

## **The Effect of Digital Literacy and Website Quality on Purchase Intention in Internet Shopping through Mediating Variable: The Case of Internet Users in Palestine**

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### **Abstract**

Although the Internet using rate is increased exponentially, many Palestinians are still hesitant to adopt online shopping. Given the significant advantages of online shopping for both Internet users and e-retailers, it is necessary for them to know the key determinants and barriers influencing the adoption of the Internet in shopping. This study provides valuable insight into individuals' intentions towards online shopping. Specifically, it investigates the influence of website quality and digital literacy on individuals' intention towards online shopping based on the Palestinian perspective. The theory of stimulus organism response and social cognitive theory were employed to explain individuals' intention to shop online. The current research conducts structural equation modelling (SEM) to analyze data and employed a quantitative method. The sample size chosen was a representation of Internet users from different backgrounds. The individual respondents were used, and 387 respondents

participated in a survey through a questionnaire to collect data. The findings of the empirical analysis confirm that website quality, digital literacy, and trust contribute to positively influencing individuals' intentions towards online shopping. The results also reveal that website quality and digital literacy enhance individuals' trust in the e-commerce context. The mediating effect of trust between website quality, digital literacy and online purchase intention is identified.

## **Keywords**

Digital Literacy, Website Quality, Trust, Online Purchase Intention, Palestine.

## **Introduction**

Industrial era 4.0 or The Fourth Industrial Revolution is when digital technology was progressively utilized in various fields, which revolutionized how the entire business operates and grows. It bridges the physical with digital technology, enabling better collaboration and access across partners, e-retailers, products, and customers. This directly impacts people's lifestyles, business methods, and economic growth in general, for example, the shifting from brick and mortar to click and mortar shopping. Based on a report published by Internet world statistics (2021), the total number of active Internet users is 5.168.780 billion on March 31, 2021, which forms a 65.6% penetration rate of the population worldwide and a 1.132% increased growth compared to 2000.

In Palestine, the number of people using the internet has also increased exponentially. In fact, according to the Palestinian Central Bureau of Statistics (PCBS, 2019) report, the internet penetration rate for individuals in Palestine has risen from 64.4% in 2018 to 72.3% in 2019. In addition, 79.6 percent of households in 2019 had access to the Internet at home, up from 51.7 percent in 2017. (PCBS, 2019). This widespread adoption of internet technologies and their improvements has a revolutionary impact on individuals' daily lives and has an evident and significant influence on sustainable business development.

The widespread of the Internet and the improvement of information and communication technologies have encouraged the growth of new business models, such as e-business models. In this regard, Mosunmola et al, (2019) revealed that the expanded Internet penetration to different groups of people had expedited global integration into B2C e-commerce. However, although the online shopping phenomenon spans almost two decades in the developed countries, it is still in its infancy stage in developing countries,

including Palestine, due to several factors that construct some constraints to individuals for integration into online shopping.

From the standpoint of customers and in comparison with brick and mortar (i.e., traditional shopping), brick and click (i.e., online shopping) have several benefits and advantages. Through the literature review, online shopping has two significant advantages for both customers and online retailers. From the consumers' side, online shopping provides the convenience of shopping in terms of place and time where consumers have a convenient place to shop from any place and a comfortable time to shop 24 hours a day. Consequently, it provides consumers with an opportunity to save money, time, and effort when shopping for a product or service. For example, it allows for easy and efficient price comparisons among online retailers for a specific product. Furthermore, online shopping provides notable advantages and benefits to online retailers, such as simplifying the way to reach their customers and attract more potential customers, thus, increasing their revenue.

This study investigates the Internet users' intentions toward adopting online shopping in Palestine, a developing country. According to the Palestinian Central Bureau of Statistics (PCBS, 2019) report, Palestine has an adequate and proper infrastructure to adopt online shopping; for example, 79.6% and 86.2% of households have internet access and smartphone, respectively. Furthermore, 3G technology was activated in 2018, and 72.3% of individuals are using the Internet. However, on the other side, most Palestinians are not interested in adopting online shopping as much as 75.2%, and even 33.2% do not have knowledge or skills concerning shopping online. Furthermore, 73.7% prefer to shop in person (i.e., traditional shopping), 44% have trust concerns about shopping online, and only 8.1% of Internet users in Palestine participated in online shopping transactions. As a result, this might be viewed as an empirical gap, which this study aims to fill by identifying the critical factors preventing Palestinian Internet users from shopping online.

Over the last decade, B2C e-commerce research has focused heavily on online purchase intention, which has become one of the most leading areas of study. The individuals' intention is regarded as an actual indicator of how individuals are willing to adopt new digital technology and how frequently they attempt to utilize a particular behavior (Ajzen, 1991). In that senesce, according to Day (1976), evaluating customers' intentions is more powerful than tracking their actual behaviors in capturing what is in their minds towards adopting a particular technology because of some constraints yielded during the actual purchase transaction. Consequently, investigating the individuals' intentions to shop online in this study will express the influence of individual's attitudes on their willingness

toward Internet shopping. According to Howard and Sheth (1970), individuals' online purchasing behavior is related to deciding what products to shopping using the Internet, represented by a cognitive state identified as online purchase intention. Through the literature content analysis, most researchers defined the intention towards online shopping with nearly the same meaning. For example, Pavlou (2003) defines online purchase intention as "the desire and intent to purchase services or products over the internet."

