

Is Value Sufficient? Empirical Research on the Impact of Value and Trust on Intention

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Abstract—Online shopping is said to be easy, fun, and time saving. Yet, the real experience is often different from that predicted. What is the reason for this? What are the obstacles to online applications? We develop scenarios about the relative importance of value and trust in online shopping. Empirical analysis of a survey of 220 consumers shows that both value and trust are vital to consumers' intentions with respect to online shopping. In particular, security is the key factor to trust, while playfulness plays a relatively important role in consumer perceived usefulness of online shopping. These findings imply that a website should implement a set of comprehensive security mechanisms and, at the same time, continually improve the consumer's experience of playfulness.

Index Terms—value, trust, perceived usefulness, perceived ease of use, subjective norms, intention, playfulness, reputation, security

I. INTRODUCTION

Online shopping is said to be easy, fun, and time saving. Yet, the real experience is often different from that predicted. What are the obstacles to online applications? Is the reality a balanced result of benefit and risk in the consumer's mind? Current researchers have identified several factors that influence consumer participation in online shopping, but few have considered value and trust together. This research aims to understand how online consumers make their decisions based on a trade-off of benefit and risk. As such, the objectives of this study are:

1. to investigate the effect of consumer perceived value (PV) and consumer trust (TR) in a website; and
2. to investigate what the behavior intention (BI) is on the dual impact of consumer perceived value and trust risk.

II. LITERATURE REVIEW

The proposed framework in this study is based on previous research in several fields, concerning intention, value, and trust. The literature that provided the necessary theoretical foundations is discussed briefly in the following sections.

A. Research on Intent

Theory of reasoned action (TRA): The theory of reasoned action, as illustrated in Fig. 1, was proposed by Fishbein and Ajzen in 1975 [1]. To explain human behavior, two important constructs were proposed: one is the attitude toward behavior (AT), and the other is the subjective norm (SN). Attitudes are defined as “enduring, learned predispositions toward responses directed at some object, person, or group”, while the subjective norm is the perception of an individual regarding how people who are important in that individual's life would feel about certain behavior [1]. Attitude and subjective norm were linked to an individual's behavior intention in the theory of reasoned action, which was treated as a robust model for explaining human behavior.

Technology acceptance model (TAM): The technology acceptance model, as illustrated in Fig. 2, was proposed

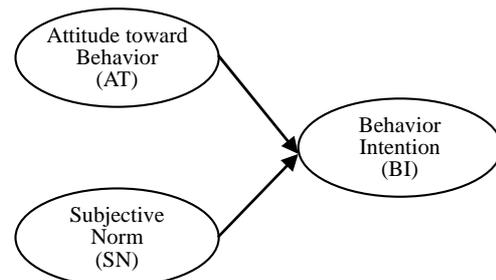


Figure 1. Fishbein and Ajzen's Theory of Reasoned Action (TRA).

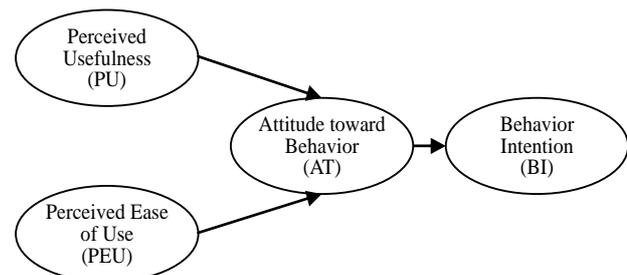


Figure 2. Davis' Technology Acceptance Model (TAM).

by Davis [2] and designed to predict IT acceptance. Two new constructs were proposed, that is, perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness is defined as the extent to which a person believes that using the system will enhance his or her job performance, while perceived ease of use is the extent to which a person believes that using the system will be free of effort [2]. These affect the behavior intention through attitude toward behavior (AT). In the parsimonious technology acceptance model, perceived usefulness and perceived ease of use directly affect the behavior intention [3].

