpha$	CR	AVE	$\lambda$	$\alpha$	CR	AVE
Perceived usefulness (PU)		0.879	0.909	0.628		0.907	0.928	0.684
PU1	0.880				0.862			
PU2	0.861				0.866			
PU3	0.830				0.763			
PU4	0.838				0.861			
PU5	0.677				0.803			
PU6	0.638				0.801			
Perceived ease of use (PEOU)		0.841	0.881	0.554		0.894	0.919	0.656
PEOU1	0.767				0.832			
PEOU2	0.797				0.855			
PEOU3	0.690				0.789			
PEOU4	0.719				0.780			

Factors	Academic Staff				Undergraduates			
	$\lambda$	$\alpha$	CR	AVE	$\lambda$	$\alpha$	CR	AVE
PEOU5	0.782				0.737			
PEOU6	0.792				0.859			
Attitude toward distance learning (ATU)		0.939	0.961	0.891		0.913	0.945	0.852
ATU1	0.944				0.918			
ATU2	0.951				0.933			
ATU3	0.938				0.918			
Satisfaction with distance learning (SAT)		0.889	0.923	0.750		0.907	0.935	0.782
SAT1	0.879				0.897			
SAT2	0.895				0.843			
SAT3	0.827				0.878			
SAT4	0.863				0.918			
Continuance usage intention (CUI)		0.773	0.869	0.691		0.854	0.911	0.772
CUI1	0.867				0.883			
CUI2	0.906				0.906			
CUI3	0.706				0.847			

$\lambda$ : Factor loadings,  $\alpha$ : Cronbach's alpha, CR: Composite reliability, AVE: Average variance extracted

As for the undergraduate’s measurement model, the internal consistency coefficients for the 5 constructs were between 0.854 and 0.907, with factor loadings higher than 0.5. Moreover, composite reliability values ranged from 0.911 to 0.945. The average variance extracted for all constructs were between 0.656 and 0.852. Therefore, these findings confirmed that the three convergent validity criteria were fulfilled, whereas factor loadings ( $\lambda$ ), Cronbach's alpha ( $\alpha$ ), composite reliability (CR), average variance extracted (AVE) were greater than cut-off values. Thus, the study’s measurement model was acceptable for further analysis. Table 4 showed the details of the measurement model assessment.

To further verify the measurement model validity, the Fornell and Larcker (1981) criterion was used assessing the discriminant validity (Table 5). This criterion compares construct-to-construct correlations with the square root of the AVE for the construct. The results of discriminant validity for both models in this current study revealed that all diagonal values were larger than the values in the corresponding row and column, referring to acceptable discriminant validity.

**Table (5): Discriminant validity assessment**

Latent variables	1	2	3	4	5
<b>Academic Staff</b>					
1   Perceived usefulness	0.877				
2   Perceived ease of use	0.801	0.827			
3   Attitude toward distance learning	0.793	0.744	0.944		
4   Satisfaction with distance learning	0.859	0.783	0.861	0.866	
5   Continuance usage intention of distance learning	0.785	0.758	0.811	0.797	0.831
<b>Undergraduates</b>					
1   Perceived usefulness	0.871				

2	Perceived ease of use	0.810	0.827			
3	Attitude toward distance learning	0.854	0.785	0.923		
4	Satisfaction with distance learning	0.837	0.802	0.859	0.884	
5	Continuance usage intention of distance learning	0.778	0.783	0.792	0.783	0.879

**Structural model results**

The model fit was assessed based on the standardized root mean square residual (SRMR); a cut-off value of lower than 0.08 is deemed to be adequate for PLS path modelling (Hu & Bentler, 1999). In this study at hand, the results revealed that the SRMR value for academic staff model and undergraduates’ model were less than 0.08 (Academic staff model fit= 0.074; Undergraduates model fit= 0.053), indicating a good fit for the models in this study. To assess the structural model (path relationships) in this study, a bootstrapping technique with a resample of 5000 was used through SmartPLS. The path significance of each hypothesized relationship in the study model, as well as the R<sup>2</sup> value (coefficient of determination) for each path, was investigated.

