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A Conceptual Model for Investigating the Effect of Privacy Concerns on E-Commerce Adoption: A Study on United Arab Emirates Consumers

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Abstract: Online transactions have been reported to be hindered by privacy concerns. Although information privacy presents a threat to e-commerce adoption, cultural differences between nations can additionally impede this trend while raising people's concerns about the privacy of their personal information. By removing geographic and time restrictions, the rise of e-commerce has completely changed how businesses interact with their clients. As a result, this research looked into how national culture affected the relationship between e-commerce adoption and information privacy in the United Arab Emirates. We suggested that, regardless of a society's technological and economic infrastructure, privacy concerns and e-commerce adoption are influenced by cultural values. Our research model, which was validated using online survey questionnaires, was created employing Hofstede's cultural dimensions. Self-administered questionnaires were used in a quantitative strategy. A sample of 249 consumers was chosen, and partial least squares structural equation modeling (PLS-SEM) was used to analyze the data. Our analysis revealed that key factors in people's intention to transact online include their degree of perceptions of Internet safety, acceptance of e-commerce, privacy concerns, and personal interests. Additionally, the results show that gender has a positive effect as a mediator between the factors: "Privacy Concerns, Personal Interest, Safety Perceptions, and Transaction Willingness". These results show how culture affects the adoption of e-commerce. Nevertheless, surprisingly, according to the research's findings, privacy concerns were not indicative of cultural values, indicating that the idea of information privacy is more sophisticated than what a society's culture represents.

Keywords: e-commerce; privacy concern; personal interest; safety perceptions; willingness to transact

1. Introduction

The removal of the regional and time constraints that traditionally limited the trade of products and services between sellers and buyers fundamentally altered how businesses could interact with their clients. Both businesses and people have benefited from the advent of new technologies in the information era, particularly since the adoption of the Internet in the 1990s. Nevertheless, the transfer of personal information is essential for business transactions between companies and customers leveraging the Internet as a channel [1], which expresses concern about information privacy and information disclosure and its utilization by the attackers [2].

One of the main issues of the digital age, according to Mason [3], is information privacy, wherein people relinquish ownership of their personal information when they share it online. Information privacy is the discretion a person has over the acquisition, usage, and distribution of the personal information they have provided, according to [4]. People become subject to the prospect of unscrupulous activity by corporations when they provide personal information to them during e-commerce transactions [5]. As a result, people become skeptical, and their privacy reservations impede the development of e-commerce [6]. Although e-commerce-accelerated worldwide accessibility may be advantageous to businesses, it would be unproductive if privacy concerns prevented these advantages from being fully utilized. The influence of information privacy, however, may not be a universal problem because it might be influenced by cultural perceptions.

According to a global survey, different regions have different proportions of e-commerce adoption [7]. For example, consumers in Latin America primarily search for products and services on the Internet, rather than making purchases online [7]. However, compared to Latin America, where customers tend to purchase online, customer conduct in Asia-Pacific is to the contrary [7]. Thus, research on the topic of information privacy has discovered that national cultures may affect how members of society perceive information privacy, which may explain why e-commerce adoption varies internationally [8,9]. According to Milberg et al. [10], national culture has a substantial impact on people's privacy concerns, which, in response, has an impact on how a nation enforces the business management of information privacy. According to Bellman et al. [11], who used a sample of 38 nations to explore the impact of national culture, the relevance is in how people's perceptions of their privacy were affected by the culture of their society. In contrast to the individualistic and high-trust US society, the cohesive and low-trust Italian society culturally contrasted a disparity in the considerations that a customer makes prior to transacting online, and Dinev et al. [1] characterized these differences between Italy and the US in the adoption of e-commerce technologies. As a result, previous research indicates that, when deciding how firms should go forward to take advantage of e-commerce, the correlation between national culture and privacy concerns is crucial.

There is scope for e-commerce to become an essential part of every nation, as shown by the survey for global e-commerce adoption [7]. In this research, we look at the impact of national cultures on the correlation between e-commerce adoption and information privacy. in developed countries However, the proportion of online shoppers differs per nation. For example, developed countries have Internet penetration rates better than developing countries [7]. The national culture may override these factors, even though this may be ascribed to the disparities in these countries' economic infrastructure and living standards. According to the results of Lim et al. [12], Internet shopping patterns were driven by the cultural dimensions of individualism–collectivism and uncertainty avoidance. Additionally, the existence of reputable online sellers, such as Amazon and eBay, may jeopardize the weak economic and technological infrastructure.

According to the research by Milberg et al. [10], cultural values have an impact on not just the individuals who make up a society, but also on how governments and businesses view the privacy of information. Therefore, notwithstanding a society's technological and economic infrastructure, we contend that privacy concerns and e-commerce adoption are influenced by cultural values.

The study by Cheryan et al. [13] brought attention to the significance of gender differences, which can have a significant impact on whether men and women accept technologies. The present research also considers how gender differences affect people's willingness to transact online and e-commerce acceptance. The purpose of this research is to ascertain whether there are differences between men and women perceptions of Internet safety, privacy concerns, and personal interests. These variables may differ by gender, and gender differences act as a mediating variable among other variables. To the extent of our insights, prior studies have relied on the cultural dimensions of Hofstede as their primary conceptual model; however, the present research tries to look into the acceptance of e-commerce using a hybrid conceptual model in which gender difference plays the role of a mediator.

As per the World Bank, the UAE is a developed country and is seen as an emerging market [14], with prospects for significant expansion. Based on data gathered from the UAE, a model of developed countries, our research evaluates the research model.

Irrespective of the UAE being an emerging market country and having the second-highest quantity of certified organizations in the Arab world, publication reviews revealed that numerous researchers from multiple nations have undertaken thorough research on e-commerce acceptance. However, the Arab world as a whole and the UAE specifically have not represented this abundance in obscuring the topic. At this stage, it is obvious that empirical research is required to assess e-commerce acceptance inside the UAE organizations to ascertain the standard's efficacy, depending on the application as a business process strategy or a tool. More precisely, the study aimed to elucidate issues such as variables influencing the acceptance of e-commerce and motivations for adopting e-commerce. To accomplish the research's goals, a quantitative study of this kind was conducted using a sample of 300 UAE consumers, from whom, 83 percent of their input was collected.

By exploring how culture impacts the perception of information privacy in a developed country and its effects on e-commerce use, this research makes an addition to the subject of information privacy. Following a survey of the literature, the third part presents the theoretical framework and research model. The next sections are Sections 4–6, where we provide the data collection and analysis, discussion, and conclusion accordingly.

2. Theoretical Model and Research Model

Following the earlier literature, we use Hofstede's theory of cultural dimensions as the research's conceptual framework. Researchers are examining the cultural impacts of information privacy on respective cultures, using Hofstede's theory of cultural variations [9,11,15]. Depending on the values of the cultural dimensions for the UAE, correlations are proposed between the model's constructs. The subsequent sections provide an explanation of the research model.

2.1. Internet Safety Perceptions

We have seen a widespread adoption of e-commerce technology in developed countries and the benefits of e-commerce, such as the ability for people to transact online, irrespective of temporal or spatial constraints, and the ability for businesses to establish correlations with customers worldwide, especially since the Internet is employed for purposes other than merely making purchases of products and services, including online banking and license renewals. However, in developing countries, these e-commerce developments are still seen as innovations [16]. As a result, people's perceptions of the Internet's privacy would focus on any unpredictability they may encounter from it. In essence, people's reluctance to divulge personal information during online e-commerce transactions is predicated on their high uncertainties [17] and a minimum degree of trust [1,18,19]. Depending on those factors, people would be ready to transact online, although they could be hesitant to do so. Conversely, people would be more willing to transact online if they felt safer.

H1: Internet safety perception (SP) will have a positive effect on e-commerce acceptance (EA).

H2: Internet safety perception (SP) will have a positive effect on willingness to transact online (WTT).

