Article

Information Development
1–18

DOI: 10.1177/0266666921006887
journals.sagepub.com/home/idv
SAGE

Cultural factors that influence the adoption of e-commerce: A Palestinian case study

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Abstract

The objective of this study is to explore the impact of various cultural dimensions on the acceptance of E-commerce in the Palestinian context. The developed theoretical framework is a modified version of the Technology Acceptance Model (TAM), wherein the trust, perceived usefulness and perceived ease of use act as mediators for the intention to use E-commerce. As such, five cultural dimensions were employed in the proposed model. These are; uncertainty avoidance, power distance, masculinity, collectivism, and long-term orientation. Data was collected from a non-probabilistic sample of 418 participants using a pre-tested and validated questionnaire. Findings demonstrate that the hypothesized model was able to explain 62% of the variability of the intention towards the use of E-commerce. In particular, they signify a strong correlation between acceptance of E-commerce and the domestic culture of consumers, where uncertainty avoidance and power distance are the most vital cultural dimensions influencing the decision to transact online.

Keywords

e-commerce adoption, cultural factors, TAM, trust, structural equation modelling, Palestine

Submitted: 9 February, 2021; Accepted: 20 February, 2021.

Introduction

Although E-commerce is a global phenomenon, a growing number of studies have revealed that social and cultural factors dominate the adoption of E-commerce. Nonetheless, it is not fully comprehensible how these cultural factors, especially within the context of Arabian and developing countries, do affect E-commerce adoption. The objective of this study is to explore the impact of various cultural dimensions on the acceptance of E-commerce in the Palestinian context. The developed theoretical framework is a modified version of the Technology Acceptance Model (TAM), wherein trust, perceived usefulness and perceived ease of use act as mediators for the intention to use E-commerce. As such, five cultural dimensions were employed in the proposed model. These are; uncertainty avoidance, power distance, masculinity, collectivism, and long-term orientation. Data was collected from a non-probabilistic sample of 418 participants using a pre-tested and validated questionnaire. Findings demonstrate that the hypothesized model was able to explain 62% of the variability of the intention towards the use of E-commerce. In particular, they signify a strong correlation between acceptance of E-commerce and the domestic culture of consumers, where uncertainty avoidance and power distance are the most vital

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cultural dimensions influencing the decision to transact online.

Electronic commerce (E-commerce) has been emerging as one of the most influential Internet application in the business world. However, this kind of application is biased towards western societies' culture and traditions. E-commerce websites are often designed for North Americans and to a less extent for other developed countries (Simon, 2000). This aspect poses a challenge for those firms that want to expand across borders and offer worldwide online services. According to Merrilees and Miller (1999) online businesses must consider the cross-cultural differences in designing and launching their online services. Moreover, beyond the technical aspects that influence people's decisions to transact online, it is imperative to explore other factors that may have an impact as well. As reported by Teo, what could work as a direct motive for people in one country to transact online might be different in another country (Teo, 2002). The need to analyse when and where domestic culture and traditions play a role in deciding when to shop online is significant. This research comes at a time when both the business and the research circles are paying mounting interest to the Middle East and North Africa (MENA) region. E-commerce activities within the region are growing at a steady rate. In 2010, E-commerce business volume was estimated at (8.48) billion USD, and this figure was raised to be 18.6 billion and 28.6 billion USD in 2016 and 2018, successively. In 2020 the volume of E-commerce activities was estimated to reach 41.5 billion USD (Sepashvili, 2020). The average annual growth rate of E-commerce activities within the region is estimated at 25%, and the region has been growing slightly ahead of the global average. The Gulf Cooperation Council and Egypt account for 80% of the E-commerce market, and they have been growing at a 30% annual rate; more than twice as fast as the rest of MENA (Fabre, Malauzat, Sarkis, Dhall, and Ghorra, 2019). According to a joint study by Dubai Economy and Visa[1], the United Arab Emirates (UAE) is currently the most advanced E-commerce market in the Middle East and North Africa, revealing an estimated annual growth of 23% between 2018 and 2022. While customers continue to enjoy the 'destination shopping' aspect of visiting a physical store, COVID-19 has encouraged many people to try E-commerce for the first time. This jump in online users is not expected to reduce. A recent study of ten markets in the region[2], including the United Arab Emirates and Saudi Arabia, revealed that up to 40% of respondents are now shopping online more than they were before the novel coronavirus outbreak. Moreover, the World Economic Forum has estimated the UAE's 2020 E-commerce market at $27.2bn, with similar growth across the MENA region. This goes in line with the fact that technical barriers like infrastructure, payment and delivery besides financial, political and legal barriers are mostly resolved in Arabian countries (L. Hasan and Morris, 2017). Other reports confirm that E-commerce penetration among Arabs, in general, is growing exponentially (Mckinsey, 2019). According to Bain and Company (Bain, 2019), E-commerce market size in 2017 was around $ 8.3 billion and is expected to reach $ 20 billion by 2020. The sustainability of this growth can only be maintained by attracting more Arabs to transact online. Therefore, it is crucial to understand how Arabs think in terms of E-commerce, and what holds them back from transacting online.

Several features, including product intangibility, digital transformation of marketing and sales operations, and automation of conventional human transactions characterize E-commerce. These features influence people's decisions and go against deeply rooted beliefs. Previous studies have identified several parameters that control individuals' propensity to use E-commerce; among these are privacy, security and fear (Anic, Škare, and Milaković, 2019; Swinyard and Smith, 2003; Udo, 2001). Again, these issues are strongly co-related with the mental structure of people and their dominant culture. This study investigates this issue by examining the socio-cultural factors that shape individuals' decisions to purchase online. More specifically, this study will model the impact of cultural dimensions as defined by the Hofstede model (Hofstede, 1980, 2001) on people's decisions to transact online. The main contributions of our proposition are summarized as follows:

- Investigating the effect of national culture on Palestinian consumers' intention to shop online.
- Testing the validity of the modified version of TAM; considering various constructs (Gefen, Karahanna, and Straub, 2003) within the Arabian context.
- Quantifying the mediating effect of TAM components, mainly perceived usefulness and perceived ease of use, in addition to trust on the intention to shop online.