Value-intention framework: The value-intention framework was proposed by Dodds and Monroe in 1985 [4]. Perceived sacrifice, quality, and value were the main constructs. Value was evaluated as low or high, depending not only on the objective criterion, but also on an individual's subjective criterion. Thus, consumer perceived value was defined from different aspects. In Woodruff's research, value is defined as "the trade-off between benefit, i.e. the received component, and sacrifices, i.e. the given component" [5]. In Zeithaml's research, value is defined as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" [6]. Consumer perceived value can be treated as a substitute for actual value in Tam's integrative model [7]. Various other studies also examined the important role of value in predicting behavior [6] [8] [9] [10].

Trust-intention framework: The trust construct was initially integrated in 1995 and revisited in 2007 by Mayer et al. [11] [12]. Adapting the definition of trust from Mayer et al., trust in an online environment is defined as the belief and desire to engage in an online transaction, despite the possibility of loss. Trust has a significant effect on consumer behavior [13], especially in online shopping environments [14] [15]. The trust-intention framework was proposed by Jarvenpaa et al. in 2000 [16]. The direct impact of reputation and perceived size of the online store on the user's trust of the store was tested. The model also suggested that trust affects the user's attitude toward a store, and thus, toward his willingness to buy from the store.

B. Research on Value

Cue utilization theory provides a framework to assess consumer perceptions of quality [17]. Extrinsic or intrinsic cues were further classified [18]. In Chu's research, perceived benefit was treated as a substitute for perceived quality [19]. Perceived usefulness and perceived playfulness (PPL) were proposed as perceived benefit, based on intrinsic attributes of online music, whereas price and perceived ease of use were treated as perceived sacrifices. In other studies, enjoyment of technology was regarded as a factor motivating users to

transact online [20]. Value is thus a trade-off between benefit and sacrifices [5].

C. Research on Trust

Based on the trust definition for traditional industry, several definitions for online trust have been proposed. Gefen et al. summarized the conceptualizations of trust from prior research [21], while Yoon listed the mechanisms for online trust [22]. Chen categorized these mechanisms for online trust into three dimensions [23]: (1) technically-based, such as perceived usefulness and perceived ease of use; (2) uncertainty of transactions and security, such as perceived security (PS) and perceived privacy (PP), etc.; and (3) competency-based, such as reputation (REP), etc. Perceived security concerns all kinds of threats that could create unwanted modification of data or denial of service, etc. [24]. Perceived privacy refers to consumers' ability to control the presence of other people and the dissemination of information related to transactions or behavior toward those not present [25]. It has also been proposed that a company with a positive reputation (REP) is more likely to gain consumer trust [26].

III. MODEL AND HYPOTHESES

To study the consumer's balance of benefit and risk, it is vital to understand the comprehensive relationship between value, trust, and intention. In this study, the theory of reasoned action (TRA) is proposed as the fundamental model, with value and trust treated as the key variables that may affect the behavior intention. The technology acceptance model (TAM) is the subsidiary model, introduced to explain the impact of perceived usefulness and perceived ease of use on the behavior intention through consumer perceived value.

Perceived playfulness concerns the recreational benefit of online shopping. Consumer feelings can be expressed as interested, exciting, or pleasant. According to the research of Childers et al., the usefulness of online shopping can be categorized as hedonic and utilitarian motivations [27] [28]. When a consumer perceives online shopping to be fun, he may feel that it is more useful. Therefore, it is hypothesized that:

H1: Perceived playfulness is positively related to perceived usefulness.

Although online shopping can provide consumers with an entertaining experience, it also provides them with functional benefits. Perceived usefulness refers to the functional and convenience benefits of online shopping in this study. Jarvelainen suggested that perceived usefulness could increase consumer perceived value in online shopping environments [29]. Therefore, it is hypothesized that:

H2: Perceived usefulness is positively related to consumer perceived value.