2.2. Privacy Concern

Online transactions have also been reported to be hindered by privacy concerns [1]. In numerous research [1,18,20], privacy concerns have been utilized as a proxy for gauging information privacy. Fatima et al. [2] studied user privacy concerns reported in the literature and organized them into themes before designing a serious game that addressed the themes of privacy concerns and assessing the game's educational impact on the risks associated with oversharing of personal information online. Yet, studies have been performed on how to deal with privacy concerns by boosting other beneficial factors, such as trust [21]. However, [11] discovered that privacy concerns differed between countries, comparable to [14], who evaluated privacy concerns based on the Italian IDV index and considered it to be less than those of the United States. According to a study, various cultures may not view privacy in the same way [6]. As a result, using the methodology of [15], we evaluated privacy concerns considering those details. As a result, information is exchanged more within countries than in countries that value individualism strongly. However, in keeping with other research, privacy concerns may make people less willing to transact online and more hesitant to accept e-commerce [1] and make them feel less secure.

H3: A low level of privacy concern (PC) will have a positive effect on Internet safety perception (SP).

H4: A low level of privacy concern (PC) will have a positive effect on e-commerce acceptance (EA).

H5: A low level of privacy concern (PC) will have a positive effect on willingness to transact online (WTT).

2.3. Personal Interest

Personal interest is "an internal drive, a psychological attitude or perception associated with the self-fulfilling enjoyment obtained from engaging in a task," according to Dinev and Hart [1] (p. 69). Particularly in the aspect of e-commerce utilization, personal interest is taken to be a person's fondness for conducting transactions online. As a result, it would also be significant to the acceptance of e-commerce.

H6: A high level of personal interest (PI) will have a positive effect on e-commerce acceptance (EA).

H7: A high level of personal interest (PI) will have a positive effect on willingness to transact online (WTT).

2.4. E-Commerce Acceptance

To evaluate users' acceptance of new technologies, particularly e-commerce, the technology acceptance model (TAM) was, therefore, utilized in various research [22,23]. What exactly comprises acceptance of technology has been studied by academics. According to Davis [24], people accept technology depending on perceived ease of use and perceived usefulness. Nevertheless, because consumers would have some perception of how it may impact their society and how confusing it may be, a cultural concern regarding e-commerce acceptance may arise. It should be emphasized that e-commerce acceptability differs from an individual's willingness to transact online. Acceptance of e-commerce typically indicates that users are driven to adopt the technology because they see its advantages. Nevertheless, a person may choose to ignore the advantages of e-commerce to safeguard their privacy concerns and avoid danger. E-commerce acceptance becomes a unique consideration

when taking into account the influence information privacy has on wanting to or adopting e-commerce. However, the more people are willing to transact online, the greater the acceptability level of technology.

H8: E-commerce acceptance (EA) will have a positive effect on willingness to transact online (WTT).

2.5. Differences as Mediator (GENDER)

Numerous studies have offered numerous justifications for the gender difference in the technology field. The intention of users to use and accept technology has been compensated for, concerning gender differences as a significant and crucial factor. The author of [13] claimed that the cultural milieu, which primarily influences how people embrace new technologies, has a significant impact on gender differences. Regarding the impact of gender differences on the acceptance of technology, academics have presented a variety of findings. According to research by Hatlevik and Christophersen [25], there are no differences in students' acceptance of technology between males and females. Comparable findings were reported by [26,27], who claimed that gender differences in technological acceptance only have little impact. On the other side, various research have come to the premise that gender differences significantly influence technology acceptance. Substantial disparities between men and women are mostly a result of gender interest, stereotypes, and experience [28,29]. According to research by Gnambs [30], women are more open to accepting technology, which fosters greater willingness and richer engagement. As a result, the following hypotheses can be developed:

M1: Gender difference mediates the effect of Internet safety perceptions (SP) on e-commerce acceptance (EA).

M2: Gender difference mediates the effect of Internet safety perceptions (SP) on willingness to transact (WTT).

M3: Gender difference mediates the effect of privacy concern (PC) on e-commerce acceptance (EA).

M4: Gender difference mediates the effect of privacy concern (PC) on willingness to transact (WTT).

M5: Gender difference mediates the effect of personal interest (PC) on e-commerce acceptance (EA).

M6: Gender difference mediates the effect of personal interest (PC) on willingness to transact (WTT).

SmartPLS 3 was employed to analyze the theoretical model once it had been accorded as a structural equation model. The proposed research model has been implemented using the hypotheses, as shown in Figure 1.

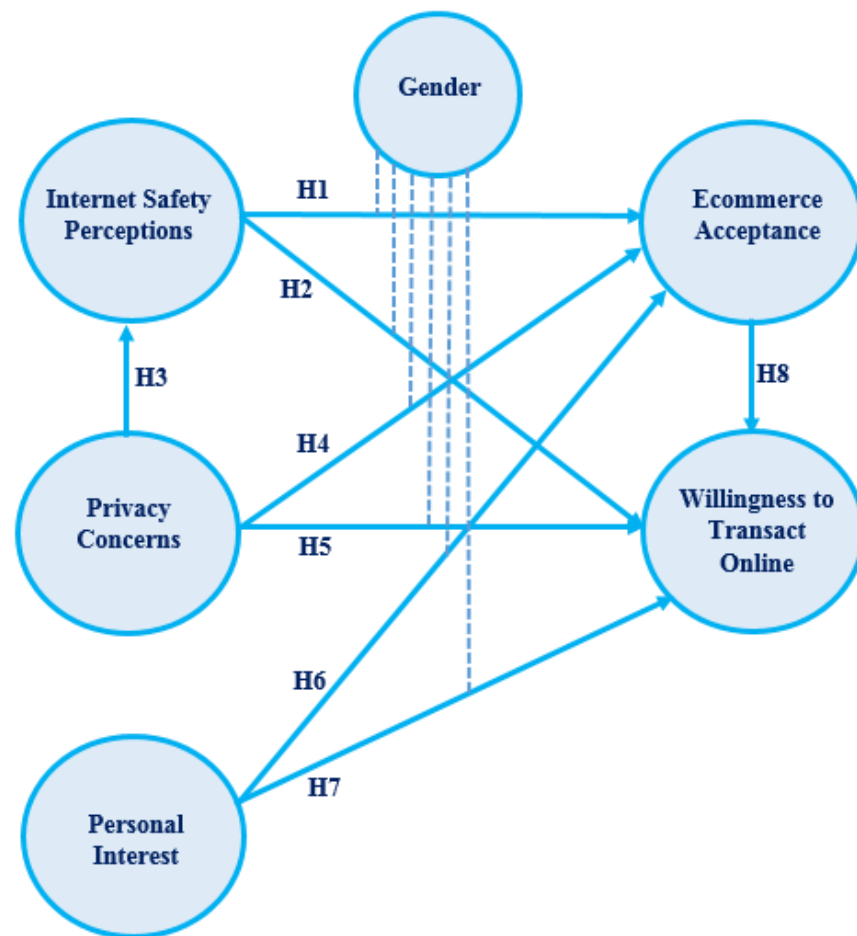


Figure 1. The study model.

3. Methodology

3.1. Data Collection

Two stages of data collection were finished. A pilot study was carried out in stage 1, with 30 UAE participants. The pilot test's objectives were to evaluate the survey items' factor loadings, reliability, and validity. Table 1 contains all survey items utilized for the research. Stage two involved gathering data through survey questionnaires given to inhabitants of the UAE, primarily those who are in Dubai. The survey's sample size was 300, and 249 survey responses were obtained, yielding an 83 percent response ratio. A total of 51 irrelevant surveys with incomplete data or duplicate responses for each question were among the respondents; these were disregarded for assessment. A total of 249 filled surveys were the total response rate utilized to verify the hypotheses. Predicated on the items from [1,15], we created the items for personal interest, privacy concerns, and willingness to transact online. Parallel to how the items from [1] were used to create the perception of Internet safety, all the items were revised to better fit the needs of this research. A 5-point Likert scale was used to evaluate each item, with 1 denoting strongly disagree and 5 denoting strongly agree. SmartPLS was employed to analyze the data. Structural equation modeling (SEM) was utilized to examine the relationships between the constructs (namely, hypotheses) in the structural model and measurement models.