This research aims to determine whether website quality, digital literacy, and trust influence internet users' intention to shop online and investigate whether the trust variable has a mediating role in the relationship between website quality, digital literacy, and customers' intention towards Internet shopping. Although, several studies have been carried out to explore the critical factors that impact customers' intention towards Internet shopping in the developed countries. For example, Spain (Rodriguez and Fernandez, 2017). However, limited studies have investigated customers' intentions toward adopting Internet shopping in developing countries like Palestine. Consequently, as the Internet shopping phenomenon is still in its early fancy in Palestine, it is crucial to determine the critical factors affecting customers' intentions to purchase through the Internet.

In addition, this research explores internet users' intentions to shop online based on the stimulus-organism-response (SOR) paradigm and social cognitive theory (SCT); a comprehensive model is developed to explore the influence of website quality and digital literacy on customers' intention towards Internet shopping. The circumstances of online retailers' websites are full of stimuli related to e-commerce. Consequently, we postulated that website quality (S) has an influence on Internet users' internal states (O), such as trust, which in turn will influence Internet users' intention to shop online (R). Furthermore, the concept of self-efficacy is extended to include digital literacy in the context of e-commerce. It represents internet users' judgments of their abilities to organize and perform an online shopping transaction. Therefore, we postulated that digital literacy self-efficacy for online shopping means the belief of Internet users that they can do the entire sequence of actions required to adopt Internet shopping.

Furthermore, the current study provides empirical validation for the determinants that impact customers' intention towards Internet shopping. In this regard, we examine how website quality in terms of functional fit-to-task (The extent to which individuals believe the website meets their necessities), information quality (The provided information by the website is appropriate, accurate, and updated), tailored information (Communications can be tailored to the needs of the individual), and response time (Time to get a response to an interaction with a website) affects Internet users' intention to shop online. Furthermore,

we investigate how digital literacy in terms of technical (having the operational and technical skills necessary to use ICT for learning and daily activities), cognitive (ability to think critically in handling the cycle of search, evaluate and create digital information), and socio-emotional (being able to communicate, socialize, and learn through responsibly using of the internet) influence online purchase intention. Finally, we investigate how trust mediates the path between website quality, digital literacy, and customers` intention towards Internet shopping. As a result of the current research, the following questions will be addressed:

1. Does website quality have an impact on customers` trust and intentions towards online shopping?
2. Does digital literacy have a substantial effect on customers` trust and intentions towards online shopping?
3. What effect does trust have on customers` intention towards online shopping?
4. Does the trust have a mediating role in the relationship between digital literacy, website quality and customers` intention towards Internet shopping?

## **Literature Review**

### **Website Quality**

A website can be described combination of information cues that are grouped into two categories: intrinsic cues (website's attributes) and extrinsic cues (reputation). In other words, online shoppers are influenced in their decision-making process while online shopping transactions by external and internal stimulus determinants of the website (Lwin and Williams, 2006). This study focuses on the intrinsic cues, such as functional fit-to-task, information quality, tailored information, and response time adapted from Ahn et al (2007). Because the web storefront is regarded as the primary interface to communicate between individuals and the online stores, it is crucial to examine the website quality features of the online retailer's website and what individuals expect from the website. In this regard, Aladwani and Palvia (2002) defined customers' perception of website quality as individuals` evaluation of website features that meet their needs and influence its overall excellence.

In addition, website quality is essential and plays a significant determinant in Internet shopping because individuals` perceptions of a website's quality influence their intentions towards Internet shopping (Bai et al, 2008). Furthermore, McKnight et al (2002) stated that the customer's perception of an online retailer's website to be high quality in terms of information quality would undoubtedly influence their trust in that online retailer's

integrity, benevolence, and competence, which positively impacts their intention to shop online through this website. Accordingly, the following hypothesis has been formulated.

*H1: There is a relationship between website quality and trust.*

*H1a: There is a relationship between website quality and online purchase intention.*

## **Digital Literacy**

The concept of digital literacy has emerged due to the development of digital technology and information, bringing the current generation into the digital literacy world. Paul Gilsters proposed the concept of digital literacy (DL) in the late 1990s, in 1997 precisely. In addition, digital literacy refers to individuals' ability to find, evaluate, manage, and adopt the new technology requiring both cognitive and technical skills to be able to use media for communication, marketing, and shop online for goods and services (Ng, 2012).

