

The Relative Importance Of Trust Intentions And Trust Beliefs In Internet Banking Adoption

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The purpose of this research is to examine trust conceptualization as a two-dimensional construct by applying a revised trust model to investigate customers' acceptance of Internet banking. Data was collected from two countries the United Kingdom (UK) and Saudi Arabia (KSA). The structural equation modeling analysis confirmed the fit of the proposed model. The analysis revealed that trust intentions was significant for Saudi users' system adoption behavior, but not for UK users. This speculates the broad applicability of trust intentions across different cultural settings. Additionally, trust fully mediates the impact of service quality on behavioral intentions. The invariance analysis confirmed the conceptual agreement, but psychometric disagreement between the two groups was identified. Accordingly, post hoc analysis was conducted. The results suggest that the model, which conceptualize trust as a set of beliefs has better overall fit, higher percentage of the models' hypothesized parameters that are significant, and more parsimonious in comparison to the model that conceptualize trust as beliefs and intentions. The study concludes that trust should be integrated into e-behavioral models as a set of beliefs. On the other hand, trust intentions may not necessarily be important in predicting customers' e-behaviors.

Field of Research: Marketing - Banking and Financial Services Marketing – Consumer Acceptance of e-Commerce

1. Introduction

Customers cannot judge whether or not an e-vendor is trustworthy, as a result social uncertainty and risk are higher with e-commerce than with brick and mortar counterparts. Previous research found that customers stay away from an e-vendor that they do not trust (Jarvenpaa and Tractinsky, 1999) to the extent that they are willing to pay premium prices to trusted vendors (Sotgiu and Ancarani, 2005). Consequently,

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many scholars have incorporated trust into their study frameworks to better understand customer e-behavior. Researchers have argued that trust is more important in the e-commerce context than any other channel (Grewal et al., 2004; Harris and Good, 2004; Urbanet al., 2000; Reichheld and Schefter 2000; Jarvenpaa et al., 2000; and Gefen et al., 2003).

Despite the evidence of the importance of trust in human exchange transactions, there remain knowledge gaps in conceptualizing and theorizing trust in the e-commerce context. Some scholars have conceptualized trust as a two-dimensional construct that includes trust beliefs (TB) and trust intentions (TI) (e.g. Mayer et al., 1995; Rousseau et al., 1998; McKnight et al., 2002). Because this conceptualization has not been rigorously validated, only a limited number of studies employ it. Moreover, the research regarding e-commerce acceptance in less industrialized countries is inconsistent, and this makes it even harder to understand the generalizability of trust dimensions across different cultural settings. Scholars have started to call for empirical studies that examine how national culture affects trust and trust-building processes (Doney et al., 1998). The second concern regarding the conceptualization of trust as a two-dimensional construct is that it is not known how the dimensions interact with one another and with other constructs.

Trust research mainly focuses on industrialized countries. Less industrialized countries have much to gain from the Internet and trust research, but they have received little attention (Fusilier and Durlabhji, 2005). Moreover, social-centric models similar to the proposed model rarely appear in cross-market studies that focus on less industrialized countries. Additionally, the nature and dynamics of the two dimensions of trust have not been investigated rigorously in the literature to date. This research attempts to address these knowledge gaps. Additionally, it aims to identify the preferred conceptualization of trust when integrated with e-behavioral models. This is achieved by comparing two trust models across two relatively different cultures, namely the United Kingdom (UK) and the Kingdom of Saudi Arabia (KSA).