Table 1. Measurement Items.

Constructs	Items	Instrument	Sources
E-commerce Acceptance	EA1	I provided Internet access to my personal information.	[22,23]
	EA2	I have confidence in businesses to manage my personal information posted on the Internet safely.	
	EA3	I believe Internet websites are genuine.	
Privacy Concern	PC1	I am apprehensive regarding how someone might handle the information I post on the Internet.	[1,15]
	PC2	I am concerned regarding who will be able to acquire the information I post on the Internet.	
	PC3	I am concerned that the private information I provided might end up on the Internet.	
Personal Interest	PI1	I firmly consider that any concerns or risks related to my privacy are outweighed by my personal interest in getting the information, goods, and/or services I need via the Internet.	[1,15]
	PI2	The stronger the necessity for particular information, products, or services, the more important it is to prioritize it over privacy issues and accompanying dangers on the Internet.	
	PI3	I consider that the necessity to access particular information, goods, and/or services via the Internet is typically more important than privacy concerns.	
Internet Safety Perception	SP1	I think it is safe to share information over the Internet.	[1]
	SP2	I think it is safe to do business via the Internet.	
	SP3	I think user-submitted personal information is handled safely and systematically by Internet websites.	
Willingness to Transact	WTT1	I think it is okay to use your credit card and provide personal information to purchase items and services online.	[1,15]
	WTT2	I think that, to obtain some information that is accessible on the Internet, one should provide personal information, including correct and authenticable personal information and perhaps credit card information.	
	WTT3	I assent to engaging in sales transactions on the Internet, including the exchange of personal information.	

3.2. Context and Subjects

Consumers were determined to be 51 percent female and 49 percent male, accordingly. A total of 37 percent of respondents were over the age of 29, while 63 percent of respondents were customers between the ages of 18 and 29. Most survey participants were educated and credentialed. In addition, 68 percent of people gained a bachelor's degree, 21 percent a master's degree, and 11 percent of respondents received a doctoral degree. Table 1 provides an evaluation of the demographic and personal information. According to [31], the academics thought of using the "purposive sampling approach" because it was simple to reach the participants, and they were willing to participate. Consumers from diverse ethnicities who were in various age ranges made up the research population. Additionally, the demographic data was measured using SPSS.

3.3. Study Instrument

Consumers ($n = 300$) were asked to complete online surveys. These consumers received a survey in the form of a questionnaire [32]. The academics distributed the questionnaire survey. There are 3 components to this survey.

- The participants' private details are included in the first part.

- The second part shows the five elements that best illustrate the basic issue of acceptability of e-commerce and willingness to transact.
- The final portion has nine measures that highlight perceptions of Internet safety, personal interests, and privacy concerns.

To evaluate the eleven constructs in the questionnaire, the survey has 15 additional items. The origins of these constructs were listed in Table 1. This study work established a survey instrument to verify the hypothesis. The academics improved the preceding research questions to increase their applicability.

3.4. Pre-Test of the Questionnaire

A pilot study was carried out to determine the reliability of the questionnaire items. In this regard, we randomly chose nearly 30 consumers from the decided population. By carefully following the research standards, almost 10% of the total sample size was decided with (300 consumers). The results of the pilot study were evaluated through Cronbach's alpha test, which was used for internal reliability, with the help of SPSS. Consequently, we demonstrated acceptable conclusions for the measurement items. With the focus of the declared pattern of social science research studies, researchers assumed that a reliability coefficient of 0.70 was acceptable [33]. The Cronbach alpha values for the following 7 measurement scales are given in Table 2.

Table 2. Cronbach's Alpha values for the pilot study (Cronbach's Alpha \geq 0.70).

Construct	Cronbach's Alpha
EA	0.886
PC	0.805
PI	0.814
SP	0.903
WTT	0.864

4. Findings and Discussion

4.1. Data Analysis

By using the SmartPLS V.3.2.7 software, the data analysis of this study was performed through the partial least squares structural equation modeling (PLS-SEM) [34]. To analyze the collected data, researchers employed a two-step assessment approach, including the measurement model and structural model [35]. After due deliberations, the PLS-SEM was selected for this study.

Firstly, the PLS-SEM can manage introspective research with complex models in an efficient manner [36]. PLS-SEM secondly becomes the primary approach when academics want to support an established theory with data from the research they are reviewing [37]. Thirdly, instead of breaking the model up into pieces, the PLS-SEM evaluates the entire model as a whole [38]. Lastly, the PLS-SEM provides a contemporaneous analysis of the structural and measurement model, which consistently yields precise findings [39].

4.2. Measurement Model Assessment

The construct reliability can be assessed using Cronbach's alpha (CA). Table 3 provides the CA numbers between 0.776 and 0.899. The threshold number of 0.7 [40] was determined to be lower than these numbers. Table 3 shows that the composite reliability (CR) ranges from 0.871 to 0.930, which is greater than the advised threshold of 0.7 [41]. Instead, Dijkstra–Henseler's rho (pA) reliability coefficient should be used to assess and document construct reliability [39]. As per [40], the construct reliability (containing composite reliability (CR), Dijkstra–Henseler's (PA), and Cronbach's alpha (CA)) and validity (containing convergent and discriminant validity) were recommended to assess the measurement model. For sophisticated phases of the study, the reliability coefficient ρ A should stipulate numbers

of 0.80 or 0.90 and, for an introspective study, numbers of 0.70 or above, as in CA and CR [40,42,43]. The reliability coefficient ρ_A was over 0.70 for each measurement construct, as shown in Table 3. These findings are likely to support the reliability of the constructs, and all the constructs were ultimately deemed to be adequately error-free.

Table 3. Convergent validity results which assure acceptable values (Factor loading, Cronbach's Alpha, composite reliability, Dijkstra–Henseler's $\rho \geq 0.70$, and AVE > 0.5).

Constructs	Items	Factor Loading	Cronbach's Alpha	CR	PA	AVE
E-commerce Acceptance	EA1	0.872	0.776	0.871	0.773	0.694
	EA2	0.870				
	EA3	0.750				
Privacy Concern	PC1	0.820	0.899	0.930	0.902	0.768
	PC2	0.760				
	PC3	0.862				
Personal Interest	PI1	0.874	0.811	0.876	0.813	0.638
	PI2	0.715				
	PI3	0.776				
Safety Perceptions	SP1	0.852	0.835	0.890	0.842	0.669
	SP2	0.884				
	SP3	0.798				
Willingness to Transact	WTT1	0.866	0.790	0.904	0.798	0.826
	WTT2	0.896				
	WTT3	0.921				

The results of Table 3 show that all factor loading levels were still greater than the recommended threshold of 0.7. Additionally, the numbers produced by the AVE, as shown in Table 3, ranged between 0.638 and 0.826, exceeding '0.5' or the threshold figure. The average factor loading and variance extracted (AVE) must be put to trial for the measurement of convergent validity [35]. The academics can effectively attain convergent validity for all constructs, based on anticipated outcomes.

Table 4's results show that the Fornell-Larcker criterion has met the necessary criteria because all AVEs and their square roots are greater than the correlation it has with other constructs [44]. The Fornell-Larcker criterion and the heterotrait-monotrait ratio (HTMT) have been recommended by academics as measures of discriminant validity [35].

Table 4. Fornell-Larcker Scale.

	EA	PC	PI	SP	WTT
EA	0.833	-	-	-	-
PC	0.714	0.818	-	-	-
PI	0.536	0.696	0.899	-	-
SP	0.746	0.768	0.531	0.876	-
WTT	0.703	0.490	0.644	0.666	0.909

The discriminant validity can be determined using these results. The findings of the HTMT ratio are shown in Table 5, which unmistakably shows that the threshold number of 0.85 is still bigger than any construct [45]. As a result, academics can accurately calculate the HTMT ratio. The analysis's findings concerning the measurement model's validity and

reliability revealed no problems. Therefore, the acquired data can also be used to evaluate the structural model.