Furthermore, digital literacy is based on the digital divide concept to indicate the individuals' ability to access the digital technology environment and its use. According to Goulding (2001), digital literacy is the individual's ability to use the Internet to locate, assess, and utilize digital information to get benefits by receiving a large volume of information. It includes both hardware devices (e.g., computer) and software applications (e.g., services). According to Meyers et al (2013), an individual with an illiterate in digital technology is less likely to become a motivated employee and to be engaged in various electronic environments such as "e-learning," "e-commerce," and "e-government." Furthermore, previous studies have shown that digital literacy have a significant effect on trust. For example, (Octavia and Tamerlane, 2017) explained that digital literacy enhanced trust. The following hypotheses have been developed in this regard:

*H2: There is a relationship between digital literacy and trust.*

*H2a: There is a relationship between digital literacy and online purchase intention.*

## **Trust**

Trust has many definitions depending on the related context; however, as Mayer and Davis (1995) proposed, trust's most commonly cited definition in a different context is the "willingness to be vulnerable." For example, in the B2C e-commerce context, Chopra and Wallace (2002) define trust as the individual's willingness to depend on a specific other based on the belief that one's trust will result in positive outcomes such as receive the promised products. Furthermore, another definition for trust in online shopping proposed by Lim et al (2006) is "individuals' willingness to be exposed to the risk of loss during an online shopping transaction."

In addition, in e-commerce, social context plays a prominent role in influencing an individual's intention to online and traditional shopping transactions alike, but it is less evident in the latter business method (Hamutoglu and Sezen-gultekin, 2019). Accordingly, an insufficient and inaccurate representation of an individual's intention can be an inevitable result if ignoring the influence of social factors. Thus, it could not observe customers' expectations behaviors while performing online shopping. In this regard, trust is considered one of the social contexts features essential in developing e-commerce. Furthermore, it can play a key and essential factor in reducing individuals' uncertainty to make the final transaction in Internet shopping. Therefore, online retailers must consider the influence of the social context on their customers while designing their websites. Furthermore, trust in the website of e-retailers can increase individuals' intention to purchase products or services from it and plays a critical predictor as it is one of the most influential factors for reducing customers' uncertainty and risk in Internet shopping (Corbitt et al, 2003). Accordingly, the following hypothesis has been proposed:

*H3: The greater trust in a website, the more online purchase intention of customers.*

### **Online Purchase Intention**

Nowadays, due to the widespread Internet and enormous technological advancement, shopping through the Internet is more integrated into an individual's life. This new form of online business is changing individuals' purchase behavior and decision-making, resulting in new opportunities and challenges for the study of individual's intentions towards shopping online. Furthermore, one of the most studied factors in the business research field, mainly marketing and management, is individual purchase intention. In this regard, individuals' intention to shop online can be regarded as the individual's willingness to search for relevant information and select the preferred products or services (Wang et al, 2015). In the field of Internet shopping research, several empirical studies have demonstrated the significance of individuals' intention to adopt online shopping. Furthermore, these studies also identify several factors that influence individual online purchase intentions.

### **Stimulus Organism Response (SOR)**

Mehrabian and Russell (1974) developed the stimulus organism response model (SOR) in environmental psychology, which has been used in various online shopping contexts to explain the individual's internal states reactions and behavioral responses to environmental cues. Furthermore, part of this study's conceptual framework is built on the S-O-R paradigm, which describes how the different aspects of the environment as stimuli

(S) influence individuals' internal organisms (O), and thus, affect their behavioral responses (R). In the context of online shopping, stimuli refer to the online retailers' website features (Eroglu et al, 2001). Furthermore, the organisms that mediate the relationship between the stimulus and the individual's responses are related to internal processes, including individuals' internal states, perceptions, and evaluations. Finally, the response represents the final outcome of an individual's behaviors, such as accepting or rejecting behaviors. Accordingly, the current study postulated that website quality (stimuli) positively influences Internet users' trust (organism), which in turn impacts their purchase intention for shopping online (response).

### **Social Cognitive Theory (SCT)**

Bandura formulated Social Cognitive Theory (SCT) in 1986 to explain how individuals acquire and maintain specific behavior while it affords the basis for intervention strategies. Self-efficacy is regarded as one of the main concepts of SCT and has a significant determinant of individuals' task performance that has several psychological and behavioral effects in several of human psychosocial functioning (Bandura, 1986). Bandura specifies self-efficacy as "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances." Furthermore, according to Bandura (1986), the individual's previous direct experience explains self-efficacy. This experience is the most influential source of information and the most robust generator of self-efficacy that refers to the abilities gained through Internet interaction.

It would seem logical to expect that individuals with more navigation experience and more frequently access the Internet should have more self-efficacy and are more likely to prefer online shopping. Many researchers employ the SCT in different empirical studies concerning the patterns of IT usage to understand and predict the individuals' behavior change, mainly the behavior changes result from the interaction between personal and environmental conditions. In this regard, SCT advocates that adopting new technology requires both the benefits provided by technology and the individuals' skills and trust concerning the related technology (Bandura, 1986). Furthermore, several studies demonstrated that self-efficacy plays essential predictors that directly impact an individual's intention and actual use of a system (Hernandez et al, 2009). Therefore, digital literacy self-efficacy for online shopping is the individuals' judgment that they can effectively perform an online purchasing transaction. In other words, an individual with high digital literacy self-efficacy will have a high perception of their ability to shop online, perceive they can adopt new technology, and have more intention to shop online.