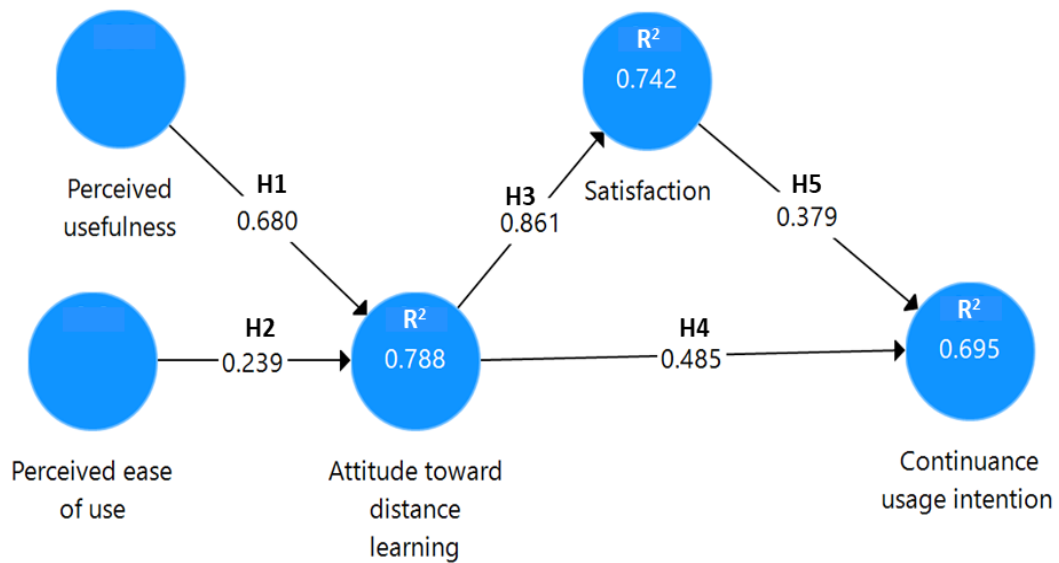
The findings of path relationship coefficients are presented in table 6 and figure 4 and 5. The results indicated that all five anticipated relationships were highly significant and study hypotheses were supported. In terms of tourism academic staff sample, perceived usefulness ( $\beta = 0.680, p < 0.000$ ) and perceived ease of use ( $\beta = 0.239, p < 0.001$ ) had significant and positive influences on attitude towards distance learning, these two variables together explained around 79% of the variance of attitude towards distance learning ( $R^2 = 0.788$ ). Likewise, attitude towards distance learning ( $\beta = 0.861, p < 0.000$ ) predicted satisfaction with distance learning, explaining 74% of the variance of satisfaction with distance learning ( $R^2 = 0.742$ ). Continuance usage intention of distance learning was predicated by attitude towards distance learning ( $\beta = 0.485, p < 0.000$ ) and satisfaction with distance learning ( $\beta = 0.379, p < 0.000$ ), together these variables explained 69.5% of the variance of Continuance usage intention ( $R^2 = 0.695$ ). In terms of the tourism undergraduates’ sample, perceived usefulness ( $\beta = 0.704, p < 0.000$ ) and perceived ease of use ( $\beta = 0.173, p < 0.001$ ) had significant and positive influences on attitude towards distance learning, these two variables together explained 73.5% of the variance of attitude towards distance learning ( $R^2 = 0.735$ ). Likewise, attitude towards distance learning ( $\beta = 0.859, p < 0.000$ ) predicted satisfaction with distance learning, explaining almost 74% of the variance of satisfaction with distance learning ( $R^2 = 0.737$ ). Continuance usage intention of distance learning was predicated by attitude towards distance learning ( $\beta = 0.458, p < 0.000$ ) and satisfaction with distance learning ( $\beta = 0.390, p < 0.000$ ), together these variables explained 66.8% of the variance of Continuance usage intention ( $R^2 = 0.668$ ).