- Identifying co-relations between cultural dimensions and mediating variables. The practical implications in this context are two-fold: 1) To understand the impact of cross-cultural aspects and how the efficiency of businesses can be increased (Shavitt and Barnes, 2020), and 2) Understand how companies working in an international marketplace cope with multicultural needs (Hallikainen and Laukkanen, 2018; Zhang and Lopez-Pascual, 2012).

Literature review

E-commerce is termed as the practice of purchasing, selling or exchanging commodities, information and other services, via the Internet (Chaffey, Edmundson-Bird, and Hemphill, 2019). Other authors (Fastoso, Whitelock, Bianchi, and Andrews, 2012; Huseynov and Özkan Yıldırım, 2019) asserted that E-commerce comprises any transaction completed technically. In other words, this means allowing business and transforming relationships for the sake of creating value and exploiting business opportunities influenced by the evolving rules of an inter-connected market. It accepts the integration of all kinds of operations and transactions where information, products, services or payments are handled via electronic means. As reported in Laudon and Traver, (2018); Shankar and Jebarajakirthy, (2019), E-commerce has various advantages to customers, including time-saving, money-saving, huge choice of commodities and services, convenience, and the availability of adequate information. According to Walker, Saffu, and Mazurek, (2016) the trading channel has still not succeeded in convincing a larger percentage of consumers to transact online. Over the years, a significant number of researchers have explored the phenomenon of understanding the adoptability of E-commerce. Several studies have concluded that the rate of customer acceptance for E-commerce is still low in developing and emerging economies compared to developed countries (Folorunso, Awe, Sharma, and Jeff, 2006; Govindaraju and Chandra, 2012; Grandón, Nasco, and Mykytyn Jr, 2011; Irani, Dwivedi, and Williams, 2009). According to Zhu and Kraemer (2005). E-commerce is a technical solution that has started in industrialised countries, and therefore it has been designed to suit the socio-cultural requirements of those countries. Besides, theoretical frameworks for E-commerce adoption were developed to boost the level and success of adoption in these societies (Gunasekaran and Ngai, 2005; Tarhini, Teo, and Tarhini, 2016). Therefore, conventional frameworks designed for developed countries cannot be used in the context of developing countries because culture, business and regulatory environments are significantly different (Abou-Shouk, Lim, and Megicks, 2013; Rathee and Prakash, 2017).

A set of factors were identified that influence people's adoption of E-commerce, and these vary across countries as a consequence of these factors (Çelik, 2011). For instance, in an early study by Lee and Lee (2005), the authors attempted to examine the consumers, initial trust in the store and the practice towards purchasing second hand notebook computers online. They came to conclude that both trust towards the store and products do have some influence on the intention to purchase these products online. Nicolaou and McKnight (2006) examined the perceived information quality as a factor that might affect the organizations to exchange information. The study concluded that information quality does impact the level of trust, beliefs and perceived risk which in turn influence the intention to perform information exchange among organizations. In a recent study by Liu et al. (2017), the authors examined the effect of trust, social benefits, universal access and familiarity on the intention to buy wearable devices. The authors found that both trust and social benefits do have positive impact on the purchase intention of these devices, while universal access and familiarity were found not to influence buyers' intention towards these devices. Other factors that might impact the intention to purchase online is the social influence. Many resources cited social influence as a critical factor that may influence people's decisions to purchase online. Social influence is defined as the change in individual's attitudes, feelings or even behaviour as a result of influence or interaction with other people, (French and Raven, 2004). Within information systems research, including E-commerce, social influence is incorporated as an interpersonal consideration (Chan et al., 2010). Social influence is indeed incorporated in major technology acceptance models, including TAM (Venkatesh and Davis, 2000). However, social influence has been defined by many researchers in different ways, including subjective norms, group norms, social identity, social capital, and critical mass (Venkatesh, Morris, Davis, and Davis, 2003). Several reports have uncovered the significant impact of

social influence on E-commerce (Dickinger, Arami, and Meyer, 2008) (Chatterjee, Sarker, and Valacich, 2015), whereas others could not find any impact of social influence on the adoption of E-commerce (Pavlou and Fygenson, 2006; Shen, 2012). Sinha and Swearingen (2001), reported that consumers are likely to positively respond to a recommendation to purchase some products or services online, especially when it comes from people that they know and trust (Sinha and Swearingen, 2001). Walsh (2007) found that people's decisions to buy online are strongly influenced by their friends, class mates, co-workers, etc.

Researchers have classified these factors into technological and consumer-centred factors. Technological factors cover technical requirements of the webpages such as interface design, content, privacy, etc. Consumer-centred factors include customer attitude towards online transactions, such as Internet experience, service quality trust and risk (Li and Liu, 2011; Liu, Wang, Fang, and Zhang, 2019). This study reviews various cultural dimensions to find out which of those dimensions boost the growth of E-commerce and which slow down the growth of E-commerce. According to Earley (Earley, 2002), culture is defined as '*the individual-level of manifestations of shared meaning systems that are learned from other members of the society*". Similarly, Johansen (Cloud, 1998) described culture as a group of beliefs and values that are communal amongst followers of the same society and works to guide those followers in their belief and actions. Hence, cultural values can be termed as '*widely shared beliefs about how individuals are expected to behave*' (Hofstede, 2001). Hofstede argued that 'culture is the collective programming of the mind, which differentiates the members of one group from others". In an earlier study, Hofstede (1984) classified five dimensions for any national culture. These are; masculinity-femininity, power distance, individualism-collectivism, long-term versus short-term orientation and uncertainty avoidance. The impact of these cultural dimensions on the adoption of E-commerce is the focus of this study.