## **Method**

Logically, every research has a set of objectives and questions, and thus, the researcher should employ a proper research method to achieve these targets. In that sense, the current study was developed under the positivist paradigm as it aims to explore, identify, and investigate the influence of critical determinants on Internet users' intention towards Internet shopping in a developing country perspective like Palestine. In addition, the research design is a plan for gathering, measuring, and analyzing data to find a proper solution to the proposed problems. As a result of focus group discussions, three constructs were selected and included in this research's model: website quality, digital literacy, and trust. Through the literature review and after conducting content analysis, the outcome widely acknowledged these determinants as impacting individuals' behavioral intention to accept new technology and integrate into e-business. As this study relied on grounded theory and previous literature related to the phenomena of online shopping, it employed a deductive approach (i.e., quantitative) with survey methodology to achieve this objective. The study adopted a self-administered survey of 660 questionnaires to collect the relevant data to cover Palestinians of different backgrounds, ages, genders, incomes, hours per day using the Internet, and year's internet experience. The questionnaire items employed with the supporting literature to measure the models' constructs were adopted from previously validated measures. It contains 31 items representing digital literacy (9 items), website quality (9 items), trust (9 items), and online purchase intention (4 items). It is popular in quantitative research to use Likert scale in psychometric questionnaire design to provide relevant data. Therefore, 7-Point measurement scales (1 = "strongly disagree" to 7 = "strongly agree") is employed in this study to measure the respondents' responses.

The present study is designed to examine how individuals (i.e., unit of analysis) perceive the integration into online shopping. In this regard, the target population is Palestinian Internet users as the research subject for the current study. Research methodology has two major elements, which are data collection and data analysis procedures. Regarding the collecting data, the research sample was set to reach university academics, administrative staff, and students, employees from different ministries and banks. Therefore, this study uses a nonprobability-based sampling method with a purposive sampling technique as the most proper approach to achieving this research's objectives. The sample size is calculated by using the ten times rule to obtain the minimum limit for the number of samples. For example, the dependent variable with the most structural paths in this study is online purchase intention (OPI), with three independent variables. Therefore, the required sample size for the current study is 50 (i.e.,  $10 \times 5$ ) as the minimum. A total of 400 questionnaires were returned, making the response rate 60.6% (i.e.,  $400/660 \times 100$ ), of which 13 questionnaires were removed from the further analysis due to the missing data (4) and

suspicious response patterns (9), generating an adjusted response rate of 64.5%. Therefore, 387 questionnaires were valid and will be used for further statistical analysis in this study. Concerning the data analysis, structural equation modeling (SEM) was employed in the current investigation to analyze the collected data, to test the reliability and validity of the items and constructs, and to test the hypotheses. Furthermore, PLS-SEM has a remarkable ability to process complicated models, including measurement and structural models with multi-item variables with direct and indirect effects. Therefore, PLS-SEM is a proper statistical method for prediction and becoming increasingly beneficial in interpreting complex behavior studies and is being used to improve the explanatory capacity of the major proposed constructs and their relationships. Based on that, as this study is quantitative explanatory research, thus is selecting PLS-SEM.

## **Result and Discussion**

Structural Equation Modeling (SEM) is the second generation of statistical techniques to simultaneously test and estimate relationships among independent and dependent variables of multi-variable models. Partial Least Square (PLS), a variance-based technique, is an approach of SEM that can be carried out using the statistical package SmartPLS software. The current study employed the SmartPLS application to perform the statistical analysis and test the hypothesized relationships. The SEM as a statistical technique assesses the research model through two main model testing procedures: the measurement model (outer model) and the structural model (inner model).

### **Assessment of the Measurement Model (Outer Model)**

The measurement model indicates the relationships between the latent variables and their associated indicators or items. The aim of assessing the measurement model is to determine the latent variables' convergent and discriminate validity and the items' reliability. In that senesce, PLS-SEM software has four criteria to achieve these objectives through running PLS algorithms: "Item Reliability" (Factor Loading), "Internal Consistency Reliability", "Convergent Validity", and "Discriminate Validity".

Item reliability refers to the consistency of a set of items (variables) or how well they measure the same thing. In other words, it indicates the variance explained by the variable on that particular item. The item reliability of each measure was assessed employing the underlying construct's factor loading. Based on the results of running SmartPLS, Table 1 represents the factor loading for each item. Out of 31 reflective items, only one item was not reached the accepted threshold value (i.e.,  $<.5$ ). According to Hulland (1999), items with a factor loading  $<0.5$  should be deleted, a commonly used threshold for factor

loading analysis. Therefore, item DL8 (-0,105) was excluded for further analysis because its factor loading was less than 0.5 and negative. The remaining 30 items were with a factor loading of 0.5 or above; the AVE of each variable was higher than 0.50 as well, indicating satisfactory item reliability and meeting the acceptance criteria for convergent validity. Specifically, according to Hair et al (2013), the greater value of factor loading that an indicator has indicated a higher level of its reliability. Put differently, the measurement model for this study possessed sufficient convergent validity.

Furthermore, internal consistency reliability refers to the extent to which all items can measure the same phenomenon. Both criteria of “Cronbach’s alpha” and “composite reliability” (CR) are used to test reliability. In this regard, it was addressed that there is a key difference between the two criteria; Cronbach’s alpha considers that the entire items have an equal outer loading on the latent construct, but composite reliability prioritizes the items according to their individual reliability. In addition, Henseler et al (2009) demonstrated that composite reliability is a better alternative than Cronbach’s Alpha in measuring internal consistency reliability. As presented in Table 2, the “Cronbach’s alpha” and “composite reliability” (CR) of all the constructs exceeded 0.70, which reached the recommended criteria. The Cronbach alpha values ranged from 0.849 to 0.886 and composite reliability from 0.883 to 0.911; thus, the internal consistency reliability for the measurement model is established for this study. Table 2 summarizes these outcomes.