2. Literature Review

Trust is at the heart of all kinds of relationships (Morgan and Hunt 1994). Definitions and conceptualization vary with disciplines, such that psychologists view trust as a personal trait, sociologists consider it a social construct, and economists see it as an economic choice mechanism (McKnight and Chervany, 2002). According to McKnight and Chervany, e-commerce requires the type of interpersonal trust that is conceptualized by social psychologists. In the social psychology realm, Rousseau et al. (1998: p. 394) define trust as “perceptions about others’ attributes and a related willingness to become vulnerable to others.” In this sense, consumers might not use e-commerce because

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they do not trust e-vendors (Hoffman et al., 1999). With greater trust, people can resolve their uncertainty regarding the motives, intentions, and prospective actions of others on whom they depend (Kramer 1999), as well as save money and effort, because trust reduces monitoring and legal/contractual costs (Kumar 1996). Recent research indicates that trust has a critical influence on users' willingness to engage in online exchanges of money and sensitive personal information (Friedman et al., 2000).

Several researchers argue that trust has two interrelated components (e.g., Mayer et al., 1995; McKnight et al, 2002; and Gill et al., 2005), trusting beliefs (TB) and trusting intentions (TI). Trusting beliefs are the perceptions of: competence; ability of the trustee to do what the trustor needs, benevolence; trustee motivation to act in the trustor's interests, and integrity of the vendor; trustee honesty and promise keeping (McKnight et al., 2002). There exists a fourth trust belief, predictability; consistency of trustee behavior (McKnight et al., 1998). Predictability is relevant to models of ongoing interactions between users and vendors; accordingly, it is not usually included when measuring trust beliefs in the trust building process.

Trusting intentions (TI) indicates a person's willingness to depend on the e-vendor. According to McKnight and Chervany (2002), it is possible that one will have a trusting belief in someone else but still remain unwilling depend on their actions. Trusting beliefs and intentions have person-specific direct objects but are cross-situational, in that one trusts the person across various contexts (Lewicki et al., 1998).

Behavioral intention indicates a person's readiness to perform a given behavior (Ajzen, 1991), which makes it the main predictor of the actual behavior. In the attitude – behavior paradigm, behavioral intentions are determined by attitude and by salient beliefs. Attitude is “the degree of evaluative affect that an individual associates with using the target system” (Davis, 1993: 476). It represents how a person feels about a concept – namely something which individuals can think about and attach feelings to (East, 1997). Attitude plays an important role in the decision to adopt a new computer technology (e.g., Davis et al., 1989; O’Cass and Fenech, 2003).

Service Quality (SQ) is a multifaceted variable that affects customers in many aspects, such as loyalty and behavioral intentions and adoption behavior (e.g. Zeithamal, 1988; Shih and Fang, 2004). SQ dimensions include: tangibles, namely physical facilities and equipment; reliability, is the ability to perform the promised service dependably and accurately; responsiveness, referring to a willingness to help customers and provide prompt service; assurance, referring to knowledge and courtesy in inspiring trust and confidence; and empathy is individualized attention to different customers (Paramasuraman et al, 1988). These dimensions were extended to the e-context and were combined with other dimensions, such as, information availability and content, ease of use, privacy and security, graphical style and fulfillment (Zeithaml et al., 2002).

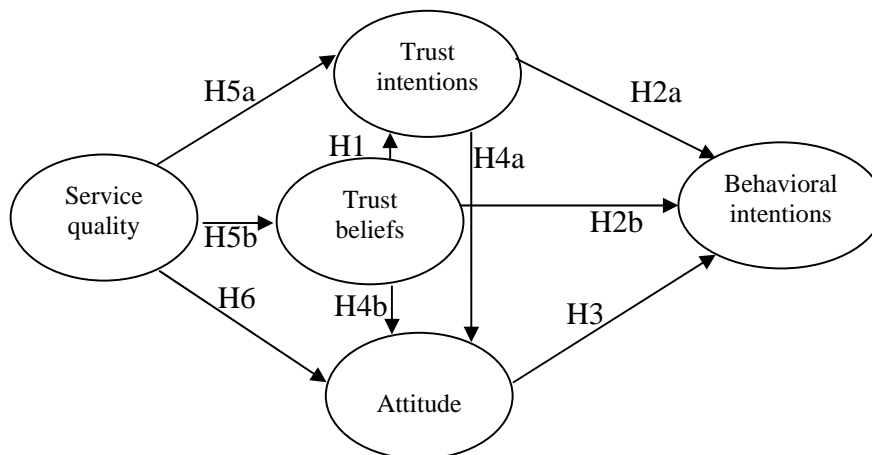
SQ is concerned with psychological interactions during an exchange transaction. It is based on customer perception, and therefore is extremely subjective.