In modelling the adoption of E-commerce, culture plays a vital role in the discussions of E-commerce studies, particularly in the adoption of online shopping. In general, there are two approaches to studying how culture impacts E-commerce adoption. Firstly, the analysis of the impact of national cultural dimensions on the attitude to use E-commerce. Secondly, cross-cultural studies, where the impact of two or more cultures on E-commerce adoption is contrasted. In the first category, scholars firmly believe that the impact of culture is clearly reflected in consumer behaviour when shopping online (Burgmann, Kitchen, and Williams, 2006; Hallikainen and Laukkanen, 2018; Henry, 1976; Jamal and Ahmed, 2007; Wahlberg, 2015). Some researchers show that culture helps in understanding consumer behaviour (Hoare and Butcher, 2008). Moreover, culture forms the consumer willingness to trust Internet-based transactions (Lee and Turban, 2001). More studies fall under the second category, where they relate E-commerce adoption to different cultures and compare them. Studies conducted in this domain concluded that the adoption behaviour of customers has involved cultural patterns (Adapa, 1970; 2004; Jin, Park, and Kim, 2008; Pavlou and Chai, 2002; Ruiz-Mafe, Sanz-Blas, Hernandez-Ortega, and Brethouwer, 2013). According to Chai and Pavlou (2004) the influence of culture in two European countries - Spain and Netherlands - on attitude, subjective norms, perceived behaviour confirmed that domestic culture impacts the attitude to transact online. According to Jin and his colleagues (Jin et al., 2008) the impact of culture on customer satisfaction, trust, and loyalty of online shopping is significant in affecting the behaviour of USA and South Korea consumers. According to Chai and Pavlou (2004) the acceptance of E-commerce by consumers from Greece and the USA was found to be different. Adapa (1970) concluded that cultural adoption patterns of E-commerce of Indian women living in India and Australia differed. However, patterns were similar when they were in the same country. Another cross-cultural study was performed by Tan et al. (2006), which discussed how actual online shopping behaviour was impacted by two distinct cultures in both China and New Zealand. Tan and his colleagues (F. B. Tan et al., 2006) claimed that the domestic culture of short vs. long term orientation besides individualism vs. collectivism, do have a meaningful consequence on adoption patterns of E-commerce. Pavlou and Chai (2002) applied the theory of planned behaviour towards estimating social intentions to conduct E-commerce transactions in China and the United States. The results of most studies in this domain emphasised the role of cultural differences in consumer E-commerce adoption. This study contributes to both categories; firstly, it analyses how each of the cultural dimensions of the Hofstede model impacts the consumer's attitude towards E-commerce

as an example of the larger Arabian society. Secondly, the study results contrasted with results of similar studies conducted in different countries, as a contribution to cross-cultural studies. Few studies have explored the adoption patterns of E-commerce in the Arab world. Nathan (2009) examined the factors that affect E-commerce adoption in a cross-cultural study that included five Arabian countries; United Arab Emirates, Saudi Arabia, Kuwait, Qatar, and Yemen. The study revealed that knowledge is the most influential factor that determines the level of adoption of E-commerce in these countries. Jamal and Ahmed (2007) investigated the impact of local preferences, religious beliefs, in addition to language, as cultural factors on the attitude to use E-commerce by Saudi consumers. These factors were found to influence the intention to transact online significantly. A study conducted in Kuwait (Rouibah, Lowry, and Hwang, 2016) presented a model for online payment trust and concluded that individual innovation, tendency to trust, and awareness, besides existence of third party guarantee, are components that shape online trust. Abdulghader et al. (2011) investigated the factors that discourage adoption of E-commerce in Libya. They concluded that fear of Internet fraud, cost, complexity of transaction, fear of unreliability and trustworthiness, are the major factors that hinder Libyans from shopping online. Abou-Shouk et al. (2013) investigated the factors that shape E-commerce by Egyptian tourism firms. Inadequate assets, unqualified labour, lack of readiness of national infrastructure are amongst the key impediments found hindering adoption of E-commerce. Alrawabdeh (2016) investigated factors affecting E-commerce adoption by SMEs in Jordan and concluded that ease of use and access to the Internet are main factors encouraging E-commerce. Whereas the lack of electronic payments was the main hindrance for E-commerce adoption. Musleh et al. (2015) applied the extended version of the unified theory of acceptance to model E-commerce practices among Palestinians. The researchers confirmed that performance expectancy, efforts expectancy, social influence, and trust have significant impact on the attitude to shop online among Palestinians. The review demonstrates the existence of a knowledge gap in the subject matter. And there is a clear need to investigate the impact of cultural dimensions, as defined by Hofstede, on the Arabian consumer attitude towards E-commerce. This research intends to bridge this gap by investigating the effect of five cultural dimensions on the attitude and adoption patterns of Palestinians as an exemplar for the larger Arabian world.

Though the study focussed on Palestine, the results can be generalised across other Arabian countries, since, culturally, Arabs are considered as one entity. Arabs, though scattered among different political and economic clusters, share unique and, to some extent, unified cultural and traditional values. Arabs are nurtured mostly by the same religious beliefs, speak the same language, live in the same environment, and share the same heritage (Almaney, 1981; 2004; Hofstede, 2001; Obeidat, Shannak, Masa'deh, and Al-Jarrah, 2012). Dedoussis (2004) stressed the uniqueness of the Arab culture and recognised it as a universally distinguished paradigm and added it to the three recognised cultural paradigms (Japanese, European, and American).

Theoretical framework

This research applies a modified version of the TAM approach (Gefen et al., 2003) in an attempt to find out the cultural dimensions that may have an impact on the adoption of E-commerce in Palestine. TAM is a popular model in information system theory, for its straightforwardness, simplicity and directness, which made it the most influential approach to model users' adoption of technological solutions (Capece and Campisi, 2013). To that end, Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), as well as Trust, which was added in the context of E-commerce (Gefen et al., 2003) will be counted as the originators of attitude towards E-commerce adoption. The three constructs defined by the model will be used to analyze the intention of Palestinian customers to transact online. These three indigenous constructs will be used to mediate the effect of culture dimensions of Uncertainty Avoidance (AV), Masculinity (MAS), Collectivism (COL), Power Distance (PD) and Long Term Orientation (LTO), on the intention to use E-commerce, see Figure 1 below. This study will primarily employ these cultural dimensions to assess how the domestic culture of consumers models the attitudes, preferences, and values of E-commerce customers. As stated earlier, the reference model used by the study is the extended TAM model that was developed by Gefen and his colleagues (2003). The authors debated that the intentions to transact online were the outcomes of customer assessments of the technological solution and customer trust in the E-commerce