**Table 1 Factor Loadings**

Variables	Items	Initial Factor Loading	Revised Factor Loading
Digital Literacy (DL)	DL.1	0,724	0,723
	DL.2	0,734	0,734
	DL.3	0,819	0,819
	DL.4	0,809	0,809
	DL.5	0,848	0,847
	DL.6	0,820	0,820
	DL.7	0,705	0,705
	DL.8	-0,105	Deleted
	DL.9	0,507	0,507
Online Purchase Intention (OPI)	OPI.1	0,818	0,818
	OPI.2	0,839	0,839
	OPI.3	0,831	0,831
	OPI.4	0,847	0,847
Website Quality (WQ)	WQ.1	0,681	0,510
	WQ.2	0,602	0,722
	WQ.3	0,529	0,740
	WQ.4	0,680	0,730
	WQ.5	0,715	0,782
	WQ.6	0,804	0,713
	WQ.7	0,708	0,651
	WQ.8	0,698	0,528
	WQ.9	0,730	0,672
Trust (TR)	TR.1	0,510	0,681
	TR.2	0,722	0,602
	TR.3	0,740	0,529
	TR.4	0,730	0,680
	TR.5	0,782	0,715
	TR.6	0,713	0,804
	TR.7	0,651	0,708
	TR.8	0,528	0,698
	TR.9	0,672	0,730

**Table 2 Values for CR, Cronbach's Alpha, and AVE**

Variables	Composite Reliability (CR)	Cronbach's Alpha	AVE
DL	0,911	0,886	0,567
OPI	0,901	0,854	0,695
Trust	0,888	0,858	0,718
WQ	0,883	0,849	0,596

The current study employed the criterion developed by Fornell and Larcker aimed at investigating the discriminant validity for the constructs related to the study's research model. Fornell and Larcker's criterion performs its core role by comparing the square root values of the AVE with the latent construct correlations. Specifically, discriminant validity is established only if the square root of each latent variable's AVE is greater than its highest correlation with any other latent variable within the model. Another approach to interpreting the results of Fornell and Larcker is by comparing the AVE for each construct with other constructs' AVE values. Thus, if a particular construct's AVE is larger than the other constructs' AVE, then discriminant validity is established. The logic behind the Fornell- Larcker approach in assessing the discriminant validity is that a latent variable shares more variance with its related items than any other latent variable. Table 3 shows the square root of the AVE, which are displayed in bolded diagonal values, whereas the non-bolded (off-diagonal) values represent the inter-correlation values among constructs.

**Table 3 Discriminant validity: Correlation Matrix of Latent Variables**

Construct	DL	OPI	TR	WQ
<b>DL</b>	<b>0.753</b>			
<b>OPI</b>	0.522	<b>0.834</b>		
<b>TR</b>	0.550	0.539	<b>0.847</b>	
<b>WQ</b>	0.507	0.533	0.614	<b>0.772</b>

**Legend:**

DL: Digital Literacy, WQ: Website Quality, TR: Trust, OPI: Online Purchase Intention

As seen from the above table, all square root values of the AVE for a particular construct represented by the bold diagonal values are larger than the inter-correlation values in their corresponding at the column level. For example, the square root of DL's AVE value (=0.753) is greater than DL's highest correlation in the column with TR (=0.550). Furthermore, all the constructs have a better loading on their corresponding construct than the move loadings on the other constructs in the model. Therefore, this indicates that the discriminant validity of the measurement model at the construct level of the current study is established (i.e., constructs are unique).

**Assessment of the Structural Model (Inner Model)**

After the reliability and validity of the measurement model are confirmed, the next step is to evaluate the proposed structural model. The structural model illustrates the relationships among the latent variables. The aim of assessing the structural model is to define the significance of the causal paths associated with the hypotheses (Henseler et al, 2009). Five essential criteria assess the structural model: “Coefficient of determination ( $R^2$  value)”, “Effect size ( $f^2$ )”, “Predictive Relevance ( $Q^2$ )”, “Goodness of Fit of the Model (GoF),” and Hypothesis testing. The inner models' scores (i.e., Path coefficient value) define the significance level in hypothesis testing, indicated by the T-statistic value that should be greater than 1.64 at a p-value less than or equal to 10% for the one-tailed hypothesis. Table 4 below shows the threshold values recommended in the current research.