**Table (6): Hypothesis testing results**

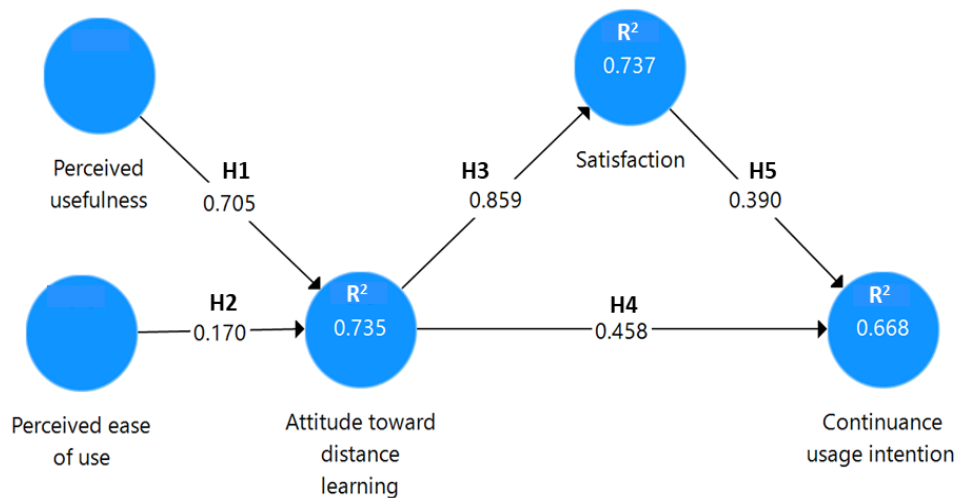
Hypothesis		Academic Staff			Undergraduates		
		Path coefficient	p-value	Supported	Path coefficient	p-value	Supported
H1	PU -> ATU	0.680	0.000	Yes	0.704	0.000	Yes

H2	PEOU -> ATU	0.239	0.001	Yes	0.173	0.001	Yes
H3	ATU -> SAT	0.861	0.000	Yes	0.859	0.000	Yes
H4	ATU -> CUI	0.485	0.000	Yes	0.458	0.000	Yes
H5	SAT -> CUI	0.379	0.000	Yes	0.390	0.000	Yes

PU: Perceived usefulness, PEOU: Perceived ease of use, ATU: Attitude toward distance learning, SAT: Satisfaction with distance learning, CUI: Continuance usage intention of distance learning  
 $p < 0.01$ ;



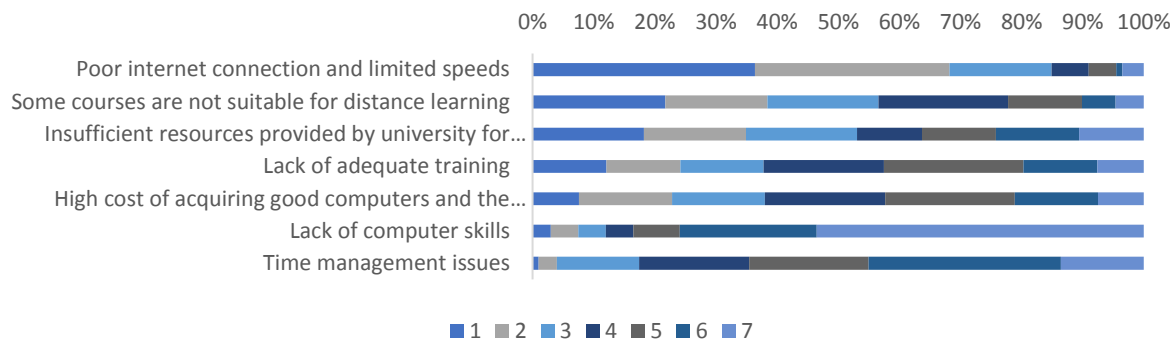
**Figure (4): Structural model results- Model 1a: Academic Staff**