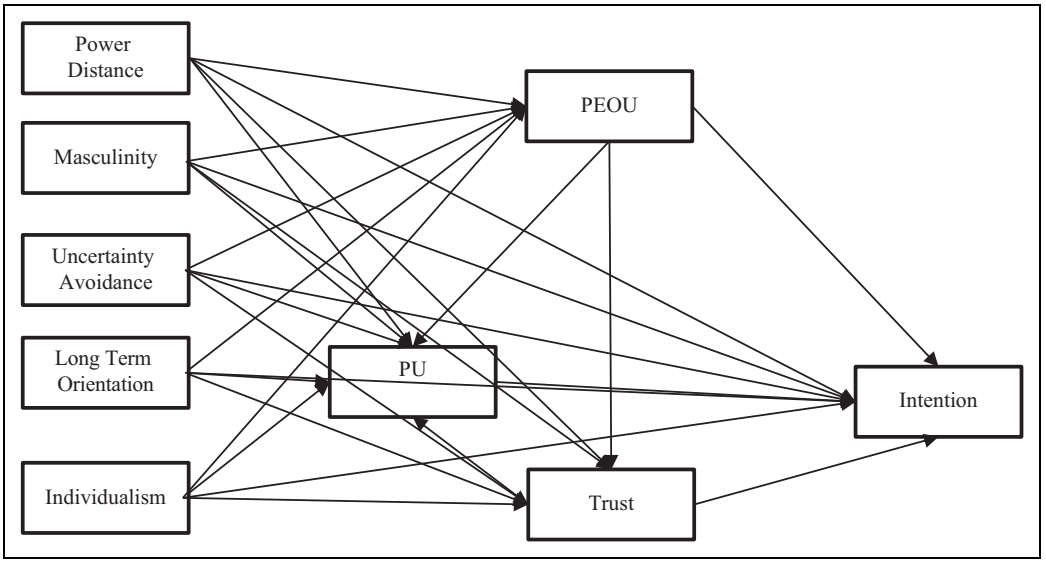

Figure 1. Proposed Research Model.

transaction. They recommended that PU, PEOU and TRUST should be considered as the vital drivers of E-commerce adoption (Gefen et al., 2003).

As reported in Suki and Suki, (2011), linkages between PEOU and PU in TAM have been empirically verified in the IT literature. Similarly, many other relevant research works confirmed - across multiple usage measures – that both constructs are consistent with TAM results, and are closely co-related to attitude (Burton-Jones and Hubona, 2005). In the context of our work, we define the PEOU as the extent to which customer' use of E-commerce services and applications is perceived as easy or effortless. Accordingly, we hypothesize that:

H1: Perceived Ease of Use (PEOU) has a positive impact on Behavioral Intention (BI) to use E-commerce.

On the other hand, in our study, we define PU as the degree to which individuals believe that the use of E-commerce will improve their product buying experience. As such, we hypothesize that:

H2: Perceived Usefulness (PU) has a positive impact on Behavioral Intention (BI) to use E-commerce.

H3: Trust has a positive impact on Behavioral Intention (BI) to use E-commerce.

H4: Perceived Ease of Use (PEOU) has a positive impact on Trust in E-commerce.

H5: Perceived Usefulness (PU) has a positive impact on Trust in E-commerce.

In what follows, a description of how cultural dimensions are integrated in the model will be introduced, and their associated hypotheses were synthesized, based on our tentative experience, in addition to the results reported in similar studies:

Uncertainty Avoidance (UA) is defined as the extent to which individuals feel endangered by ambiguous, shapeless conditions and vagueness. The literature suggests that a high level of uncertainty avoidance is associated with hesitance to use new technologies; this is because technology is sometimes related to ambiguity and doubts (H. Hasan and Ditsa, 1999; Veiga, Floyd, and Dechant, 2001). E-commerce is selling and buying online. It is classified as being risky and should be avoided. Based on that, the following hypotheses can be synthesized;

H6: Uncertainty avoidance (UA) is negatively correlated with Perceived Ease of Use (PEOU) of E-commerce.

H7: Uncertainty avoidance (UA) is negatively correlated with Perceived Usefulness (PU) of E-commerce.

H8: Uncertainty avoidance (UA) is negatively correlated with TRUST in E-commerce.

H9: Uncertainty avoidance (UA) is negatively correlated with Behavioral Intention (BI) to use E-commerce.

Masculinity (MAS) is defined as the extent to which an individual stresses conventional masculine morals such as accomplishment and competitiveness, contrasted to feminist values, such as encouragement, heartening, and appreciation of quality of life. High degree of masculinity might have direct and positive impact on both PU and PEOU. According to Iman et el. (Akour, Alshare, Miller, and Dwairi, 2006) masculinity positively impacts people's attitudes towards adopting new technologies. Use of technology is more linked to masculine attributes of performance, thoroughness, and persistence. According to Srite and Karahanna (2006), PU is strongly linked to work goals achievements where the higher the level of masculinity, the higher the PU of technology acceptance. On the other hand, since femininity is more concerned with pleasure and a less frustrating work environment, the lower level of masculinity is more concerned with a higher level of PEOU of E-commerce adoption, hence we can formulate the following hypotheses;

H10: Masculinity (MAS) is positively associated with Perceived Ease of Use (PEOU) of E-commerce.

H11: Masculinity (MAS) is positively associated with Perceived Usefulness (PU) of E-commerce.

H12: Masculinity (MAS) is negatively associated with Trust in E-commerce.

H13: Masculinity (MAS) is positively associated with Behavioral Intention (BI) to use E-commerce.

Collectivism (COL) is defined as the extent to which people in a society are integrated into groups. Collectivists favor group over individual work. On the one hand, using technologies can be perceived as being an individualistic action, and may not be favored by collectivist people. Therefore, the acceptance or rejection of E-commerce systems would be dependent on the decisions made collectively by the group.

H14: Collectivism (COL) is positively associated with Perceived Ease of Use (PEOU) of E-commerce.

H15: Collectivism (COL) is positively associated with Perceived Usefulness (PU) of E-commerce.

H16: Collectivism (COL) is negatively associated with Trust in E-commerce.

H17: Collectivism (COL) is negatively associated with Behavioral Intention (BI) to use E-commerce.

Power Distance (PD) is defined as the extent to which individuals agree with the principle that power is not allocated evenly among people. People who are high in power distance are classified as being centralized and would not generally act or react unless someone with higher level of power instructs them. Therefore, introducing new technologies is regarded by high power distance people as a way of changing the established social structures in their society (Veiga et al., 2001). In turn, this might negatively influence people's acceptance of E-commerce.

H18: Power distance (PD) is negatively associated with Perceived Ease of Use (PEOU) of E-commerce.