**Table 4 Threshold Values for Structural Model Measures**

Criteria	Range	Value	Reference
Coefficient of determination ( $R^2$ )	Above 0.67	High	Chin (1998)
	Between 0.33-0.67	Moderate	
	Between 0.19-.0.33	Weak	
	Below 0.19	Not acceptable	
Effect size ( $f^2$ )	Above 0.35	Large effect	Cohen (1988)
	Between 0.15-0.35	Medium effect	
	Between 0.02-0.15	Small effect	
	Less than 0.02	NO effect	
Predictive Relevance ( $Q^2$ )	More than zero	Has predictive relevance	Hair et al, (2013)

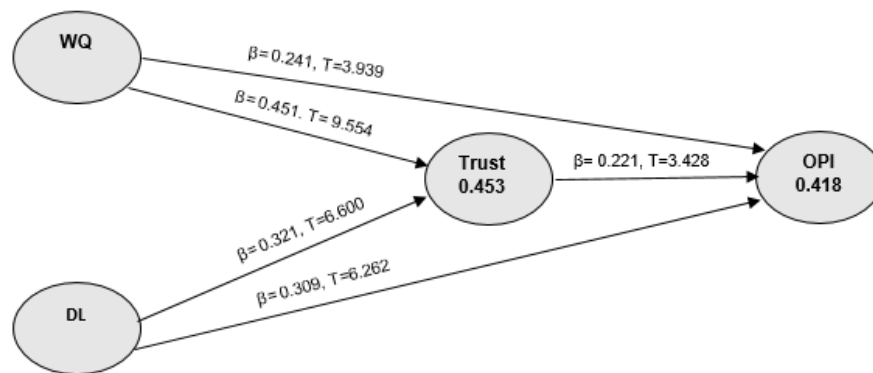
Using the statistical package SmartPLS, Bootstrapping procedure was applied to evaluate the structural model relationships. The evaluation of the path coefficient demonstrates to what extent the relationship between the independent and dependent variable is strong, thus rejecting or supporting the research hypothesis (Hair et al, 2013). Three features associated with path coefficient should be identified by researchers while applying the SmartPLS software, which are the algebraic sign, magnitude, and significance of the path (Henseler et al, 2009). The algebraic sign could be positive or negative, indicating that the theoretically hypothesized relationships are supported or not supported respectively. The magnitude value for the path coefficients has a standardized value ranging from -1 to +1, indicating a negative or a positive relationship. In addition, concerning the significance of the path, the path coefficient ( $\beta$ ), T-statistics, and their corresponding P-values determine to reject or support the research hypothesis related to this study. The results demonstrated that all structural relationships were supported and are significant ( $p < 0.05$  or  $p < 0.001$ ), as shown in Table 5 and Fig.1.

**Table 5 Summary of Hypotheses Testing Results**

No.	Path Relationship	Path Coefficient	t-statistic	P-value	Results
H1	WQ → TR	0.451	9.554***	0.000	Supported
H1a	WQ → OPI	0.241	3.939***	0.000	Supported
H2	DL → TR	0.321	6.600***	0.000	Supported
H2a	DL → OPI	0.309	6.262***	0.000	Supported
H1b	WQ → TR → OPI	0.100	3.417***	0.002	Supported
H2b	DL → TR → OPI	0.081	3.094***	0.002	Supported
H3	TR → OPI	0.221	3.428***	0.000	Supported

\*\*Significance at t-value  $\geq 1.96$  with  $p \leq 0.05$ , \*\*\* Significance at t-value  $\geq 2.58$  with  $p \leq 0.01$ .

**Legend:** DL: Digital Literacy, WQ: Website Quality, TR: Trust, OPI: Online Purchase Intention



**Figure 1 The Final Results of the Research Model**

Based on the final estimated results of the structural model (Fig.1), it can be concluded that all the research hypotheses of this study are supported. The following is a brief explanation of the hypotheses` results:

- H1: “There is a relationship between website quality and trust.” ( $\beta = 0.451$ , t-value= 9.554,  $p = 0.000$ ). Thus, H1 is supported.
- H1a: “There is a relationship between website quality and online purchase intention.” ( $\beta = 0.241$ , t-value= 3.939,  $p = 0.000$ ). Thus, H1a is supported.
- H2: “There is a relationship between digital literacy and trust.” ( $\beta = 0.321$ , t-value= 6.600,  $p = 0.000$ ). Thus, H2 is supported.
- H2a: “There is a relationship between digital literacy and online purchase intention.” ( $\beta = 0.309$ , t-value= 6.262,  $p = 0.000$ ). Thus, H2a is supported.

- H1b: “There is a positive relationship between website quality and online purchase intention mediated by trust.” ( $\beta = 0.100$ ,  $t\text{-value} = 3.417$ ,  $p = 0.002$ ). Thus, H1b is supported.
- H2b: “There is a positive relationship between digital literacy and online purchase intention mediated by trust” ( $\beta = 0.081$ ,  $t\text{-value} = 3.094$ ,  $p = 0.002$ ). Thus, it leads to acceptance of H2b.
- H3: “The greater trust in a website, the more online purchase intention of customers” ( $\beta = 0.221$ ,  $t\text{-value} = 3.428$ ,  $p = 0.000$ ). Thus, it leads to acceptance of H3.