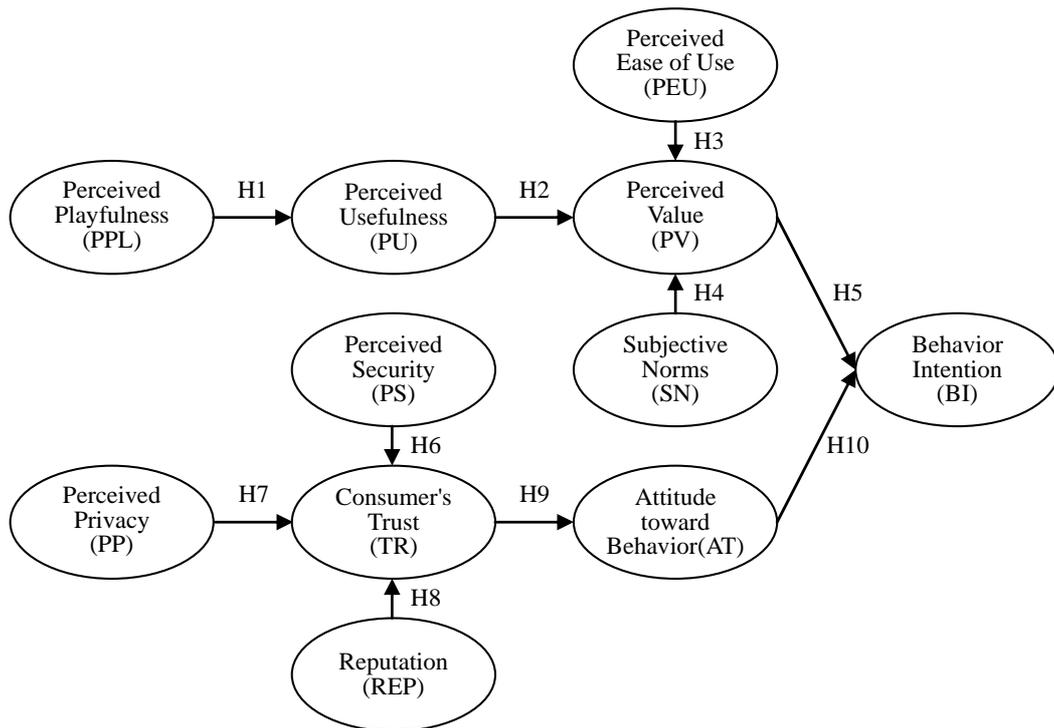


Figure 3. Proposed model structure.

According to the research of Woodruff, perceived ease of use should be a non-monetary sacrifice. Several studies have found that perceived ease of use has a significant impact on internet usage for hedonic-oriented IT [28] [30]. This study defines perceived ease of use as the degree to which the consumer believes that online shopping is effortless. The reverse is a part of sacrifice. If consumers found online shopping effortless, the perceived sacrifice would be low, and therefore, the consumer perceived value would be high. Therefore, it is hypothesized that:

H3: Perceived ease of use is positively related to consumer perceived value.

Since consumer perceived value is partly subjective, consumer feelings must be influenced by social environments, such as other people’s opinions. According to the theory of reasoned action, a consumer’s attitude is influenced by subjective norms. Therefore, it is hypothesized that:

H4: Subjective norms are positively related to consumer perceived value.

Consumer perceived value reflects the consumer perception of the net benefit gained from the transaction in terms of the sacrifices [6]. Some studies have provided evidence of the impact of consumer perceived value on a consumer’s willingness to buy [6] [9] [10]. Consumer perceived value could thus be a useful indicator of intention in online transactions. Therefore, it is hypothesized that:

H5: Consumer perceived value is positively related to the behavior intention.

Consumers are more likely to trust a website with more security mechanisms. Thus, websites could enhance consumers’ trust either by controlling the environmental risks or by improving security mechanisms [31]. Consumers would be willing to provide their private information to websites only if they felt that the website could protect this information. Security mechanisms and the protection of privacy would help websites to build consumer trust [32]. Therefore, it is hypothesized that:

H6: Perceived security is positively related to online consumer’s trust.

H7: Perceived privacy is positively related to online consumer’s trust.

A company’s competency including reputation affects consumers’ trust [33]. Consumers would be more likely to trust a website with a good reputation. Therefore, it is hypothesized that:

H8: Good reputation is positively related to online consumer’s trust.