3. Research Model And Hypotheses

Trust is mainly used in the context of technology-related behavior to improve model prediction power. Empirical research suggests that trust might not be invariant across different settings (e.g. Jarvenpaa and Tractinsky, 1999), a notion that may threaten its generalizability across cultures and contexts. One of the aims of the present research framework (Figure 1) is to investigate the nature of trust and the associated dynamics. The proposed framework follows the rationality of attitude - behavioral models.

Given sufficient time and knowledge about a particular behavior, an individual stated preference to perform the activity is usually declared in the form of intention that resembles the way she / he behaves (Rawstorne et al., 2000). It is the subjective probability that the person will exhibit a certain behavior (Fishbein and Ajzen, 1975). Behavioral intention is the main predictor of the actual behavior in the proposed framework.

FIGURE 1 PROPOSED RESEARCH MODEL



Previous studies demonstrated that TB has significant effects on TI (e.g., McKnight et al. 2002). In the attitude–behavior paradigm used in the technology acceptance model (Davis et al., 1989), beliefs determine intention. Therefore, we justify the relationship between the two components, namely trusting beliefs (TB) and trusting intentions (TI). Thus:

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Hypothesis 1: Trust beliefs have a positive effect on trust intentions.

Gefen et al., (2003) argue that when the relationship between the exchange parties involves social uncertainty and risk, trust must be included. Page and Luding (2003) consider trust issues to be crucial drivers of e-commerce adoption. Trust is implicit to customer intentions (Suh and Han, 2003), and because it reduces social complexity, trust enables customers to rule out possible undesirable behaviors on the part of the e-vendor (Stewart 2003). Therefore

Hypothesis 2a: Trust intentions have a positive effect on behavioral intentions.

Hypothesis 2b: Trust beliefs have a positive effect on behavioral intentions.

Because e-commerce increases customers' available choice set, the impact of relative attitude (ATT) should become increasingly important in predicting behavior. Furthermore, attitude is a mental choice - it precedes and produces behavior and can thus be used to predict behavior (Yang and Yoo 2004). ATT reflects a predisposition to respond either favorably or unfavorably to a particular object (Cao and Mokhtarian, 2005). An extensive body of literature demonstrates the importance of ATT in the context of behaviors (e.g., Davis et al., 1989, Venkatesh and Davis, 2000; O'Cass and Fenech, 2003). Cao and Mokhtarian (2005) suggest that there are several dimensions related to e-behavior intentions and attitudes, which they measure individually and then integrate into a scalar attitudinal or intention-based measure, generally through exploratory factor analysis. However, in our proposed model, ATT is conceptualized as a discriminant variable to better investigate trust dimensions effects. Cao and Mokhtarian further insist that the collective empirical evidence highlights the importance of customer ATT as a BI predictor. They maintain that attitudinal factors explain most of the variation in e-behavior. Previous research highlighted the importance of ATT, on e-commerce adoption (e.g. O'Cass and Fenech, 2003; Yang and Yoo, 2004). This leads to:

Hypothesis 3: Attitude has a positive effect on behavioral intentions.

Jarvenpaa et al. (2000) and Pavlou (2003) found that trust has an impact on intentions in the context of positive attitudes. The relationship between attitude and trust draws from the notion of 'perceived consequences' (Triandis 1980). Some researchers argue that trust is an antecedent to both attitude and controllability (Pavlou and Fygenson, 2006). In behavioral models, beliefs influence attitude; as a result, the link between trust and attitude is justified. Trust has a positive influence on the development of positive customer attitudes, intentions, and behaviors (e.g., Gefen, et al., 2003). Therefore:

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Hypothesis 4a: Trust intention has a positive effect on customers' attitudes.