H19: Power distance (PD) is negatively associated with Perceived Usefulness (PU) of E-commerce.

H20: Power distance (PD) is negatively associated with Trust in E-commerce.

H21: Power distance (PD) is negatively associated with Behavioral Intention (BI) to use E-commerce.

Long Term Orientation (LTO) is defined as the extent to which individuals adopt the merits of focusing on the future. This dimension implicates the encouragement of merits directed towards prospect returns—specifically, persistence and carefulness. Therefore, LTO people stress conduct, for example, perseverance and carefulness, hoping to assure future returns.

H22: Long term orientation (LTO) is negatively associated with Perceived Ease of Use (PEOU) of E-commerce.

H23: Long term orientation (LTO) is negatively associated with Perceived Usefulness (PU) of E-commerce.

H24: Long term orientation (LTO) is negatively associated with Trust in E-commerce.

H25: Long term orientation (LTO) is negatively associated with Behavioral Intention (BI) to use E-commerce.

Methodology

The study uses a validated questionnaire containing the needed variables and constructs. Data was gathered from a non-random sample. In total, 512 completed questionnaires were collected, out of which 418 were valid and used in our study. 44.1% of the respondents were female, and 55.9% were male. 74.4% of the participants stated that they have high to very high experience in using the Internet for over ten years. 62% of the respondents reported that they had practised electronic shopping over the Internet at least one time in 2017, and 16.1% of them practised over 20 transactions throughout 2017.

We had some concern about the homogeneity of the collected data. However, we believe it reduced the bias in the sample in terms of educational capability, administrative position, cultural disparity, etc. Furthermore, the fact that 62% experienced online shopping at least once a year implies the appropriateness of the sample in performing a customer E-commerce adoption study. Survey participation was voluntary. The study employed a non-probability sampling scheme, as it enables the research team to gather data from participants based on their availability. The questionnaire was designed in Arabic so that it was easy to understand for the audience. Data was collected using a questionnaire to evaluate how demographics and other multiple items related to the impact of cultural dimensions on the acceptance of E-commerce. Each construct consisted of 3 to 5 questions, with participants' responses measured using a 7-point Likert scale, ranging from 1 = strongly disagree, to 7 = strongly agree.

Most of the questions used in the questionnaire were tested and validated to measure the intended constructs. The three lateral variables, PEOU, PU and BI, were adopted from the original study of Davis et al. (Davis, Bagozzi, and Warshaw, 1989), while Trust was adopted from the original work of Gefen et al. (Gefen et al., 2003). Uncertainty Avoidance construct was built based on the scale developed by Srite and Karahanna (2006). Masculinity versus Femininity was developed based on Srite et el. (2008). Other cultural dimensions, mainly collectivism, power distance and long term orientation, were developed and validated by the research team.

Table 1. Profiles of Respondents.

Demographic characteristics	Attributes	Percentage
Gender	Male	55.9%
	Female	44.1%
Age	$\leq$ 20	4.7%
	20-30	57.9%
	31-40	25.2%
	41-50	12.2%
Credit card ownership	Yes	49.9%
	No	50.1%
Experience using IT	Very high	37.9%
	High	16.5%
	Moderate	39.4%
	Weak	1.9
	Very weak	4.3%
Number of E-commerce transactions/ year	Null	37.5%
	1-5	29.3%
	6-10	9.5%
	11-15	3.5%
	16-20	3.9%
	>20	16.1%

This study uses structural equation modeling (SEM) to develop a model that depicts the correlation among the five cultural dimensions with the mediating variables and BI to use E-commerce. Generally, SEM is used as a meaningful tool in the social sciences, due to its capability to discover associations among unobserved constructs (latent variables) and observable variables (Hancock and Mueller, 2013). It incorporates a diverse collection of mathematical models, computer algorithms, and data analysis methods that work coherently to match the network of constructs to data (Kaplan, 2008). SEM encompasses confirmatory factor analysis, path analysis, partial least squares path modeling, and latent growth modeling (Kline, 2015).

Results

Descriptive Statistics

Table 1 below summarizes the profile of the participating sample of the study. Their self-rated IT experience is quite high, with 93% reported that their experience ranges between moderate and very highly experienced. 62.5% reported that they performed at least one online transaction in a year.

Table 2. Descriptive Statistics of the Constructs.

Measured Constructs	Mean	Standard deviation	Skewness	Kurtosis
Perceived Usefulness	5.0	1.1	−1.3	1.2
Perceived Ease of Use	5.2	1.2	−1.4	1.9
Behavioral Intention	4.8	1.3	−.77	0.2
Actual Use	3.9	1.4	−.02	−1.0
Trust	3.8	1.6	.18	−1.3
Uncertainty Avoidance	4.2	1.6	−.18	−1.3
Power Distance	4.4	0.9	−.20	0.2
Collectivism/ Individualism	4.2	1.0	−.28	−0.3
Masculinity	3.8	1.3	.09	−0.7
Long Term orientation	4.5	0.7	.13	−0.1

Table 2 summarizes the results of the descriptive analysis of the employed constructs. At large, respondents reported some positive attitudes towards using E-commerce. The following illustrates the average values: PEOU = 5.2/7.0, PU = 5.0/7.0 and BI = 4.8/7.0. The sample revealed that Palestinians are rather cautious in using online shopping, expressed by their level of Trust (3.8/7).

Concerning their cultural attributes, participants demonstrated neutrality with regards to collectivism (4.2/7.0). Yet, they demonstrated a moderate degree of masculinity (3.8/7), which is in agreement with Hofstede's reported values for Arabs. Conversely, the sample shows a relatively moderate level of power distance (4.4/7) contrary to what Hofstede had previously reported for Arabs (Hofstede, 1980, 2001). This might signal changes in cultural attitudes in due course as stated by McCoy et al. (2005), or can be explained by the non-representativeness of the sample. It might be defined by the fact that Arabian regions are not as homogeneous as Hofstede suggested. The attitude towards the future as measured by the Long Term Orientation construct with a value of 4.5/7.0, equivalent to 64% which deviates from that reported value by Hofstede for Arabs (17%). This result requires extra attention when one uses the results of Hofstede (1980).