Table 5. Heterotrait–Monotrait Ratio (HTMT).

	EA	PC	PI	SP	WTT
EA	-	-	-	-	-
PC	0.685	-	-	-	-
PI	0.560	0.444	-	-	-
SP	0.686	0.575	0.666	-	-
WTT	0.579	0.595	0.695	0.694	-

4.3. Importance-Performance Map Analysis

Ringle and Sarstedt [46] claimed that IPMA facilitates the understanding of PLS-SEM study data. In this research, the objective factor was behavioral intention, and the IPMA was applied as an effective method in PLS-SEM. In addition to assessing the path coefficients (such as the importance measure), IPMA also incorporates the overall average of the latent constructs and their metrics (such as performance measures) [46]. The IPMA states that the average of the scores of the latent constructs shows the performance, whereas the actual effect indicates the significance of prior factors in creating the target factor (willingness to transact online). PI also has the lowest score on the performance measure, despite having the third-highest score on the importance measure. It is vital to remember that SP has the minimum importance measure, even though it is a performance measure as shown in Figure 2. Figure 3 provides a visual representation of the IPMA results. In this research, the importance and performance of the four variables (EA, PC, PI, and SP) were evaluated. The results show that PC has the highest scores for both the importance and performance metrics. EA has the second-highest scores in importance and performance metrics, which is also important to note.

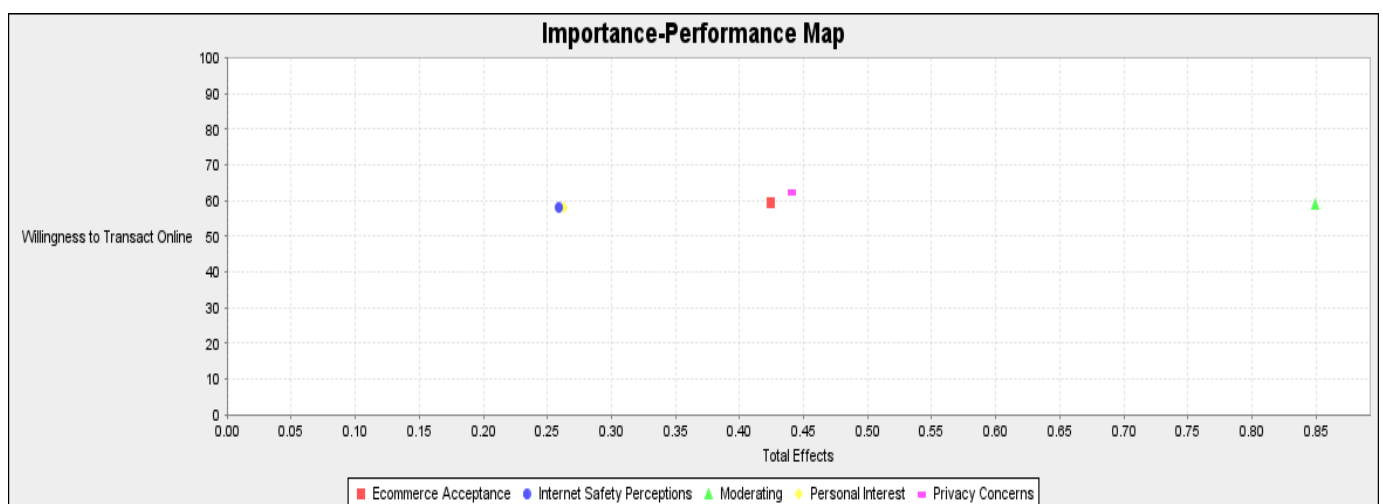


Figure 2. IPMA results.

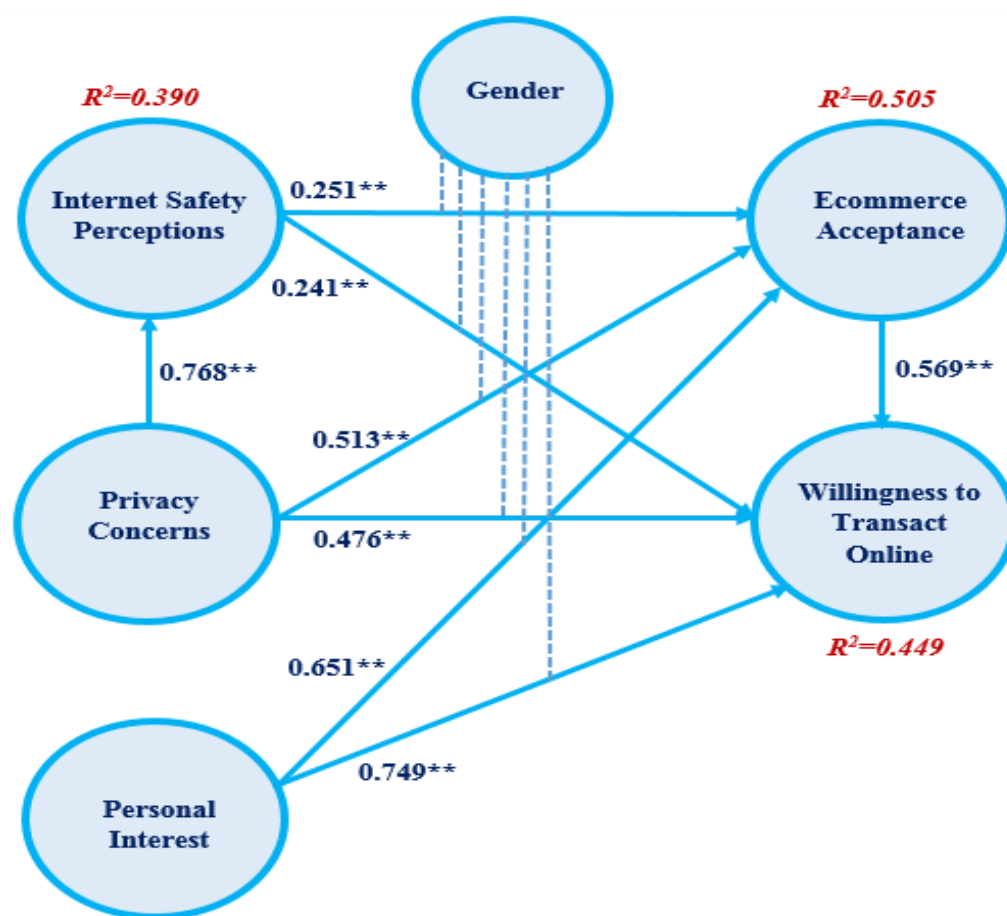


Figure 3. Path coefficient of the model (significant at $p^{**} < 0.01$, $p^* < 0.05$).

4.4. Hypotheses Testing and Coefficient of Determination

The percentage of the variance is about 39 percent, 45 percent, and 50 percent within safety perceptions, willingness to transact, and e-commerce acceptance, accordingly, showing that the model had a moderate predictive power [47], which is evident in Figure 3 and Table 6. The structural equation model with SmartPLS and highest likelihood estimation was employed by academics to identify the interrelation of various conceptual elements of the structural model [48–52]. They, therefore, examined the proposed hypotheses.

Table 6. R^2 of the endogenous latent variables.

Constructs	R^2	Results
EA	0.505	Moderate
SP	0.390	Moderate
WTT	0.449	Moderate
-	(1)	-

All the academics have supported all the hypotheses. The beta (β) values, t-values, and p -values for each of the established hypotheses were defined in Table 7 and were classified by the obtained findings using the PLS-SEM method. Depending on the data analysis, the empirical data supported the following hypotheses: H1, H2, H3, H4, H5, H6, H7, and H8.

Table 7. Hypotheses testing of the research model (significant at $p^{**} < 0.01$, $p^* < 0.05$).