TABLE I.
PROFILE OF SURVEY RESPONDENTS

Type	Category	Frequency	Percentage
Age	<= 24	94	47
	25 – 35	73	36.5
	>= 36	33	16.5
Gender	Male	93	46.5
	Female	107	53.5

According to the theory of reasoned action [1], beliefs directly affect attitude. From studies of physical stores, it has been found that trust in a store results in a shopper's

favorable attitude toward that store [34] [35]. In an online context, Jarvenpaa et al. [16] and Lim et al. [36] also found that trust could influence a person's attitude toward

TABLE II.
PROFILE OF SURVEY RESPONDENTS

Factor	Cronbach's α	Items	Cronbach's α if Item Deleted	Standardized factor loading	R ²	T-value
Perceived Usefulness (PU)	0.506	PU1	0.406	0.367	0.135	
		PU2	0.357	0.430	0.185	3.046
		PU3	0.434	0.665	0.442	3.024
Perceived Ease of Use (PEU)	0.486	PEU1	0.513	None	None	None
		PEU2	0.427	0.473	0.224	5.612
		PEU3	0.169	0.654	0.428	7.401
Subjective Norms (SN)	0.739	SN1	0.815	None	None	None
		SN2	0.624	0.747	0.558	11.236
		SN3	0.580	0.826	0.683	12.736
		SN4	0.637	0.745	0.556	11.209
Perceived Playfulness (PPL)	0.834	PPL1	0.796	0.726	0.528	11.049
		PPL2	0.753	0.818	0.669	12.962
		PPL3	0.800	0.725	0.526	11.018
		PPL4	0.807	0.719	0.517	10.903
Perceived Value (PV)	0.721	PV1	0.653	0.634	0.403	
		PV2	0.639	0.558	0.312	6.409
		PV3	0.611	0.788	0.621	8.044
Trust (TR)	0.843	TR1	0.796	0.787	0.620	
		TR2	0.732	0.855	0.732	11.997
		TR3	0.813	0.757	0.573	10.764
Attitude toward Behavior (AT)	0.781	AT1	0.711	0.814	0.663	
		AT2	0.606	0.793	0.629	6.678
		AT3	0.785	None	None	None
Behavior Intention (BI)	0.826	BI1	0.774	0.762	0.580	
		BI2	0.779	0.648	0.420	8.508
		BI3	0.775	0.767	0.588	9.975
		BI4	0.792	0.650	0.422	8.534
Perceived Security (PS)	0.801	PS1	0.794	0.563	0.317	8.163
		PS2	0.769	0.619	0.383	9.154
		PS3	0.745	0.725	0.525	11.243
		PS4	0.748	0.710	0.504	10.935
		PS5	0.751	0.722	0.521	11.191
Perceived Privacy (PP)	0.869	PP1	0.840	0.783	0.613	12.689
		PP2	0.841	0.783	0.613	12.684
		PP3	0.831	0.793	0.630	12.942
		PP4	0.854	0.698	0.487	10.804
		PP5	0.842	0.724	0.525	11.370
Reputation (REP)	0.692	REP1	0.701	None	None	None
		REP2	0.594	0.606	0.367	8.425
		REP3	0.532	0.834	0.696	12.107
		REP4	0.679	0.606	0.368	8.437

online shopping. Therefore, it is hypothesized that:

H9: Consumer trust is positively related to attitude toward behavior.

Based on the theory of reasoned action [1], a positive attitude leads to a positive intention to perform an act. In an online context, Jarvenpaa et al. [16] reported that a consumer's favorable attitude toward online shopping would increase his willingness to buy from that store. Therefore, it is hypothesized that:

H10: Attitude toward behavior is positively related to the behavior intention.

Our proposed model is shown in Fig. 3.

IV. RESEARCH METHOD

A questionnaire survey was used to collect data. To ensure the content validity of the scales, items used in this study were mostly adopted from previous studies and modified to reflect the characteristics of online shopping. Minor adaptations were made as needed to fit the study's context. Scales for PU, PEU, and SN consisted of items adapted from Jarvelainen [29], while the PPL and PV scales consisted of items adapted from Chu [19]. Scales for TR, AT, and BI consisted of items adapted from Lim [36]. Finally, scales for PS, PP, and REP consisted of items adapted from Chen [23]. Each of these measures contained subscales ranging from 3 to 6 items (see Appendix A). All scale items were measured on a five-point Likert scale, which included Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, and Strongly Disagree as the options. Respondents were asked to express the degree of agreement with certain statements regarding online shopping.