The criteria of “coefficient of determination  $R^2$ ,” “effect size  $f^2$ ,” and “predictive relevance  $Q^2$ ” were evaluated as well. First,  $R^2$  has a value range from 0 to 1 that measures the predictive power of the research model. In other words, the value of  $R^2$  defines how much the entire independent constructs affect the endogenous constructs or the level of variance in the endogenous constructs that are explained by the independent variables (Hair et al, 2013). Following the criterion presented by Chin (1998), who proposed that  $R^2$  values higher than 0.67 are recognized as a high effect, while  $R^2$  values between 0.33 to 0.67, 0.19 to 0.33, or less than 0.19 for the endogenous variable are considered as moderate, weak, and unacceptable respectively. The  $R^2$  of the two endogenous constructs – TR and OPI were 0.453 and 0.418, respectively, which showed a moderate predictive power. Obviously, TR has 45.3% of the variance in the Internet users` trust to shop online, which is explained by digital literacy and website quality. Consequently, it can be concluded that those independent variables (i.e., Website quality and Digital literacy) influence Internet users` trust by 45.3%, and thus, 54.7% (i.e.,  $100 - 45.3$ ) are explained by other different constructs. Second, effect size  $f^2$  (F-test) is another criteria to measure the predictive power of the research model (Cohen, 1988). However, F-test measures how much each exogenous latent construct explains or contributes to a specific endogenous latent construct on its own. This study follows the suggested threshold criteria presented by Cohen (1988) concerning the assessment of  $f^2$  values. He demonstrated that the value of F-test is greater than 0.35 is regarded as a large effect size, while the values of F-test ranging from 0.15 to 0.35, 0.02 to 0.15, or less than 0.02 for the endogenous latent construct are identified as a medium, small, and no effect size respectively. The research model of this study has 5 paths concerning the  $f^2$ , four of them (WQ  $\rightarrow$  OPI, DL  $\rightarrow$  TR, DL  $\rightarrow$  OPI, and TR  $\rightarrow$  OPI ) are considered as small effect size as their  $f^2$  ranges from 0.02 to 0.15, and the other one (WQ  $\rightarrow$  TR) is regarded as medium effect size due to its  $f^2$  ranges from 0.15 to 0.35 (Cohen, 1988). Table 6 shows the results of the F-test for the paths of the research mode. Third, predictive accuracy  $Q^2$  “Indicates the model's predictive relevance which is called ‘Stone-Geisser's  $Q^2$  value’”. It was

evaluated by applying the Blindfolding procedure with a fixed value of omission distance ( $D=7$ ). The aim of evaluating the predictive relevance of  $Q^2$  of a particular research model is to define whether it has a predictive ability to predict what will happen to the dependent latent constructs. The cross-validated redundancy measures values for the two dependent latent constructs (OPI: 0.283; TR: 0.203) were all reached the thresholds ( $>0$ ), providing support for the path model's predictive relevance.

**Table 6 Results Effect Size  $f^2$**

Path	$f^2$	Effect Size
WQ → TR	0.277	Medium effect size.
WQ → OPI	0.058	Small effect size.
DL → TR	0.140	Small effect size.
DL → OPI	0.107	Small effect size
TR → OPI	0.046	Small effect size

**Legend:** WQ: Website Quality, DL: Digital Literacy, TR: Trust, OPI: Online Purchase Intention,  $f^2$ : Effect Size.

### Mediation Test

It is evident from previous studies that if the total effect of an independent construct on a dependent construct would be greater than its direct effect, then the researcher should consider the mediation effect. Accordingly, the findings of the further analysis of the PLS-SEM (bootstrapping procedure) concerning the indirect effect of the WQ and DL on OPI were presented (Table 7). To examine the mediation hypotheses (H1b and H2b), we applied the procedures proposed by Nitzl (2016), which indicated that if the indirect effect  $a \times b$  is significant, there is always a mediation effect.

**Table 7 Mediation Analysis of Trust**

	a	b	a*b		Total Effect (c)	
Hypothesis	Path coeff.	Path coeff.	Path coeff.	t-value	Path coeff.	VAF
WQ → TR → OPI	0.451	0.221	0.100	3.417***	0.340	0.29
DL → TR → OPI	0.321	0.221	0.081	3.094***	0.350	0.23

As shown in Table 7, the indirect effect of WQ on OPI is positive and significant ( $\beta = 0.100$  and  $t\text{-value} = 3.417$ ) at  $p < 0.05$ . Furthermore, the indirect effect of DL on OPI is positive and significant ( $\beta = 0.081$  and  $t\text{-value} = 3.094$ ) at  $p < 0.05$ . Furthermore, to ascertain the magnitude of the indirect effect, this study applied the variance accounted for (VAF) value that is calculated by finding the ratio of the indirect-to-total effect (Nitzl, 2016). The value of VAF defines to which extent the mediation effect explains the variance of the endogenous construct. According to Hair et al, (2013) VAF values have three scenarios



which are  $<20\%$ ,  $20\% \leq \text{VAF} \leq 80\%$ , and  $\text{VAF} > 80\%$ , indicating no mediation, partial mediation, and full mediation, respectively. Based on the calculation results of the VAF value (0.29, 0.23), which were between higher than 20% and less than 80%, and thus trust partially mediates the relationships between website quality, digital literacy and online purchase intention. The interoperation for this result is that the indirect effect explains about 29% and 23% of the WQ and DL's total effect on online purchase intention.