H	Relationship	Path	t-Value	p-Value	Direction	Decision
H1	$SP \geq EA$	0.251	4.599	0.000	Positive	Supported **
H2	$SP \geq WTT$	0.241	3.356	0.001	Positive	Supported **
H3	$PC \geq SP$	0.768	27.407	0.000	Positive	Supported **
H4	$PC \geq EA$	0.513	18.166	0.002	Positive	Supported **
H5	$PC \geq WTT$	0.476	4.731	0.000	Positive	Supported **
H6	$PI \geq EA$	0.651	8.527	0.000	Positive	Supported **
H7	$PI \geq WTT$	0.749	9.558	0.000	Positive	Supported **
H8	$EA \geq WTT$	0.569	5.846	0.000	Positive	Supported **

Table 7 and Figure 3 present a summarized result, which indicates that:

- E-commerce acceptance (EA) significantly influenced safety perceptions (SP) ($\beta = 0.251$, $p < 0.001$), privacy concern (PC) ($\beta = 0.513$, $p < 0.001$), and personal interest (PI) ($\beta = 0.651$, $p < 0.001$), supporting hypotheses H1, H4, and H6, respectively.
- Privacy concern (PC) had significant effects on safety perceptions (SP) ($\beta = 0.768$, $p < 0.001$); hence, H3 was supported. Finally, the results revealed that willingness to transact (WTT) significantly influenced safety perceptions (SP) ($\beta = 0.241$, $p < 0.001$), privacy concern (PC) ($\beta = 0.476$, $p < 0.001$), personal interest (PI) ($\beta = 0.749$, $p < 0.05$), and e-commerce acceptance (EA) ($\beta = 0.569$, $p < 0.001$), supporting hypotheses H2, H5, H7, and H8, respectively.

The primary purpose of the mediator variable is to provide a convincing reason for any potential association between the primary variable and the supplementary variable. When an added variable is employed to establish a relationship between the present variables and the additional variable, there is a mediating effect. The so-called indirect effects are typically formed by several preceding constructs, which are typically included in the recently founded connections. Research in this area should analyze the mediating effects that precede the research via [53] and use bootstrapping to develop an indirect effect [54]. This merely suggests that several basic mediator models should be bootstrapped and that indirect effects should be added on top of the confidence interval bias corrected. In this sort of assessment, we look for the direct and indirect effects of privacy concerns (PC), personal interests (PI), and safety perceptions (SP) on e-commerce acceptance (EA), as well as the willingness to transact (WTT) by gender differences (GENDER) (see Table 8 and Figure 3). Actually, the data could support the favorable effects achieved, as shown in Figure 1, when a cause-and-effect correlation that is more complicated is explored.

Table 8. Moderator Analysis Result.

H	Relationship	Path a IV \rightarrow Mediator	Path b Mediator \rightarrow DV	Indirect Effect	SE Standard Deviation	t-Value	Bootstrapped Confidence Interval		Decision
							95% LL	95% UL	
M1	$SP * GENDER \geq EA$	0.522	0.607	0.317	0.085	6.015	0.150	0.483	Supported
M2	$SP * GENDER \geq WTT$	0.377	0.607	0.229	0.102	5.413	0.029	0.429	Supported
M3	$PC * GENDER \geq EA$	0.208	0.607	0.126	0.143	6.164	−0.154	0.407	Not supported
M4	$PC * GENDER \geq WTT$	0.416	0.607	0.253	0.039	6.164	0.176	0.329	Supported
M5	$PI * GENDER \geq EA$	0.732	0.607	0.444	0.021	6.164	0.403	0.485	Supported
M6	$PI * GENDER \geq WTT$	0.529	0.607	0.321	0.086	6.164	0.153	0.490	Supported

Consequently, we constructed a mediator model by combining the streamlined and more complicated cause–effect relationship models (Figure 3). The moderator influence can be used to describe how variables affect the orientation or strength of the correlation

between the two dependent and independent variables. Subsequent analysis revealed the gender's moderating effect on the constructs of privacy concern (PC), personal interest (PI), and safety perceptions (SP). Table 8 shows the findings of the existing research, which indicate that, except for M3, all other hypotheses were accepted, indicating that GENDER has no impact on the correlation between PC on EA of the constructs. However, the associations between PC, PI, and SP on (EA and WTT) and the element of GENDER, wherein gender was employed as a moderator, had positive effects on PC, PI, and SP.

5. Discussion

The reasoning was based on earlier research, which claimed that cultural characteristics influenced privacy concerns [8,9,11]. In this research, we contend that people's decisions to transact online could be influenced by their cultural norms. Publications from the past also claimed that culture affected people's willingness to transact [15,55]. Comparable to the methodology of [15], several socioeconomic variables, such as technological infrastructure and the Internet dispersion, may influence the adoption of e-commerce within a state. However, these variables were outside the purview of this research because its main objective was to ascertain the influence of national culture on the correlation between information privacy and e-commerce employment.

Our research shows that, even in a very collectivist society, such as the Emirate of Dubai, privacy concerns were still highly regarded. This would suggest that other factors, including a nation's governmental steps to ensure its residents' privacy, may alter a person's perception of privacy concerns. According to the research, a country's laws would develop because of its cultural values [10] and citizens' trust in their state would be a good indicator of how well laws addressed privacy concerns. Nevertheless, it is feasible that notwithstanding their cultural norms, people in a particular community may feel protected when their states have certain laws in effect [56]. Furthermore, cultural views could be much more complex because they might not be shared by all citizens of a nation. Particularly, several regions within a nation may uphold various customs, as was the circumstance in the UAE, where various cultural communities held various cultural beliefs from one another [9].

The results of this research show that e-commerce acceptance, privacy concerns, the Internet safety perceptions, and personal interests are important elements that influence people's inclinations to transact online. Our study's hypotheses were predicated on the notions of Hofstede's cultural dimensions. Acceptance of e-commerce was significantly impacted by perceptions of the Internet safety. This suggests that people are more open to accepting new technology the more secure they perceive e-commerce platforms to be. Although they are not identical, the element of trust that is prevalent in information privacy and e-commerce research [1,57] is comparable to how people perceive Internet safety. People's presumptions about how protected it is to transact online, regardless of the company, would be included in the Internet safety perceptions. Yet, a corporation and its clients could develop a trusting relationship. In essence, a person's perceptions of Internet safety should apply to the entire Internet, yet the perceptions of trust may differ amongst diverse online sellers [18]. Nevertheless, it was discovered that the impact of online transaction trust and perceptions of the Internet safety were equivalents.

Acceptance of e-commerce is distinct from the intention to transact. Businesses use e-commerce technology as a channel for doing business with customers. Nevertheless, using the Internet as a means for business gives businesses lots of chances to cultivate correlations with customers [58]. Customers could avoid regional and time restrictions and buy goods and services. Customers must be open and have some interest in accepting new technologies, though, and show some willingness in doing so. To share personal information, though, depends on several different variables. Acceptance of e-commerce precedes the decision to transact online. In contrast to the direct association between "the Internet safety perceptions and willingness to transact online", there is a closer connection between "e-commerce acceptance and willingness to transact online and the Internet safety

perceptions". In essence, these findings imply that, even if people believe the Internet to be a safe channel for business transactions, they would still be willing to transact if there was a greater propensity for the technology.

This research's primary focus was on privacy concerns because they are typically associated with information privacy [6,15]. We predicted that, given the UAE's fundamental common society, privacy concerns would be minimal. According to research from [15], societies are less inclined to be concerned, regarding privacy, when they are less individualistic. Nonetheless, [15] also perceived Italy as having a low level of trust, in comparison to the United States, which had a high level of trust. Since several pieces of research have found that trust is a precursor to privacy concerns [21], maybe trust deserves to be taken into account when evaluating privacy concerns. While it was assumed that a low degree of privacy concerns would have favorably impacted both perceptions of the Internet safety and the acceptability of e-commerce, the findings show that these relationships were significant. The lack of importance of this association can be ascribed to information security and information privacy as distinct constructs [59], notwithstanding our hypothesis that privacy would diminish safety perceptions. People's willingness to transact online is, nevertheless, hampered by privacy concerns. Personal interests were determined by society's degree of decadence. The finding of this research did not endorse the correlation that was expected to exist between personal interest and the acceptability of e-commerce. Fundamentally, this can be a result of consumers' increased preference for all products, rather than actual e-commerce adoption. For instance, people may be more willing to purchase a product due to its price or accessibility and may just utilize the Internet to transact for that product, with no plans to employ it in the future for business transactions. This conforms with the results of [21], which showed that prescription medicine purchases online outnumbered book purchases. Nevertheless, the willingness to transact online is highly influenced by personal interest.