**Figure (5): Structural model results- Model 1b: Undergraduates**

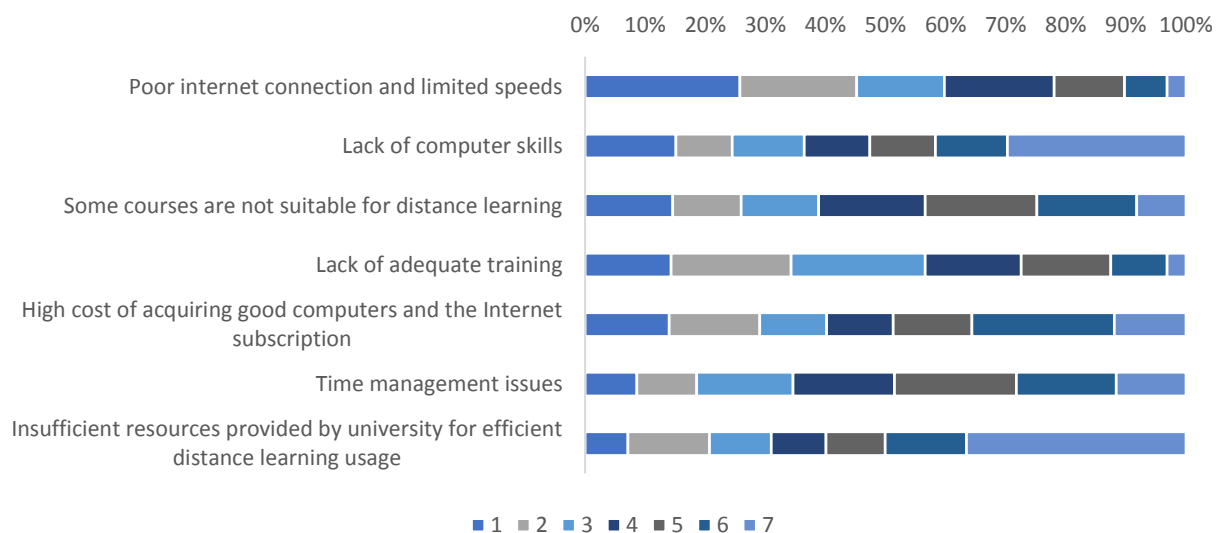
### **Obstacles and areas of improvement results**

This section showed descriptive analysis of opinions reported by sampled academic staff and undergraduates on the obstacles they faced in using distance learning during the last period as well as their views on the areas of improvement. Both groups, academic staff and undergraduates stated that the most significant was poor internet connection and limited speeds. Also, academic staff stated that some courses are not suitable for distance learning and insufficient resources provided by university for efficient distance learning usage were among the most significant obstacles they faced during the last period (Figure 6).



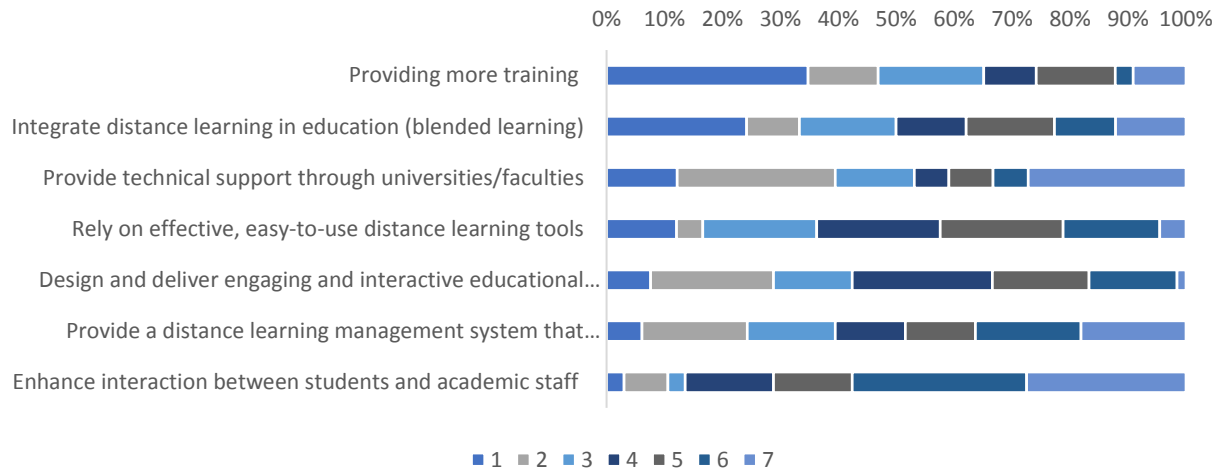
**Figure (6): Obstacles faced tourism academic staff in distance learning**