Exploratory Factor Analysis – EFA

We performed an EFA using Principle Component estimation with Promax rotation to find out whether the measured variables loaded jointly were sufficiently correlated, and satisfied the criteria of reliability and validity. To examine the adequacy of the variables used in the study, KMO and Bartlett's test for sampling adequacy was performed. The test resulted in a KMO value of 0.80, and the communalities for each variable were sufficiently high (all above 0.60 with a majority of variables having values above 0.80), which signifies the adequacy of the measured variables. The result implies that the selected variables were sufficiently correlated for factor analysis. To test the reliability of the items in each variable, Cronbach's alphas were calculated for each and every variable. Cronbach's alphas for the extracted factors are shown in Table (3). All alphas were above 0.70, which indicates that items selected to represent the constructs were formulated successfully. The factors are all reflective, given that their indicators are correlated and are primarily interchangeable (Jarvis, MacKenzie, and Podsakoff, 2003).

Table 3. Results of Reliability Test as Represented by Cronbach's Alpha.

Factor Label	Cronbach's alpha	Specification
Perceived Usefulness	0.92	Reflective
Perceived Ease of Use	0.91	Reflective
Behavioural Intention	0.95	Reflective
Actual Use	0.86	Reflective
Trust	0.76	Reflective
Uncertainty Avoidance	0.94	Reflective
Power Distance	0.90	Reflective
Collectivism/ Individualism	0.75	Reflective
Masculinity	0.87	Reflective
Long Term orientation	0.85	Reflective

The model validity was tested by loading all items that were calculated. The factors reveal adequate convergent validity, as indicated by a higher than the

Table 4. Pattern Matrix of all Construct Items.

Pattern Matrix										
	Factor									
	1	2	3	4	5	6	7	8	9	10
PU2			.806							
PU4			.955							
PU5			.893							
PU7			.801							
PEOU1								.656		
PEOU2								.663		
PEOU3								.617		
BI1	.861									
BI2	.938									
BI3	.803									
AU1					.791					
AU3					.933					
AU4					.690					
UA1		.702								
UA2		.652								
UA3		.776								.
PD1				.951						
PD2				.764						
PD4				.886						
COL3							.741			
COL4							.666			
COL5							.719			
MAS3						.755				
MAS4						.811				
MAS5						.967				
LTO1	.943									
LTO3	.840									
LTO4	.745								.32	
Trust4										.827
Trust5										.774
Trust6										.844

recommended threshold of 0.350 for a sample size of 325 (Hair, Ringle, and Sarstedt, 2011). Table 4 shows that all items included in the study are correctly loading on their intended constructs. Items that are problematic and created cross loading were removed from the study and that was indicated by the indices of the items shown in Table 4. The factors additionally demonstrate adequate discriminant validity; since the correlation matrix illustrates no correlations higher than 0.700, along with no problematic cross-loadings, as indicated by the Pattern Matrix generated by SPSS.

This 10-factor model had a total explained variance of 85%, with all extracted factors having Eigenvalue above 1.0.

Confirmatory Factor Analysis

To test the model fit, modification indices were calculated to decide whether there was any room to enhance the model. Thus, we co-varied the error terms of indicators belonging to the same constructs with high indices. Following several trials, we arrived at a model with goodness of fit that is sufficient for further analysis as outlined in Table 5 below:

To examine the model for convergent validity, we evaluated the Average Variance Extracted (AVE) for each construct [15], see Table (6) below. Chin suggests that AVE of values above 0.5 is sufficient. This means that the latent construct explains at least 50%

Table 5. Model Fit Indices.

Metric	Observed value	Recommended
CMIN/DF	2.20	Between 1 and 3
CFI	0.91	>0.90
RMSEA	0.06	<0.06
PCLOSE	0.08	>0.05
SRMR	0.051	<0.09

Table 6. Composite Reliability and Average Variance Extracted.

	CR	AVE	MSV
COL	0.806	0.512	0.238
BI	0.902	0.699	0.491
PD	0.915	0.730	0.057
MAS	0.918	0.737	0.140
TRUST	0.900	0.693	0.230
PEOU	0.913	0.724	0.376
PU	0.875	0.637	0.376
UA	0.852	0.593	0.238
LTO	0.825	0.548	0.491

of the variability of its indicators. For all factors, the AVE was above 0.50. The discriminant validity of the constructs was also tested by calculating the Maximum Shared Variance (MSV), and comparing it with AVE. For the discriminant validity to be confirmed, MSV should be smaller than AVE for all variables, which is the case for all constructs, see Table 6.

The measurement model was also tested for Composite reliability (CR) for each construct. CR index (Fornell and Larcker, 1981) was used to analyze the composite reliability of each statement. According to Fornell and Larcker (1981), the acceptable CR value is a minimum of 0.7, which is true for all constructs. To examine the discriminant validity of the constructs of the model, the square root of the AVE was calculated. This is shown by the diagonal in the matrix of Table (7). All factors confirmed adequate discriminant validity as the diagonal values are higher than any other correlation values.

Hypotheses testing

Maximum likelihood regression method with Promax rotation was used to test the research hypotheses putforward in this study. Moreover, path coefficients (β) and the coefficient of determination (R^2) variances were used to quantify the share of each predictor or exogenous variable on the predicted or endogenous variables. Path coefficients are used to determine the share of each predictor variable in explaining the predicting variables' variances, while the amount of R^2 is an indicator of the total explained variances of predicting variables by all predictor variables. Table 8 shows the outcomes of the hypotheses tests as depicted by Figure 1 which illustrates the tested research model. Cultural dimensions integrated in the model were able to explain 77% of the variability of PEOU. LTO, MAS, UA, and COL, all have significant impacts on PEOU, whereas PD failed to have significant effect on PEOU. UA does have the strongest negative impact on PEOU, ($\beta = -0.584$, $p < 0.05$). On the other hand, PD does have the strongest positive impact, ($\beta = 0.824$, $p < 0.05$).