Hypothesis 4b: Trust beliefs have a positive effect on customers' attitudes.

Service quality (SQ) is the perceptions about the overall assessments of the perceived performance of the service provider (Montoya-Weiss et al., 2003). It captures the two types of uncertainty that are relevant to e-commerce; system-dependent uncertainty, which contain events that are exogenous or environmental; and, transaction-specific uncertainty, namely endogenous events that may result from economic activity and are caused by an asymmetric distribution of information between the transaction parties (Grabner-Krauter and Kaluscha, 2003). Originally, the idea of SQ revolved around customers comparing their expectations about the service with their perception of the way the service has been provided (Parasuraman et al., 1988). Later, Cronin and Taylor (1992) proposed that in behavioral models, which measure SQ, expectations are sufficient predictor of behavior. Any available information about the business and the prior expectations of the consumers forms the basis of initial trust (Meyerson et al., 1996). Accordingly, SQ provides expectations that initiate trust, because quality assessment does not require customer experience (Cronin and Taylor, 1994). Hower and Howcroft (1999) argued that customers' expectations and preferences are crucial in determining the transition from one type of service delivery system to another. Finally, strong attitude affects behavior when customers are influenced by SQ (Baldinger and Rubinson, 1996). Thus,

Hypothesis 5a: Service quality has a positive effect on customers' trust intentions.

Hypothesis 5b: Service quality has a positive effect on customers' trust beliefs.

Hypothesis 6: Service quality has a positive effect on customers' attitudes.

4. Methodology

Internet banking is a utilitarian, voluntary and informational activity. It includes highly sensitive and personal information that emphasizes the role of trust in the exchange process. Students formed the study sample in this research, because they are generally younger and better educated, which mirrors the general profile of Internet users (Cao and Mokhtarian, 2005). Questionnaires have been the most common method to investigate internet behaviors in previous research, they tend to be more objective and concentrate on the phenomenon. Cao and Mokhtarian (2005) argued that intentions and

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attitudes are best assessed through information from the users themselves. Accordingly, paper-based questionnaires were distributed at two academic institutions, one in London as the capital of the United Kingdom and one in Riyadh as the capital of the Kingdom of Saudi Arabia. The items selected to investigate the research hypotheses were mainly adapted from prior studies to ensure content validity, and were accordingly modified to match the study context. Seven-point Likert type scales were utilized, ranging from “strongly disagree” to “strongly agree” and “completely unimportant” to “completely important.” The chosen measurements were selected from studies, which demonstrated high convergent and discriminant validity of the specified constructs. The behavioral intentions measurements were adopted from Venkatesh and Davis (2000), ATT from Suh and Han (2002), TB and TI from McKnight et al., (2002) and SQ from Harris and Goode (2004). Before data collection, pilot studies were conducted in both countries. To translate the questionnaire into Arabic, Brislin’s (1970) back translation method was employed. The pilot study results and respondent feedback resulted in certain minor modifications.

The 950 questionnaires distributed in both countries resulted in the return of 674 completed questionnaires, including 232 valid questionnaires from the United Kingdom and 386 valid questionnaires from Saudi Arabia. The KSA sample consisted of 42.5% females and 57.5% males; 13.5% were under 20 years old, 83.2% between 20 and 30, and 3.4% more than 30 years old with a mean Internet experience of 3.25 years. The UK sample included 43.9% females and 56.1% males; 44.5% were under 20 years old, 53% between 20 and 30 years, and 2.5% were above 30 years old with an average of 4.3 years of Internet experience.