Besides the obstacle concerning the courses that are not suitable for distance learning, undergraduates reported that lack of computer skills was among top obstacles they faced in distance learning during the last period (Figure 7).

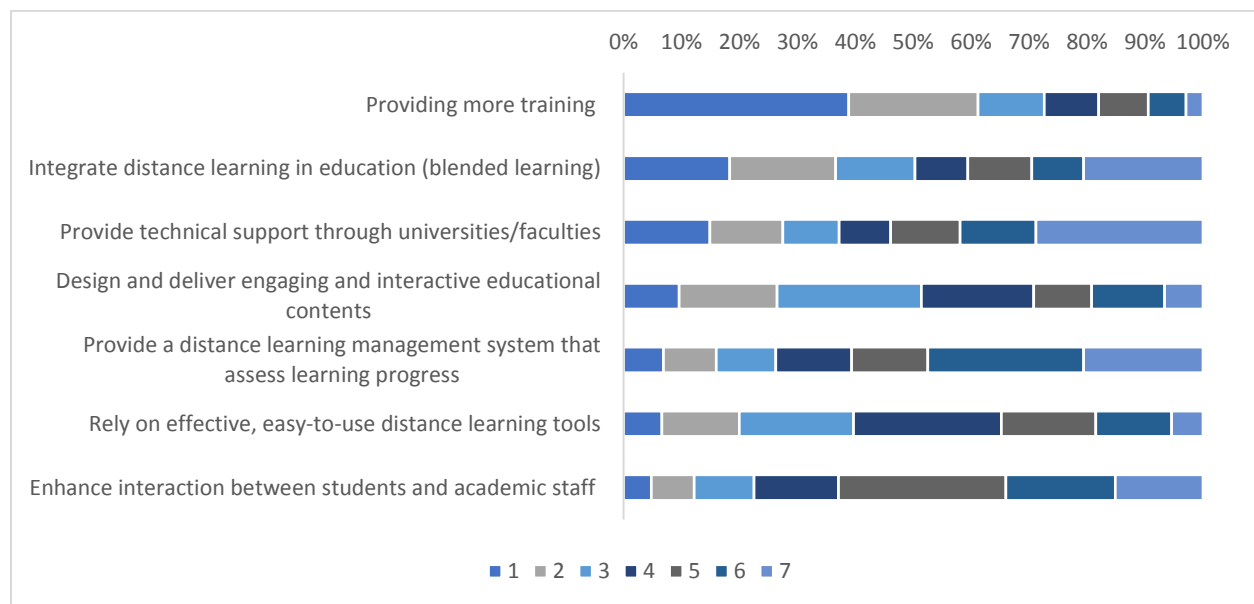


**Figure (7): Obstacles faced tourism undergraduates in distance learning**

For the suggested areas of improvements, tourism academic staff and undergraduates agreed on 3 top suggestions that can improve the efficiency of distance learning in the future including, providing more training, integrating distance learning in education tunning up to blended learning, and providing technical support through universities/faculties (Figure 8 & 9).