The association between privacy concern (PC) and willingness to transact (WTT), in contrast to other variables, is unable to represent a strong correlation. The association between the study's factors increased in intensity when gender was included as a moderator. This research differs from [60], in that it uses the suggested model with the moderating influence of gender on undergraduate business students' adoption of e-commerce systems in the US. The present study modifies Hofstede's theory and considers how moderating gender affects the Internet users in the UAE to understand the variables that contribute to the acceptability of e-commerce systems. The findings of the study justify the strong correlation between each dependent variable and the relevant independent variable, therefore endorsing Hofstede's theory and moderating the influence of gender's unique inputs on the acceptability of e-commerce systems in the UAE.

6. Theoretical and Practical Implications

The results of this research suggest that, while privacy concerns are more complicated than a society's cultural views, cultural aspects do describe some elements of the anomalies of consumers' willingness to transact online. By analyzing how national culture affects people's privacy concerns and willingness to use e-commerce, this research provided an addition to the areas of information privacy and e-commerce. According to the results of the research, developed countries have a distinct idea of privacy from developing countries with a high level of collectivism. In contrast to [1], who discovered that culture was crucial in impacting privacy concerns and people's privacy calculus, this research reveals that culture only reflected a person's willingness to transact online to a limited extent, while having minimal impact on information privacy. Perceptions of Internet safety and the acceptance of e-commerce have a significant impact on people's willingness to transact online. Despite having considerable influence on people's choices to transact online, privacy concerns can be outweighed by other, more favorable factors. These results are in line with much other research in information privacy, which consider that people weigh the pros and downsides of disclosing their personal information [1,18]. The results of [61] implied that people may

be willing to place a higher priority on enjoyment elements than security and privacy aspects. The results of this research have a lot of managerial implications. Culture cannot clearly describe privacy concerns, but it does have an impact on other factors that determine how people employ e-commerce. As a result, businesses that penetrate the e-commerce industry should take into account the cultural values of their consumers. International firms built on technology will also succeed by better comprehending the cultural norms of consumers. By doing this, businesses can put plans in place to draw customers from markets that are more vital than those where e-commerce acceptance and utilization are already at moderate to high degrees. To capture clients' interest, advertisements and awareness campaigns would ultimately be sociologically targeted. Companies should be aware that face-to-face exchanges, which the Internet platforms cannot offer, are an important component of transactions in certain societies [15]. Avoiding customers from cultural areas that are less receptive to e-commerce may be more beneficial. Privacy concerns frequently prevent people from using e-commerce, including in demographic areas, where it is deemed advantageous [1]. To mitigate the impact of privacy concerns, companies should, therefore, concentrate on trust-building strategies [1,21,61].

7. Conclusions

It was suggested that a society's cultural values impacts the adoption of e-commerce technology and impacts people's privacy concerns. In this research, the impact of information privacy on online transactions in a developed country was studied. The data was gathered from the Emirate of Dubai, including some of the world's fastest-growing cities and a major center for commerce and business. In essence, the results show that a range of influences, impacted by culture, determine people's choices to employ e-commerce and engage in online transactions. There were some restrictions in this research. The sample size was modest, to start with. The larger the sample size used to collect data from survey questionnaires, the more universal the results. Additionally, a small sample size frequently has a bad model fit and breaches reliability and validity. Nevertheless, the survey items' reliability and validity were validated, and our model shows excellent fit scores. The sampling frame was also constrained. In essence, data was gathered from the Emirate of Dubai. The country's sibling cities "Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al Khaimah, Sharjah, and Umm Al Quwain" should have also been included in the sampling. It will be advantageous to collect data from more countries and carry out a cross-comparison analysis. Furthermore, using items modified from [1,15], we calculated privacy concerns. There are techniques available for quantifying privacy concerns, such as CFIP [18]. Lastly, academics have drawn attention to the inadequacies in Hofstede's theory of cultural dimensions, arguing that these dimensions oversimplify the various ethnic groups that make up a country [62]. Moreover, Hofstede's theory has limited dimensions, as was stated in [62]. This may have played a part in why the notion of privacy concern did not fit the theory. For the remaining constructs in our research model, the adjustment of Hofstede's theory of cultural dimensions is still broadly correct [63–69]. Subsequent studies should concentrate on determining the factors that prevent developed countries from employing e-commerce, and they would gain an advantage from a qualitative approach, such as ethnographic research. Theories with a greater predictive variable may be used in further study to investigate how culture shapes people's views [70–74]. This will help people comprehend how culture and information privacy are intertwined. Subsequent studies may also look into how culture and legislation impact how people perceive their privacy and how business is conducted, in terms of privacy [74]. This will help people comprehend how culture and information privacy are intertwined. Subsequent studies may also look into how culture and legislation impact how people perceive their privacy and how businesses is conducted, in terms of privacy [74].