5. Analysis

5.1 Measure Reliability and Validity

One measurement was dropped from TI, two measurements were dropped from TB, and four measurements were dropped from SQ on account of internal reliability test results and factor analysis. These items were dropped because of their cross factor loadings and/or significant improvements in the internal consistency of their corresponding factors.

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TABLE 1 SQUARED MULTIPLE CORRELATIONS AND AVE-DIAGONAL

Component	TB	TI	ATT	SQ
TB	.84			
TI	.49	.72		
ATT	.35	.39	.8	
SQ	.42	.43	.26	.67

To test for convergent validity, both samples were combined into one data set and examined. All factors demonstrated good internal consistency with alphas greater than the 0.7 threshold (TB $\alpha = 0.88$; TI $\alpha = 0.76$; attitude $\alpha = 0.83$; SQ $\alpha = 0.9$; and BI $r = 0.6$) demonstrating high convergent validity for the constructs. To establish discriminant validity, the average variance extracted (AVE) method was employed. Fornell and Larcker's (1981) criterion evidence of discriminant validity is summarized in Table 1; the AVE for each variable is greater than the square of the construct's correlations with the other variables. Moreover, all AVE values were above the 0.5 threshold recommended by Hair et al., (2006). The best three to four predictors for each latent variable were entered into the subsequent confirmatory factor analysis (Hair et al., 2006).

5.2 Structural Equation Modeling

TABLE 2 FIT STATISTICS FOR THE PROPOSED MODEL;
(-TI) FIT STATISTICS FOR THE MODIFIED MODEL -EXCLUDING TRUST INTENTIONS-

Fit statistics		UK	UK (-TI)	KSA	KSA (-TI)
Chi-square		169.66	112	232.69	139.925
df		81	49	81	49
X ² /df	< 3	2.1	2.29	2.87	2.86
CFI	> .95	.946	.95	.946	.96
GFI	> .9	.91	.93	.92	.94
RMSEA	< .08	.069	.075	.07	.069
NFI	> .9	.9	.92	.92	.94
AGFI	> .8	.867	.88	.89	.91
RMR	< .1	.088	.09	.086	.073

Using AMOS 7.0, structural equation modeling (SEM) was employed to test whether the data fit the hypothesized model for each sample separately (Table 2). The standardized solutions reveal that the estimates of the propositions are reasonable and statistically significant at the 0.01 level, with the exception of H1a and H2a for the UK data, H1b and H2b for the KSA data, and H6 for both samples (Table 3). The SEM results suggest that

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the model as a whole explained 64% of the UK users' variance in respect of Internet banking adoption intentions and 60% of the equivalent metric for KSA users.

5.3 Invariance Analysis

Combining both data sets results in a chi-square (χ^2) value of 402.37 and 162 df, which provides a baseline for evaluating the subsequent tests of invariance. The confirmatory factor index (CFI) (0.95) and root mean squared error of approximation (RMSEA) (0.049) values indicate that the proposed model offers an outstanding fit across the two groups, demonstrating high cross validity.

Assuming that the unconstrained model is correct, all the factorial paths were constrained with exception of one TI measurement that was causing variation, the analysis resulted in a Δdf 9, ΔX^2 of 15.8, and a p-value of 0.08 exceeding the 0.05 cut-off (Byrne, 2001), demonstrating invariance in the factorial paths across the two groups. Based on this result our next step was to examine the invariance of the structural model.