**Figure (8): Academic staff suggestions on improvements of distance learning**



**Figure (9): Undergraduates' suggestions on improvement of distance learning**

### Discussion and conclusion

Lockdown measures in response to COVID-19 disrupted education worldwide, where universities quickly replaced face-to-face classes with distance learning. Like all countries worldwide, the study at universities in Egypt was temporarily interrupted several times during the academic year 2019/2020 and was shifted to online mode. In this



regard, many studies have been conducted investigating such situations from different perspectives within the COVID-19 context. However, to our knowledge, there is limited research on measuring academic staff and undergraduates' intention to continue using distance learning based on an integrated framework, especially for tourism education in Egypt. This paper aimed to determine factors that predict continuance usage intention of distance learning in the COVID-19 era. Specifically, the study examined the effects of perceived usefulness and ease of use on attitude toward distance learning, the influence of attitude on satisfaction with distance learning, and the relationship effects of attitude and satisfaction on continuance usage intention towards distance learning. The adopted study model was tested on tourism academic staff and undergraduates in Egypt. The findings of this research supported the developed structural model as well as the hypotheses on the directional connections between the model constructs. The overall explanatory impact of the adopted model in this research had R<sup>2</sup> value close to 70% for continuance usage intention towards distance learning.

The first hypothesis established in this study was on the significant and positive influence of perceived usefulness on tourism academic staff and undergraduates' attitude toward distance learning during COVID-19. The findings confirmed this hypothesized influence in both academic staff and undergraduates' samples. Moreover, the results indicated that perceived usefulness was the strongest predictor of attitude toward distance learning. This was consistent with the results of previous studies (Drennan et al., 2005; Cheung & Vogel 2013; Sujeet & Jyoti, 2013; Rupak et al., 2014; Hart & Laher, 2015; Elkaseh et al., 2016). This strong and direct relationship between perceived usefulness and attitude explained the fact that academic staff and undergraduates who had high level of awareness of the benefits of distance learning, e.g., improving the education quality, reducing learning burdens, effective communication, etc., would have a positive attitude toward using distance learning. The second hypothesis was on the effects of perceived ease of use on tourism academic staff and undergraduates' attitude toward distance learning. The findings supported this hypothesis, confirming that when distance learning systems and tools are user friendly and do not require a lot of effort to master it, would significantly shape a positive attitude toward using distance learning. This result was in line with many research findings, especially those adopted TAM model, which defined two beliefs that eventually lead to real use of new technology: perceived usefulness and perceived ease of use (Eastman et al., 2011; Shroff et al., 2011; Altawallbeh et al., 2015; Lemay et al., 2018).

On the basis of the relationship between attitude and satisfaction with distance learning, the third hypothesis was proposed. The results showed that academic staff and undergraduates who had a positive attitude towards distance learning would be more satisfied with distance learning. Other studies on distance learning confirmed this result (Liaw, 2008; Mohammadi, 2015; Malkawi et al., 2020; Suryani & Sugianingrat, 2021). For the predictors of continuance usage intention towards distance learning, the fourth and fifth hypotheses in this study anticipated a significant and positive influence of attitude and satisfaction on academic staff and undergraduates' continuance usage intention. The results supported these anticipations confirmed the direct and positive

relationship, which were verified in other research papers (Bhattacharjee, 2001; Lee, 2010; Rajeh et al., 2021; Taghizadeh et al., 2021). However, this study found that attitude towards distance learning was the strongest predictor, compared to satisfaction, of continuance usage intention of distance learning. This was in line with the findings of other studies that concluded that attitude is the strongest determinant of continuance usage intention than satisfaction (Amoroso & Lim, 2017). However, this contrasted with the results found by Lee (2010) that satisfaction had the most significant influence on continuance intention, followed by attitude, among other factors.