As for PU, cultural dimensions have different strength in influencing this construct. Cultural dimensions were able to explain 50% of the variability of PU. PD and LTO demonstrated significant impacts on PU, with PD having the strongest negative impact ($\beta = -0.14$, $p < 0.05$). LTO has the strongest positive impact on PU ($\beta = 0.27$, $p < 0.05$). Other dimensions, mainly, MAS, UA, and COL demonstrate to have insignificant impacts on PU. As for TRUST, all cultural dimensions do have significant impact on this construct. Cultural dimensions integrated in the model were able to explain 49% of TRUST variability. COL and PD demonstrated significant positive impact on TRUST, with COL having the strongest impact ($\beta = 0.416$, $p < 0.05$). LTO, UA, and MAS do have negative impact on TRUST with UA as having the strongest negative impact ($\beta = -0.45$, $p < 0.05$). In relation to the direct correlation between the cultural dimensions and the intention (BI) to use E-commerce, three of the five cultural dimensions do have significant direct impact on BI. LTO has a positive impact ($\beta = 0.32$, $p < 0.05$), while MAS and PD have significant weak impacts on BI.

The total standardized variability (R^2) of BI achieved by the model is recorded to be 0.64, of which 0.48 were indirectly mediated via PEOU, PU, and TRUST. The variability of BI leaps from 0.48 to 0.64 when the cultural dimensions are directly linked to BI. This implies that the direct association of cultural dimensions to BI accounted only for 0.16 of the variability of BI. See Table 9 for detailed strength of direct correlation among cultural dimensions and BI.

Table 7. Matrix of Correlation, Mean Square Root of the Average Variance Extracted (AVE).

	COL	BI	PD	MAS	TRUST	PEOU	PU	UA	LTO
COL	**0.72**								
BI	0.090	**0.84**							
PD	–0.088	0.232	**0.85**						
MAS	0.330	–0.224	–0.027	**0.86**					
TRUST	–0.078	–0.024	0.183	–0.341	**0.83**				
PEOU	0.258	0.558	–0.238	–0.068	0.149	**0.86**			
PU	0.098	0.578	–0.220	–0.075	0.192	0.613	**0.8**		
UA	0.488	0.034	–0.089	0.374	–0.480	–0.062	–0.079	**0.77**	
LTO	0.204	0.701	–0.195	–0.092	–0.092	0.613	0.486	0.177	**0.74**

Table 8. Results of Hypotheses Testing, *** indicate that P-value is less than 0.01.

H#	Proposed relationship	Path Coefficient β	P-value	Study results
H1	PEOU →BI	0.106	0.120	Not supported
H2	PU →BI	0.374	***	Supported
H3	PEOU →PU	0.407	***	Supported
H4	TRUST →BI	0.341	***	Supported
H5	PEOU →TRUST	0.296	0.012	Supported
H6	PU → TRUST	0.239	0.002	Supported
H7	UA → PEOU	-0.573	***	Supported
H8	UA → PU	-0.029	0.779	Not supported
H9	UA → TRUST	-0.450	***	Supported
H11	MAS → PEOU	0.103	0.019	Supported
H12	MAS → PU	0.097	0.176	Not supported
H13	MAS → TRUST	-0.337	***	Supported
H15	COL → PEOU	0.438	***	Supported
H16	COL → PU	-0.043	0.631	Not supported
H17	COL → TRUST	0.337	***	Supported
H19	PD → PEOU	-0.069	0.083	Not supported
H20	PD → PU	-0.139	0.023	Supported
H21	PD → TRUST	0.178	0.003	Supported
H23	LTO → PEOU	0.824	***	Supported
H24	LTO → PU	0.270	0.022	Supported
H25	LTO → TRUST	-0.311	0.007	Supported

Table 9. Direct Correlation between Cultural Dimensions and Behavioral Intention (BI) to Use E-commerce.

Proposed relationship	Path Coefficient β	P-value	Significance
LTO → BI	0.102	0.05	Significant
PD → BI	–0.114	0.05	Significant
MAS → BI	–0.106	0.053	Significant
UA → BI	–0.084	0.055	Not Significant
COL → BI	0.017	0.81	Not Significant

Table 10. Standardized Effect (path coefficient) of PU, PEOU, and TRUST on BI as Reported by Similar Studies.

Country	PEOU→PU	PEOU→ TRUST	PU→BI	PEOU→BI	TRUST→BI
Palestine	0.407	0.239	0.374	0.260	0.341
China[1]	0.415	0.590	0.465	0.198	0.450
Italy[2]	0.504	0.518	0.744	0.474	0.647
Sweden[3]	0.497	0.119	0.217	0.111	0.395
USA[4]	*0.550*	*0.280*	*0.400*	*0.250*	*0.260*

[1] [89], [2] [12], [3] [83], [4] [23],

Discussion

Summary of results

This research features the significance of individuals' culture in shaping the acceptance level of online shopping among Palestinians. The study empirically demonstrates that the attitude towards E-commerce is predominantly shaped by consumers' cultural beliefs and mindsets. All direct relationships proposed by the model among PEOU, PU, and TRUST from one side and BI from the other, were supported. 64% of the intention variability to transact online was explained by the model. The value of R^2 (0.64) reported by this study is comparable with the result reported by Gefen et al. (2003), with a value of 0.61 for BI to use E-commerce. Other studies reported smaller values; for example, Adapa (1970) reported a value of 0.459 for Indians living in Australia. The intention to use E-commerce (BI) is dominated by the impact of both TRUST ($\beta = 0.341$, $p< 0.05$) and PU ($\beta = 0.374$, $p< 0.05$), and to a lesser extent by PEOU ($\beta = 0.260$, $p< 0.05$). This implies that customers' intention to transact online depends primarily on TRUST and the two main factors defined by TAM; PU and PEOU. This confirms the conclusion reached by Gefen et al. (2003) for the need to incorporate TRUST in modelling the people's intention to transact online. As is exhibited by Table 10, which contrasts our results with those from similar studies, there exist some discrepancies as to the strength of PU, PEOU and TRUST in BI to transact online. However, trends of all studies move in the same directions; PU and TRUST do have stronger influence on shaping BI than does PEOU. Table 10, furthermore, demonstrates that the impact of PEOU is predominantly mediated by both PU and TRUST.

Additional significant inference out of this study is that the mediated (indirect) effects of the cultural dimensions; LTO, PD, MAS, UA, and COL, via PU, PEOU, and TRUST, on BI are higher than their direct impact on BI. As is shown by Table 11, the major part of the cultural impact on BI is mediated via PU, PEOU and TRUST, and the direct impact of these variables on the BI is marginal.

Table 11. Standardized Effects (total, direct, and indirect (via mediators) on the Overall Variability of BI to Use E-commerce.