TABLE 3 STANDARDIZED REGRESSION WEIGHTS, AND INVARIANCE ACROSS SAMPLES

Hypothesis	United Kingdom			Kingdom of Saudi Arabia			Invariance		
	R.W.	C.R.	p	R.W.	C.R.	p	ΔX^2	Δdf	p
H1: TB → TI	.45	3.63	.01	.57	8.12	.01	.14	1	.71
H2a: TI → BI	-.04	-.4	.69	.4	2.95	.01	3.1	1	.08
H2b: TB → BI	.37	3.63	.01	-.13	-1.24	.21	10.9	1	.01
H3a: TI → ATT	.13	1.11	.27	.54	4.79	.01	2.4	1	.12
H3b: TB → ATT	.50	3.73	.01	.13	1.45	.47	9.7	1	.01
H4: ATT → BI	.53	5.4	.01	.54	5.23	.01	1.9	1	.17
H5a: SQ → TI	.36	2.76	.01	.29	3.86	.01	.01	1	.94
H5b: SQ → TB	.75	7.68	.01	.63	10.24	.01	.45	1	.5
H6: SQ → ATT	.07	.57	.57	.03	.34	.73	.14	1	.71

Constraining all regression paths with the exception of TB →ATT and TB →BI, and running the multi group analysis resulted in a Δdf 7, ΔX^2 of 7.91, and p-value of 0.34 (>.05).

6. Discussion

Using a questionnaire whose scale differs between subgroups may result in poor managerial decisions or incorrect statistical inferences (Doll et al., 1998). In this research, the invariance analysis offered a better understanding of the trust building process and its validity. It was found that with the exception of one TI measurement the rest of the measurements held invariant across the two groups. Hence, developing a questionnaire free of misconceptions for different groups is very hard to achieve (Lai and Li, 2005).

Consistent with behavioral models (e.g., Ajzen 1991, Bajaj and Nidumolu 1998; Moon and Kim 2001, O'Casey and Fenech 2003, and Yang and Yoo 2004), attitude affected BI significantly for both groups. The invariance analysis demonstrated that its influence is similar across the two groups.

Since SQ did not influence ATT for both groups, H6 was rejected. SQ impact was fully mediated by TB and TI for both groups, leading us to conclude that service quality is a trust builder.

Saudi users' trust beliefs were fully mediated by trust intentions in influencing their attitudes and behavioral intentions in respect of Internet banking. This result partially confirms the trust building model (TBM; McKnight et al., 2002), where TB affects behavioral intentions both indirectly and directly. Contrary to the TBM for the UK users, TI did not affect behavioral intentions. This group was expected to be consistent with the TBM results, because the model was developed in the context of a Western culture. This suggests that caution is required when conceptualizing trust as a two-dimensional variable that comprises beliefs and intentions associated with Western societies in the e-commerce adoption behaviors. Where McKnight et al. (2002: 313) argued that '...willingness to depend –TI- reflect a general attitude to move the relationship with the vendor forward by willing to become vulnerable to vendor,' our results showed that TI was not correlated with attitude and BI for UK customers. On the other hand, TB influenced BI and ATT significantly.

The explanation maybe founded in the commitment-trust theory documented by Morgan and Hunt (1994). Morgan and Hunt argued that trust intentions are implicit in the conceptualization of trust, and therefore one would not trade with someone if they did not deem them trustworthy. Restated, beliefs about others' trustworthiness determine our own actions. They further added that TI should be viewed as an outcome of trust and not as part of its definition. According to Gill et al., (2005), 'There have been some inconsistencies in the conceptualization and measurement of trust in previous research'. This research resolves some of the ambiguity surrounding trust conceptualization in e-

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commerce. Accordingly TI was excluded from the model to evaluate the modified model if it better explain Internet banking users' behavior.

6.1 Post hoc Analysis

Morgan and Hunt (1994) use four criteria to compare models. Their approach includes testing for (1) the overall fit of the model-implied covariance matrix to the sample matrix, (2) the percentage of the models' hypothesized parameters that are significant, (3) the ability to explain variance in the outcome of interest, and (4) the parsimony of the models.