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References

1. Dinev, T.; Hart, P. An Extended Privacy Calculus Model for E-Commerce Transactions. *Inf. Syst. Res.* **2006**, *17*, 61–80. [CrossRef]
2. Fatima, R.; Yasin, A.; Liu, L.; Wang, J. How persuasive is a phishing email? A phishing game for phishing awareness. *J. Comput. Secur.* **2019**, *27*, 581–612. [CrossRef]
3. Mason, R.O. Four Ethical Issues of the Information Age. *MIS Q.* **1986**, *10*, 5–12. [CrossRef]
4. Westin, A.F. *Privacy and Freedom*; Ig Publishing: Athens, NY, USA, 1967.
5. Culnan, M.J.; Williams, C.C. How Ethics Can Enhance Organizational Privacy: Lessons from the Choicepoint and TJX Data Breaches. *MIS Q.* **2009**, *33*, 673–687. [CrossRef]
6. Smith, H.J.; Dinev, T.; Xu, H. Information Privacy Research: An Interdisciplinary Review. *MIS Q.* **2011**, *35*, 989–1015. [CrossRef]
7. Nielson, N.V. *E-Commerce: Evolution or Revolution in the Fast-Moving Consumer Goods World?* Nielsen Norman Group: Fremont, CA, USA, 2014.
8. Rose, E.A. An examination of the concern for information privacy in the New Zealand regulatory context. *Inf. Manag.* **2006**, *43*, 322–335. [CrossRef]
9. Almaiah, M.A.; Jalil, M.A.; Man, M. Extending the TAM to examine the effects of quality features on mobile learning acceptance. *J. Comput. Educ.* **2016**, *3*, 453–485. [CrossRef]
10. Milberg, S.J.; Smith, H.J.; Burke, S.J. Information Privacy: Corporate Management and National Regulation. *Organ. Sci.* **2000**, *11*, 35–57. [CrossRef]
11. Bellman, S.; Johnson, E.J.; Kobrin, S.J.; Lohse, G.L. International Differences in Information Privacy Concerns: A Global Survey of Consumers. *Inf. Soc.* **2004**, *20*, 313–324. [CrossRef]
12. Lim, K.H.; Leung, K.; Sia, C.L.; Lee, M.K.O. Is eCommerce boundary-less? Effects of individualism–collectivism and uncertainty avoidance on Internet shopping. *J. Int. Bus. Stud.* **2004**, *35*, 545–559. [CrossRef]
13. Cheryan, S.; Plaut, V.C.; Handron, C.; Hudson, L. The Stereotypical Computer Scientist: Gendered Media Representations as a Barrier to Inclusion for Women. *Sex Roles* **2013**, *69*, 58–71. [CrossRef]
14. International Monetary Fund. World Economic Outlook Report. 2014. Available online: <http://www.imf.org/external/pubs/ft/%0Aweo/2014/02/pdf/text.pdf> (accessed on 7 June 2022).
15. Dinev, T.; Bellotto, M.; Hart, P.; Russo, V.; Serra, I.; Colautti, C. Privacy calculus model in e-commerce—A study of Italy and the United States. *Eur. J. Inf. Syst.* **2006**, *15*, 389–402. [CrossRef]
16. Almousa, M. Barriers to E-Commerce Adoption: Consumers’ Perspectives from a Developing Country. *iBusiness* **2013**, *5*, 65–71. [CrossRef]
17. Chai, L.; Pavlou, P. What drives electronic commerce across cultures? A cross-cultural empirical investigation of the theory of planned behavior. *J. Electron. Commer. Res.* **2002**, *3*, 240–253.
18. Almaiah, M.A.; Alismael, O.A. Examination of factors influencing the use of mobile learning system: An empirical study. *Educ. Inf. Technol.* **2019**, *24*, 885–909. [CrossRef]
19. Norberg, P.A.; Horne, D.R.; Horne, D.A. The privacy paradox: Personal information disclosure intentions versus behaviors. *J. Consum. Aff.* **2007**, *41*, 100–126. [CrossRef]
20. Almaiah, M.A.; Al-Khasawneh, A.; Althunibat, A. Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Educ. Inf. Technol.* **2020**, *25*, 5261–5280. [CrossRef]
21. Almaiah, M.A. Acceptance and usage of a mobile information system services in University of Jordan. *Educ. Inf. Technol.* **2018**, *23*, 1873–1895. [CrossRef]
22. Chan, S.-C.; Lu, M.-T. Understanding Internet banking adoption and user behavior: A Hong Kong perspective. *J. Glob. Inf. Manag.* **2004**, *12*, 21–43. [CrossRef]
23. Gefen, G. TAM or just plain habit: A look at experienced online shoppers. *J. Organ. End User Comput.* **2003**, *15*, 1–13. [CrossRef]
24. Davis, F.D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* **1989**, *13*, 319–340. [CrossRef]
25. Hatlevik, O.E.; Christophersen, K.-A. Digital competence at the beginning of upper secondary school: Identifying factors explaining digital inclusion. *Comput. Educ.* **2013**, *63*, 240–247. [CrossRef]
26. Almaiah, M.A.; Al-Khasawneh, A. Investigating the main determinants of mobile cloud computing adoption in university campus. *Educ. Inf. Technol.* **2020**, *25*, 3087–3107. [CrossRef]
27. Ihme, J.M.; Senkbeil, M. Warum können Jugendliche ihre eigenen computerbezogenen Kompetenzen nicht realistisch einschätzen? *Z. Entwickl. Pädagogische Psychol.* **2017**, *49*, 24–37. [CrossRef]

28. Ellemers, N. Gender stereotypes. *Annu. Rev. Psychol.* **2018**, *69*, 275–298. [[CrossRef](#)] [[PubMed](#)]
29. Almaiah, M.A.; Al-Rahmi, A.M.; Alturise, F.; Alrawad, M.; Alkhalaf, S.; Lutfi, A.; Al-Rahmi, W.M.; Awad, A.B. Factors influencing the adoption of internet banking: An integration of ISSM and UTAUT with price value and perceived risk. *Front. Psychol.* **2022**, *13*. [[CrossRef](#)]
30. Gnambs, T. The development of gender differences in information and communication technology (ICT) literacy in middle adolescence. *Comput. Hum. Behav.* **2021**, *114*, 106533. [[CrossRef](#)]
31. Aburayya, A.; Alshurideh, M.; Marzouqi, A.A.; Diabat, O.A.; Alfarsi, A.; Suson, R.; Bash, M.; Salloum, S.A. An empirical examination of the effect of TQM practices on hospital service quality: An assessment study in uae hospitals. *Syst. Rev. Pharm.* **2020**, *11*, 347–362.
32. Al-Marooof, R.; Ayoubi, K.; Alhumaid, K.; Aburayya, A.; Alshurideh, M.; Alfaisal, R.; Salloum, S. The acceptance of social media video for knowledge acquisition, sharing and application: A comparative study among YouTube users and TikTok Users' for medical purposes. *Int. J. Data Netw. Sci.* **2021**, *5*, 197–214. [[CrossRef](#)]
33. Nunnally, J.C.; Bernstein, I.H. *Psychometric Theory*; McGraw-Hill: New York, NY, USA, 1978.
34. Ringle, C.M.; Wende, S.; Becker, J.-M. *SmartPLS 3*; SmartPLS: Bönningstedt, Germany, 2015.
35. Hair, J.; Hollingsworth, C.L.; Randolph, A.B.; Chong, A.Y.L. An updated and expanded assessment of PLS-SEM in in-formation systems research. *Ind. Manag. Data Syst.* **2017**, *117*, 442–458. [[CrossRef](#)]
36. Hair, J.F., Jr.; Hult, G.T.M.; Ringle, C.M.; Sarstedt, M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*; Sage Publications: Thousand Oaks, CA, USA, 2016.
37. Urbach, N.; Ahlemann, F. Structural equation modeling in information systems research using partial least squares. *J. Inf. Technol. Theory Appl.* **2010**, *11*, 5–40.
38. Goodhue, D.L.; Lewis, W.; Thompson, R. Does PLS have advantages for small sample size or non-normal data? *MIS Q.* **2012**, *36*, 981–1001. [[CrossRef](#)]
39. Barclay, D.; Higgins, C.; Thompson, R. The Partial Least Squares (pls) Approach to Casual Modeling: Personal Computer Adoption and Use as an Illustration. *Technol. Stud.* **1995**, *2*, 285–309.
40. Al Nafea, R.; Almaiah, M.A. Cyber security threats in cloud: Literature review. In Proceedings of the 2021 International Conference on Information Technology (ICIT), Amman, Jordan, 14–15 July 2021; IEEE: Piscataway, NJ, USA; pp. 779–786.
41. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 4th ed.; The Guilford Press: New York, NY, USA, 2015.
42. Hair, J.F.; Ringle, C.M.; Sarstedt, M. PLS-SEM: Indeed a Silver Bullet. *J. Mark. Theory Pract.* **2011**, *19*, 139–152. [[CrossRef](#)]
43. Henseler, J.; Ringle, C.M.; Sinkovics, R.R. The use of partial least squares path modeling in international marketing. In *New Challenges to International Marketing*; Sinkovics, R.R., Ghauri, P.N., Eds.; Emerald Group Publishing Limited: Bingley, UK, 2009; pp. 277–319. [[CrossRef](#)]
44. Fornell, C.; Larcker, D.F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Mark. Res.* **1981**, *18*, 39–50. [[CrossRef](#)]
45. Henseler, J.; Ringle, C.M.; Sarstedt, M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Mark. Sci.* **2015**, *43*, 115–135. [[CrossRef](#)]
46. Ringle, C.M.; Sarstedt, M. Gain more insight from your PLS-SEM results. *Ind. Manag. Data Syst.* **2016**, *116*, 1865–1886. [[CrossRef](#)]
47. Chin, W.W. The partial least squares approach to structural equation modeling. *Mod. Methods Bus. Res.* **1998**, *295*, 295–336.
48. Al-Emran, M.; Arpaci, I.; Salloum, S.A. An empirical examination of continuous intention to use m-learning: An integrated model. *Educ. Inf. Technol.* **2020**, *25*, 2899–2918. [[CrossRef](#)]
49. Salloum, S.A.; Alhamad, A.Q.M.; Al-Emran, M.; Monem, A.A.; Shaalan, K. Exploring Students' Acceptance of E-Learning through the Development of a Comprehensive Technology Acceptance Model. *IEEE Access* **2019**, *7*, 128445–128462. [[CrossRef](#)]
50. Al-Marooof, R.; Alshurideh, M.; Salloum, S.; AlHamad, A.Q.M.; Gaber, T. Acceptance of Google Meet during the Spread of Coronavirus by Arab University Students. *Informatics* **2021**, *8*, 24. [[CrossRef](#)]
51. Al-Marooof, R.S.; Salloum, S.A.; AlHamad, A.; Shaalan, K.A. Understanding an Extension Technology Acceptance Model of Google Translation: A Multi-Cultural Study in United Arab Emirates. *Int. J. Interact. Mob. Technol.* **2020**, *14*, 157–178. [[CrossRef](#)]
52. Al-Marooof, R.S.; Salloum, S.A. An Integrated Model of Continuous Intention to Use of Google Classroom. In *Recent Advances in Intelligent Systems and Smart Applications*; Al-Emran, M., Shaalan, K., Hassanien, A., Eds.; Springer: Cham, Switzerland, 2021; Volume 295.
53. Preacher, K.J.; Hayes, A.F. Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models. *Behav. Res. Methods* **2008**, *40*, 879–891. [[CrossRef](#)] [[PubMed](#)]
54. Santos-Vijande, M.L.; López-Sánchez, J.; Rudd, J. Frontline employees' collaboration in industrial service innovation: Routes of co-creation's effects on new service performance. *J. Acad. Mark. Sci.* **2016**, *44*, 350–375. [[CrossRef](#)]
55. Changchit, C.; Cutshall, R. Online Shopping Perceptions: A Comparison between Anglo and Hispanic Perspectives. *J. Int. Manag. Stud.* **2012**, *12*, 17–26.
56. Yang, H.-L.; Miao, X.-M. Concern for Information Privacy and Intention to Transact Online. In Proceedings of the 2008 4th International Conference on Wireless Communications, Networking and Mobile Computing, Dalian, China, 12–14 October 2008; pp. 1–4. [[CrossRef](#)]
57. Almaiah, M.A.; Al Mulhem, A. Analysis of the essential factors affecting of intention to use of mobile learning applications: A comparison between universities adopters and non-adopters. *Educ. Inf. Technol.* **2019**, *24*, 1433–1468. [[CrossRef](#)]