Cultural dimension/effect	Direct effect	Indirect effect	Total effect
LTO	0.102	0.092	0.194
PD	–0.114	–0.142	–0.256
MAS	–0.106	0.261	–0.155
UA	–0.084	–0.293	–0.377
COL	0.017	0.10	0.117
PEOU	0.106	0.154	0.26
PU	0.374	0.000	0.374
TRUST	0.341	0.000	0.341

Among the strongest cultural dimensions to influence people's attitude negatively to transact online is UA. A total effect of -0.377 is recorded, of which -0.293 is indirect, and -0.084 is direct. This implies that the more the respondent is uncertainty avoidant, the more he/she is anxious to transact online. This is reasonable, especially in societies that consider technology risky and ambiguous. These findings are in agreement with those reported by Capece and Campisi, 2013; Wahlberg, 2015; Yoon, 2009. The next strongest cultural dimension is PD, with a total effect of - 0.256, of which - 0.142 is indirect, and - 0.114 is a direct impact on BI. The focus is more towards trust and usefulness of the technology rather than its ease of use. The remaining culture dimensions of LTO, MAS, and COL, do have moderate but significant moderated impact on BI, which again proves that culture is indeed a significant factor that needs to be accounted for when deciding to model any Internet technology adoption.

Theoretical implications

Within the Arabian and developing countries context, studies dealing with technology acceptance, especially E-commerce, are very limited. To our knowledge, the impact of cultural dimensions on the acceptance of E-commerce within the Arabian context has not been studied. This study strives to fill this gap. Most importantly, it serves as a benchmark to analyze the effect of domestic culture on e-banking, e-learning, e-voting, e-government, etc., within the context of developing and Arabian countries. Additionally, this study is the first of its kind that examines the acceptance of E-commerce empirically, using a modified version of TAM (Gefen et al., 2003) within the Palestinian context, as an instance of the larger Arabian context. From the empirical validity of TAM perspective, the model was found to be accepted within the Arabian culture in general and the Palestinian culture in particular, in the field of E-commerce. Moreover, TRUST was found crucial in determining the acceptance level of E-commerce transactions among Palestinians, in addition to PU and PEOU. Interestingly, the study shows that PU has a greater effect on intention to use E-commerce systems, compared to PEOU. This indicates that PU, PEOU and the new factor added to TAM, TRUST, might have different mediating strength according to the technology under consideration. For example, PEOU has stronger mediating impact than PU when e-learning is considered, see (Tan, Tyler, and Manica, 2007; Tarhini et al., 2016).

Practical Implications

On a practical level, the findings of the study can be divided into three major domains. Firstly, businesses that work in the area of online shopping within the Arabian context in general and the Palestinian context in particular, can employ the guidelines offered by this study to improve their understanding of the factors that shape consumers' acceptance of online shopping and therefore enhance the success rate of online businesses. When owners/managers appreciate the role of domestic culture, attitudes and values of shoppers and take that into account when designing their websites and in their online business processes, this will boost the percentage of their potential customers. Secondly, this study also identified the key factors in uplifting E-commerce adoption and diffusion among Arabs. The study emphasized the centrality of usefulness, ease of use, and trust, in deciding the intention to use online shopping websites. The increase of both PU, and PEOU will boost the intention to use these websites. Reducing the transaction cost, time, and increasing the choices are among the options that can be used to leverage usefulness of E-commerce. PEOU can be boosted by focusing more on website interactivity, content and quality of websites in general. Thirdly, as is reported in the result section, the level of Trust among Palestinians is 54%, which is rather low, and needs to be taken care of. This can be explained by the high level of UA, reported by Hofstede (2001) to be between 60 – 80. The high level of UA among Palestinians makes them less open to accept innovations, and works to reduce their level of acceptance of E-commerce. As is reported by Capece and Cammpisi (2013) well-designed websites, clear and transparent payment systems, clear stated policies regarding the privacy of personal information, clearly stated cost of goods and services, are among the issues that increase Trust in websites.

Limitations

Like any other research, findings must be considered in light of some key limitations. Firstly, this study used a non-probabilistic convenient sample of respondents, which might impact the generalizability of the findings. Generalizability to other Arabian countries should be treated with caution, since culture dimensions do fluctuate from one country to another. Secondly, this study stresses the effect of culture on socio-psychological factors associated with E-commerce acceptance; namely; usefulness, ease of use and trust. Thus, it does not inspect the impact of other factors such as social norms, ICT skills and competencies, E-commerce infrastructure and government rules, on behavioral intentions to adopt E-commerce.

Additional Research

This research could be extended towards including more cultural dimensions rather than those reported by Hofstede. Other cultural models (Edward, 1966; Smith, Dugan, and Trompenaars, 1996) could be used to create a more accurate model. Adding social factors like specific social norms; quality of work life (Tarhini et al., 2016), and familiarity, structural assurance, and situational normality (Gefen et al., 2003), to the model could result in increasing the accuracy and explanatory power of the model. These factors may act as determinants in addition to a set of individual differences, that

allow us to understand how the customers make their decisions to transact online.

Conclusion

The primary objectives of this study are to investigate the impact of some cultural norms on Palestinians' intention to use E-commerce, and to examine the mediating effects of perceived ease of use, perceived usefulness, and trust on the relationship between cultural dimensions and consumers' intentions to transact online. The study was also meant to test the modified version of TAM (Gefen et al., 2003) within the Palestinian cultural settings. The model was able to explain 62% of the total variability of the consumers' intention to use E-commerce websites. Compared to the literature reviewed, this value appears to be among the highest reported, which signals a high level of accuracy of the proposed model. Uncertainty avoidance, power distance and long term orientation were found to be powerful cultural dimensions in affecting the intention to transact online. The study comes at a time when individuals and organizations in contemporary times are investing significant resources in building, purchasing and implementing E-commerce systems. Simultaneously, the percentage of online shopping in comparison with brick and mortar shopping is still far too low (Schoenbachler and Gordon, 2002). Therefore, intrinsic culture has a role to play in this arena, and the findings from this study can play an important role in minimizing resistance to transact online, and maximizing effective utilization of these websites.

Notes

1. http://www.tradearabia.com/news/IND_356944.html
2. https://gulfbusiness.com/covid-19-impact-how-should-retail-respond-to-the-fourth-industrial-revolution/

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