## **Discussion**

The main aim of this study was empirically to explore the determinants influencing individuals' intentions toward online shopping by extending the SCT and SOR. The outcomes promise to add to our knowledge about Internet users' intention in online shopping and define implications for developing effective online shopping transactions. Furthermore, the evaluation results of the measurement and structural model provide support to the proposed research framework. Overall, the outcomes confirm that the research models have predictive powers and explain Internet users' intentions toward online shopping. Online retailers and academicians may use the findings of this study to assess individuals' intention to shop online in the context of developing countries like Palestine. For example, online retailers can attract more potential internet users to shop online by developing an effective marketing strategy.

The findings of the current study, as expected and consistent with previous research, show that website quality has a positive impact on Internet users' intention to shop online (H1a is supported). This result is consistent with prior literature (Alsoud and Othman, 2018). From a managerial standpoint, when the individuals perceive that the online retailers' website has a proper level of quality, they will have a higher intention to shop online through that website. Furthermore, that is to say, the quality of a website will influence Internet users' intent, and trust plays a necessary mediator in the relationship between website quality and online purchase intention (H1b is supported). Again, this result is consistent with the study's results conducted by Bhawan and Nagar (2010). Therefore, to increase the individual's purchase intention, online retailers need to continually maintain and update websites to have a good quality website. In addition, they should keep an eye on the perceived trust as an essential and necessary intermediate stage when individuals consider an online purchase transaction.

Concerning the role of digital literacy, the empirical results revealed that digital literacy significantly influences an individual's intention towards online shopping (H2a is supported). Furthermore, this finding is in line with a result of a previous study conducted

by Nazzal et al (2021). Based on that result, it is imperative for online retailers to work on increasing the level of digital literacy for Palestinians by providing free training courses (digital literacy support programs), which will enhance their level of digital literacy and let them easily integrate into online shopping transactions or participate in any electronic business. Furthermore, this is consistent with the findings of (Ahmed and Hasan, 2010), who demonstrated that digital literacy has a positive relationship with the adoption of new technology. As a result, increasing individuals' intention towards adopting new technology such as online shopping will increase the number of individuals interested in online shopping and thus increase their profit. Furthermore, from a managerial standpoint, when the individuals perceive that they have a high level of digital literacy, they will be more encouraged and have a higher intention to shop online.

Regarding the path between trust and online purchase intention, the empirical finding demonstrated that trust significantly and positively affects individuals' intention towards online shopping (H3 is supported). This indicates that trust is the main predictor of individual intention to shop online. In this regard, this result should not be a surprising result since numerous previous studies are in line with this finding. For example, Kim et al (2008) revealed that individuals' trust substantially influences their intention to shop online. Furthermore, this finding goes in line with a report announced by the Palestinian central bureau of statistics (PCBS, 2019) that 48.2% of Palestinians; trust was a concern for them to not participate in online shopping. Consequently, online retailers must have a strategic plan to ensure that Palestine has a safe platform for e-business to increase Palestinians' trust in electronic transactions, particularly electronic commerce, by enacting laws that regulate online hopping. Therefore, encourage Internet users to participate in Internet shopping transactions, thus increasing the number of potential customers and maximize their profit. This finding can interpret the low percentage among the Palestinians in the adoption of shopping online that forms only 8.1% (PCBS, 2019). In that essence, Wani and Ali's (2016) demonstrated that individuals are reluctant to participate in online shopping transactions because of distrust in online activities. The managerial implication from the current study is that online retailers must improve individual's perceived trust toward their websites to increase individuals' purchase intention.

In terms of the relationship between website quality and trust, the empirical findings show that website quality significantly impacts individuals' trust in the e-commerce context (H1 is supported). Several prior studies supported this finding. For example, Agag & El-Masry (2017) revealed that website quality is a critical predictor for increasing individuals' trust in online retailers' websites. Consequently, online retailers must pay attention to their

website quality and try to keep their website up to standards to retain their current customers and attain more potential ones. The managerial implication is that when the online retailers' website has a good quality, it will influence the individuals' intention to shop.

Regarding the relationship between digital literacy and trust in the e-commerce context, the empirical results show that digital literacy strongly impacts individuals' trust concerning online shopping (H2a is supported). The finding is in line with previous literature conducted by Beldad et al (2010) that has demonstrated that digital literacy significantly impacts individuals' trust. This implies that online retailers should consider digital literacy an essential predictor of individual trust in online shopping. Furthermore, from a managerial standpoint, as much as individuals' digital literacy skills improve, their trust in online shopping increases.

## **Conclusion**

The current study contributes to previous studies by developing and empirically evaluating a theoretical model concerning the direct and indirect effects of both website quality and digital literacy on Internet users' intention to adopt online shopping in Palestine as mediated by trust. Online retailers who seek to reach potential customers through online shopping websites necessitate a straightforward and detailed strategy to differentiate customers based on the investigated factors in the research model. The study findings showed the robustness of the SCT and SOR paradigms are appropriate to explain online purchasing intention. Our findings indicate that digital literacy, website quality, and trust were significant in individuals' intention to adopt online purchasing. The study findings showed that the robustness of the SCT and SOR paradigms is appropriate to explain online purchasing intention. The research model developed in the current study forms a basis for further assessing the individuals' intention in the e-commerce context.

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