In addition, the study found that tourism academic staff and undergraduates in Egypt assessed their satisfaction with the experience of using distance learning during the last period as moderate. Moreover, tourism academic staff expressed low intention towards continuance usage of distance learning, while undergraduates expressed a moderate intention level. Such findings can be explained by the obstacles that academic staff and undergraduates faced, e.g., poor internet connection and limited speeds, some courses are not suitable for distance learning, insufficient resources provided by the university for efficient distance learning usage, and lack of required computer skills among undergraduates. Furthermore, the lack of distance learning management systems and adequate training would affect the continuance usage intention of distance learning in tourism and hotels faculties in Egypt.

The study findings provided insightful understandings on the influential factors of the continuance usage intention towards distance learning. The adopted model in this study can enable scholars to apply it in several study contexts, such as other scientific disciplines or specific courses. Also, this study revealed that there is a need to reinforce distance learning in tourism and hotels faculties in Egypt. For example, raising the awareness of the usefulness of using distance learning and implementing distance learning management systems are top priorities to ensure the success of the distance learning process. In addition, universities should provide more training to boost positive attitude towards distance learning, integrate distance learning in education adopting a blended learning approach, and provide technical support for efficient distance learning usage. Furthermore, it is essential to take initiatives concerning providing high-quality internet services and computers at reasonable costs to ensure distance learning capacities for undergraduates.

The limitation of this research was related to sampling where only undergraduates from one university, Faculty of Tourism and Hotels- Minia University, were sampled. Given the possible variance in distance learning capabilities across universities in Egypt, the study model needs to be validated by sampling undergraduates in all faculties of tourism and hotels in Egypt. Also, the current findings need to be further validated in other countries. Moreover, one of the additional points for future research is to examine other factors that might have direct relationships with academic staff and undergraduates' intention to continue using distance learning and could act as moderators or mediators between satisfaction and continuance usage intention.

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### فهم نية الاستخدام المستمر للتعليم عن بعد أثناء جائحة كورونا: دراسة تجريبية على أعضاء هيئة التدريس والطلاب بكليات السياحة والفنادق في مصر

#### الملخص العربي:

أدت إجراءات الإغلاق التي تم اتخاذها لمواجهة جائحة كورونا إلى تعطيل نظام التعليم في جميع أنحاء العالم. حيث سرعان ما استبدلت الجامعات أسلوب التعليم وجهاً لوجه بأسلوب التعليم عن بعد. تهدف هذه الدراسة إلى تحديد العوامل المؤثرة في نية الاستخدام المستمر للتعليم عن بعد لدى أعضاء هيئة التدريس والطلاب بكليات السياحة والفنادق في مصر خلال جائحة كورونا. ومن خلال هذا البحث، يتم استكشاف تأثير عملي الفوائد المدركة وسهولة الاستخدام المدركة على عامل الاتجاه نحو استخدام التعليم عن بعد، وكذلك تأثير هذا العامل الأخير على مستوى الرضا عن التعليم عن بعد بالإضافة إلى تأثيره على نية الاستخدام المستمر. وفي هذا، فقد تم الحصول على البيانات الأولية من عينة مكونة من 87 عضو هيئة تدريس، و350 طالباً بكليات السياحة والفنادق، وتم تحليل تلك البيانات من خلال برنامج SmartPLS باستخدام طريقة المربعات الصغرى الجزئية. وتشير النتائج إلى أن نية الاستخدام المستمر للتعليم عن بعد تستند إلى عملي الاتجاه نحو والرضا عن التعليم عن بعد، حيث يفسر معاً بنسبة 70% تقريباً درجة التباين في نية الاستخدام المستمر (معامل التحديد = 0.695). كما أن عامل الاتجاه نحو التعليم عن بعد يؤثر بدرجة أكبر في نية الاستخدام المستمر للتعليم عن بعد مقارنة بعامل الرضا. وبهذا فإن هذا البحث يقدم فهم متعمق وأدلة تجريبية حول العوامل المؤثرة في نية الاستخدام المستمر للتعليم عن بعد.