The modified model (which excludes TI) was fit to the data. For the KSA group, CFI was .946 and NFI was .92, and both indexes improved, to .96 and .94. For the UK group, CFI was .946 and NFI was .9, and both indexes improved, to .95 and .92. Under the second criterion, the original model had three of the eight hypotheses (37.5%) unsupported (at the 0.01 level) for both groups. On the other hand, the modified model resulted in just one of the five hypotheses not supported (20%) in either group (at the 0.01 level) (Table 5). In terms of the third criterion, little additional explanatory power was gained from the three extra paths in the original model. The modified model explained 64% of the UK users' behavioral intentions, and 54% of the Saudis', compared with 65% and 60% under the original model. Because AGFI accounts for parsimony (Byrne, 2001), we used this index to compare the models. Under the original model, the AGFI values for the UK and KSA were .87 and .89, respectively. After dropping TI from the model, the AGFI values for the UK and KSA improved to .88 and .91.

TABLE 4 MODIFIED MODEL REGRESSION WEIGHTS, AND INVARIANCE ACROSS SAMPLES

Hypothesis	United Kingdom			Kingdom of Saudi Arabia			Invariance		
	R.W.	C.R.	p	R.W.	C.R.	p	ΔX^2	Δdf	p
TB → BI	.34	3.7	.01	.09	1.22	.22	8.4	1	.01
TB → ATT	.54	4.53	.01	.44	6.16	.01	2.94	1	.09
ATT → BI	.54	5.3	.01	.68	7.2	.01	.32	1	.57
SQ → TB	.74	7.71	.01	.62	10	.01	3.7	1	.06
SQ → ATT	.14	1.15	.25	.19	2.58	.01	.01	1	.91

Because the modified model is rigorous, offers better fit for the data, and is more parsimonious, it is recommended to conceptualize trust as a set of beliefs without including trust intentions as a predictor of e-commerce behaviors. This is consistent with

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the commitment – trust theory (Morgan and Hunt, 1994). The fundamental difference between trust and trusting behaviors focuses on a willingness to assume risk and actually assuming risk (Mayer et al., 1995). Since BI is the dependent factor in the behavioral models, it is linked to a risk-assuming approach; accordingly, there is no need to include another intention measurement (such as TI).

7. Limitations, Implications, and Conclusion

7.1 Research Limitations and Further Research

The study focused on Internet banking as perceived by students, which may limit the generalizability of our results. Examining the two dimensions of trust in less personal e-contexts such as holiday purchases and using a different sampling strategy, may offer additional insights into the nature of two-dimension trust dynamics. Moreover, a longitudinal study may explain TI relationships in terms of actual systems adoption. Future research should test the impact of cultural dimensions on the two trust dimensions. Finally, most of the trust-building antecedents in the literature are utilitarian. Future research might well include hedonic factors such as perception of playfulness.

7.2 Managerial Implications

Managers should remain cognizant of users' trust perceptions by continually improving the quality of services, improving offerings, and attempting to fulfill customers' growing needs. They also should be aware of the importance of different beliefs on user attitudes and adjust their marketing mix accordingly. This research demonstrated that users' trust in e-vendors is essential for adoption, because trust reduces perceptions of risk, especially in e-commerce where uncertainty is high. Accordingly, e-vendors improve customer trust perceptions by keeping their promises (integrity). In addition, they should offer better customer care and they should solve customers' problems swiftly. Service providers should improve their systems' navigability and demonstrate technological competence. Finally, e-vendors should not use the same strategy to improve customers' perceptions of their trustworthiness across different cultures before first ensuring the equality of trust perceptions and symbols across the different groups.

7.3 Conclusion

This research clarified the degree of generalizability of trust as a two-dimensional construct that includes both beliefs and intentions. Our results revealed that the two dimensions may be different and may together act as an indicator of trust in the e-commerce context. Our cross-market examination reveals that trust intentions were not important to British users, and trust beliefs did not directly affect behavioral intentions. Following these results, the post hoc analysis revealed that trust as a set of beliefs offers better representation in the behavioral models. Moreover, service quality was demonstrated to be a crucial trust builder. Finally, attitudes continue to play an important role in e-commerce adoption because they influence behavioral intentions.

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