The sample for our study consisted of MBA students from university. The survey yielded 200 valid and usable responses. The profile of these respondents is given in Table I.

The measurement model was evaluated through completely standardized factor loadings and T-values, as shown in Table II. Based on the analysis, one item from each of the PEU, SN, AT, and REP constructs was problematic (see Table II) and was subsequently dropped from further analysis. Cronbach's [37] alpha values were calculated, revealing an adequate level of reliability (> 0.50) for each scale [38].

V. RESULTS

The LISREL 8.72 program was used for this analysis. Absolute, incremental, and parsimony fit indices [39], as listed in Tables III, IV, and V, respectively, were used to determine model quality.

Most of the model-fit indices exceed their respective common acceptance level, with some exceptions. These are GFI, SRMR, and AGFI, which are sensitive to sample size and model complexity.

Due to the adequacy of the overall goodness-of-fit indices, it was concluded that the proposed model achieved adequate degrees of fit. Consequently, we could proceed to the next step of the evaluation.

TABLE III. ABSOLUTE FIT INDICES OF THE PROPOSED MODEL

Fit Indices	Absolute					
	Name	X ² /df	GFI	RMSEA	RMR	SRMR
Value	1.915	0.768	0.0651	0.0640	0.0923	0.730
Range	≤3	≥0.90	0.05-0.08	≤0.1	≤0.05	≥0.90

TABLE IV. INCREMENTAL FIT INDICES OF THE PROPOSED MODEL

Fit Indices	Incremental		
	Name	CFI	NNFI
Value	0.941	0.935	0.941
Range	≥ 0.90	≥ 0.90	≥ 0.90

TABLE V. PARSIMONY FIT INDICES OF THE PROPOSED MODEL

Fit Indices	Parsimony	
	Name	PGFI
Value	0.660	0.802
Range	≥ 0.50	≥ 0.50

TABLE VI. PARAMETER ESTIMATES AND HYPOTHESES TESTS

Hypotheses	Std. loading	T-value	Conclusion	
H1	PPL→PU	0.378	2.664	Supported
H2	PU→PV	0.256	2.257	Supported
H3	PEU→PV	0.546	4.631	Supported
H4	SN→PV	0.273	2.732	Supported
H5	PV→BI	0.679	6.592	Supported
H6	PS→TR	0.568	3.275	Supported
H7	PP→TR	-0.042	-0.265	Not Supported
H8	REP→TR	0.262	2.585	Supported
H9	TR→AT	0.414	4.671	Supported
H10	AT→BI	0.327	4.233	Supported

Fig. 4 shows the estimated results of the structural model, which was evaluated through standardized path estimates and T-values. Path coefficients of latent variables refer to the direct influence of reason variables to result variables. An absolute T-value greater than 1.96 ($\alpha = 0.05$) denotes a significant level. Parameter estimates are shown in Table VI.

Nine out of the ten proposed direct relationships are statistically significant. H1 to H5 are supported, which validates the modified technology acceptance model. H6 and H8 are supported, which indicates that website reputation and security mechanisms do indeed influence consumer trust in a website. H9 and H10 are supported, which validates the modified theory of reasoned action in online environments.

APPENDIX A THE SURVEY USED IN THE STUDY
(TRANSLATED FROM CHINESE)

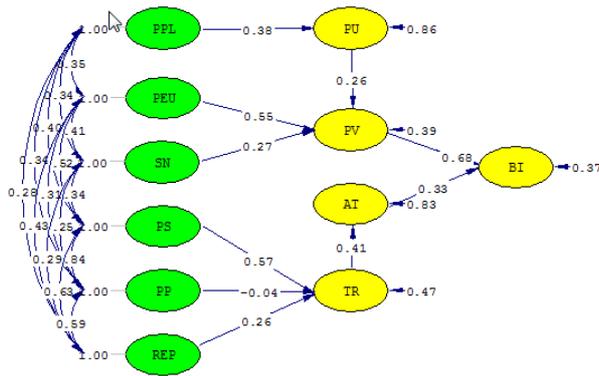


Figure 4. LISREL estimation of the model.