58. Awad, N.F.; Krishnan, M.S. The personalization privacy paradox: An empirical evaluation of information transparency and the willingness to be profiled online for personalization. *MIS Q.* **2006**, *30*, 13–28. [\[CrossRef\]](#)
59. Bélanger, F.; Crossler, R.E. Privacy in the Digital Age: A Review of Information Privacy Research in Information Systems. *MIS Q.* **2011**, *35*, 1017–1041. [\[CrossRef\]](#)
60. Almaiah, M.A.; Alfaisal, R.; Salloum, S.A.; Hajjej, F.; Shishakly, R.; Lutfi, A.; Alrawad, M.; Al Mulhem, A.; Alkhdour, T.; Al-Maroo, R.S. Measuring Institutions' Adoption of Artificial Intelligence Applications in Online Learning Environments: Integrating the Innovation Diffusion Theory with Technology Adoption Rate. *Electronics* **2022**, *11*, 3291. [\[CrossRef\]](#)
61. Van Slyke, C.; Comunale, C.L.; Belanger, F. Gender differences in perceptions of web-based shopping. *Commun. ACM* **2002**, *45*, 82–86. [\[CrossRef\]](#)
62. Jones, M.L.; Alony, I. *The Cultural Impact of Information Systems—Through the Eyes of Hofstede—A Critical Journey*; Informing Science Institute: Santa Rosa, CA, USA, 2007.
63. Almaiah, M.A.; Al-Khasawneh, A.; Althunibat, A.; Almomani, O. Exploring the Main Determinants of Mobile Learning Application Usage during COVID-19 Pandemic in Jordanian Universities. In *Emerging Technologies during the Era of COVID-19 Pandemic*; Springer: Cham, Switzerland, 2021; pp. 275–290. [\[CrossRef\]](#)
64. Almaiah, M.A.; Al Mulhem, A. Thematic analysis for classifying the main challenges and factors influencing the successful implementation of e-learning system using NVivo. *Int. J. Adv. Trends Comput. Sci. Eng.* **2020**, *9*, 142–152. [\[CrossRef\]](#)
65. Althunibat, A.; Almaiah, M.A.; Altarawneh, F. Examining the Factors Influencing the Mobile Learning Applications Usage in Higher Education during the COVID-19 Pandemic. *Electronics* **2021**, *10*, 2676. [\[CrossRef\]](#)
66. Lutfi, A.; Alsyoud, A.; Almaiah, M.A.; Alrawad, M.; Abdo, A.A.K.; Al-Khasawneh, A.L.; Ibrahim, N.; Saad, M. Factors Influencing the Adoption of Big Data Analytics in the Digital Transformation Era: Case Study of Jordanian SMEs. *Sustainability* **2022**, *14*, 1802. [\[CrossRef\]](#)
67. Almaiah, M.A.; Hajjej, F.; Lutfi, A.; Al-Khasawneh, A.; Alkhdour, T.; Almomani, O.; Shehab, R. A Conceptual Framework for Determining Quality Requirements for Mobile Learning Applications Using Delphi Method. *Electronics* **2022**, *11*, 788. [\[CrossRef\]](#)
68. Almaiah, M.A.; Ayouni, S.; Hajjej, F.; Lutfi, A.; Almomani, O.; Awad, A.B. Smart Mobile Learning Success Model for Higher Educational Institutions in the Context of the COVID-19 Pandemic. *Electronics* **2022**, *11*, 1278. [\[CrossRef\]](#)
69. Almaiah, M.A.; Al-Otaibi, S.; Lutfi, A.; Almomani, O.; Awajan, A.; Alsaaidah, A.; Alrawad, M.; Awad, A.B. Employing the TAM Model to Investigate the Readiness of M-Learning System Usage Using SEM Technique. *Electronics* **2022**, *11*, 1259. [\[CrossRef\]](#)
70. Alsyoud, A.; Lutfi, A.; Al-Bsheish, M.; Jarrar, M.T.; Al-Mugheed, K.; Almaiah, M.A.; Alhazmi, F.N.; Masa'deh, R.E.; Anshasi, R.J.; Ashour, A. Exposure Detection Applications Acceptance: The Case of COVID-19. *Int. J. Environ. Res. Public Health* **2022**, *19*, 7307. [\[CrossRef\]](#)
71. Lutfi, A.; Al-Khasawneh, A.L.; Almaiah, M.A.; Alsyoud, A.; Alrawad, M. Business Sustainability of Small and Medium Enterprises during the COVID-19 Pandemic: The Role of AIS Implementation. *Sustainability* **2022**, *14*, 5362. [\[CrossRef\]](#)
72. Almaiah, M.A.; Hajjej, F.; Shishakly, R.; Lutfi, A.; Amin, A.; Awad, A.B. The Role of Quality Measurements in Enhancing the Usability of Mobile Learning Applications during COVID-19. *Electronics* **2022**, *11*, 1951. [\[CrossRef\]](#)
73. Almaiah, M.A.; Alfaisal, R.; Salloum, S.A.; Al-Otaibi, S.; Al Sawafi, O.S.; Al-Maroo, R.S.; Lutfi, A.; Alrawad, M.; Al Mulhem, A.; Awad, A.B. Determinants Influencing the Continuous Intention to Use Digital Technologies in Higher Education. *Electronics* **2022**, *11*, 2827. [\[CrossRef\]](#)
74. Lutfi, A.; Alrawad, M.; Alsyoud, A.; Almaiah, M.A.; Al-Khasawneh, A.; Al-Khasawneh, A.L.; Alshira'H, A.F.; Alshirah, M.H.; Saad, M.; Ibrahim, N. Drivers and impact of big data analytic adoption in the retail industry: A quantitative investigation applying structural equation modeling. *J. Retail. Consum. Serv.* **2023**, *70*. [\[CrossRef\]](#)