H7 is not supported, which is contrary to previous research. This may imply that although consumers care about their privacy, privacy is not a motivating condition for trust, but it may be a necessary condition to build consumer trust. Another explanation could be the differences among the respondents' cultural backgrounds, since previous research was typically based on an individualist sample, whereas this study used a Chinese sample, which is collectivist [40]. According to Dinev et al. [41] and Steenkamp [42], a collectivist society exhibits a lower propensity to privacy concerns.

VI. CONCLUSION

The findings of this study could provide practical guidelines to retailers intending to use the Internet as a sales channel. The results indicate that both value and trust influence consumer intention toward online shopping.

Building online trust is essential for retailers to succeed in an e-commerce environment – where transactions are more impersonal and anonymous – as this affects consumers' attitudes towards transacting. Online retailers should implement a set of comprehensive security mechanisms to increase consumers' trust. Moreover, a good reputation is regarded as a sign of a trustworthy retailer.

In e-commerce, shoppers cannot directly experience the goods, and therefore, they make purchase decisions based on the information provided by online retailers as well as from their perceptions of the websites. Research suggests that online retailers should build websites that are not only useful, but also easy to use in order to increase consumers' perceived values. In addition, the website should pay more attention to the relative importance of playfulness.

Due to the limitations of the sample, it is unknown whether consumers' age and gender influence their preferences of the Internet as a comparison tool. There is a need for further research in this regard.

Construct	Measure
Subjective Norms (SN) from Jarvelainen (2007) [29]	
SN1	In my immediate social environment, the Internet is frequently used.
SN2	In my immediate social environment, attitudes toward Internet shopping are mainly positive.
SN3	In my immediate social environment, people have bought products or services over the Internet.
SN4	In my immediate social environment, people have bought products or services using the company's interactive online system.
Perceived Usefulness (PU) from Jarvelainen (2007) [29]	
PU1	The content or information on this website is useful for buying the products or services that it sells or markets.
PU2	The online information on this website facilitates decision-making processes.
PU3	This website can increase my shopping effectiveness.
Perceived Ease of Use (PEU) from Jarvelainen(2007) [29]	
PEU1	This website is easy to learn to use.
PEU2	It is easy to make this website to do what I want.
PEU3	My interactions with the website are clear and understandable.
Perceived Playfulness (PPL) from Chu (2007) [19]	
PPL1	I enjoy shopping online.
PPL2	Shopping online makes me feel good.
PPL3	When shopping online, I feel excited.
PPL4	Overall, I find online shopping interesting.
Perceived Value (PV) from Chu (2007) [19]	
PV1	Online shopping is valuable to me.
PV2	I consider online shopping to be good value.
PV3	The online shopping service is considered to be a good buy.
Trust (TR) from Lim (2006) [36]	
TR1	This online shopping website is trustworthy.
TR2	I believe that this online shopping website keeps its promises and commitments.
TR3	I trust that this online shopping website considers its customers' best interests.
Attitude toward Behavior (AT) from Lim (2006) [36]	
AT1	I like the idea of shopping on this website.
AT2	Shopping on this website is a good idea.
AT3	I believe that the outcome of buying from this website would be positive.
Behavior Intention (BI) from Lim (2006) [36]	
BI1	I am considering purchasing from this website now.
BI2	I would seriously contemplate buying from this website.
BI3	It is likely that I am going to buy from this website.
BI4	I am likely to make future purchases from this website.
Perceived Security (PS) from Chen (2007) [23]	
PS1	This website presents enough online security.
PS2	Purchasing on this website will not cause financial risks.
PS3	It is believed that online transactions on this website are protected by the latest know-how.
PS4	Online payment on this website is safe.
PS5	This website has the ability to solve problems caused by hackers.
Perceived Privacy (PP) from Chen (2007) [23]	
PP1	The personal information that I provide on this website is secure.
PP2	The monetary information that I provide on this website is well protected.
PP3	This website will not use unsuitable methods to collect my personal data.
PP4	This website does not ask for irrelevant personal information.
PP5	This website does not use my personal information for other purposes.
Reputation (REP) from Chen (2007) [23]	
REP1	This website is well-known and reliable.

REP2	This website has a good reputation.
REP3	This website is known to be concerned about its customers.
REP4	This website has good ability to deal with perceived risks.

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