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# INTENTIONS TO PURCHASE AND THE ONLINE EXPERIENCE

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## Abstract

*The Internet plays a strategic role for companies competing in today's rapidly expanding digital economy. However, establishing a Web presence for online shopping does not automatically guarantee consumer purchases. Understanding the factors that contribute to how consumers form intentions to buy online is important for developing Web applications that exploit the competitive forces of electronic commerce. A theoretical model, based on the Theory of Planned Behavior, that predicts individuals' intentions to engage in online purchasing transactions is proposed and empirically tested. Data was gathered from a survey administered to 346 undergraduate college students and the two-phase structural equation modeling approach was utilized to verify construct validity and test proposed relationships. The resultant model explains 61% of individuals' intentions to make purchases online. Key theoretical and managerial implications are discussed.*

**Keywords:** Electronic commerce, intention to purchase, theory of planned behavior

## Introduction

The Internet plays a strategic role for companies competing in today's rapidly expanding digital economy. According to the United States Federal Government, the value of electronic commerce is growing at an incredible rate and is facilitating an evolving globalization of the digital economy (Henry, Cooke, Buckley, Dumagan, Gill, Pastore and LaPorte 1999). It is estimated that e-commerce will account for 15% to 20% of all retail sales in the United States by the year 2010 (Lynch, Kent and Srinivasan 2001). Companies not armed with an understanding of consumer online behavior will likely miss out on the opportunity to accumulate sales and profits anticipated through the digital marketplace. According to Novak, Hoffman, and Jung (2000) there is a vital need to develop more comprehensive knowledge about consumer behavior in online environments. There is much that is still unknown about what individuals on the Web experience psychologically, and how these experiences relate to online consumer behavior.

In addition, online behavior is suitable research for the IS field as online consumers are portrayed as computer users (Koufaris 2002). This study was undertaken to gain a deeper understanding of the online consumer phenomena and to evaluate predictors of individuals' intentions to engage in online purchasing behavior.

What are the key predictors of intentions to purchase online and what psychological constructs influence attitudes toward purchasing online? This study addresses the research question by using the Theory of Reasoned Action / Theory of Planned Behavior (TRA/TPB) as a theoretical basis to model attitude and subjective norm as direct determinants of purchase intentions. In addition, theoretical constructs of perceived skill, Internet importance, and playfulness are positioned as influential psychological determinants of attitude toward Internet shopping. The contribution of this research is to extend existing theory by modeling key antecedents of intentions to purchase online and to provide insight into the psychological experience of consumers in online environments.

## Literature Review and Hypotheses

### *Perceived Importance*

Internet technology and Web use are quickly becoming a key part of the current day culture. As this phenomenon has occurred, individuals have increasingly come to see Web use an important way to communicate with others, to gain access to information,

and to make purchases. The Web has come to be recognized as a boon to many consumers who are interested in comparison shopping among a wide range of alternatives and making purchases without the inconveniences of traveling to a store location. Perceived importance is conceptualized as the self-relevance of Web shopping behavior. This construct captures the degree to which using the Web is personally relevant and meaningful to an individual. It is proposed to be positively related to consumer's attitudes toward purchasing on the Web. The construct of perceived importance is similar to that of involvement with an information system identified by Hartwick and Barki (1994) which was found to be correlated with user attitudes. We expect the relationship to be similar with respect to user attitudes in the current study. An individual who holds the behavior of making purchases on the Web as a self-relevant belief will be more likely to have a favorable attitude toward that behavior.

### ***Attitude***

Attitude is a key construct that has been used extensively in models of volitional behavior. The Theory of Planned Behavior (TPB) (Ajzen 1991) and the Technology Acceptance Model (TAM) (Davis, Bagozzi and Warshaw 1989) are two commonly cited examples. Attitude is generally defined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen 1991). In this case the behavior in question is making purchases over the Web. As mentioned above, we propose that the perceived importance of making purchases over the Web will be a significant predictor of attitude towards that behavior. Ajzen (1991), from the Theory of Reasoned Action, identified attitudinal constructs as direct determinants of behavioral intentions. Therefore, it is believed that attitude will influence behavioral intentions to purchase online.

### ***Perceived Skill***

The construct of perceived skill was defined by Novak et al (2000) as "the Web consumer's capacity for action during the online navigation process." Although they did not predict it theoretically, the authors found that perceived importance was a significant antecedent of perceived skill. This relationship makes sense if we consider that the individuals who see online purchasing as important to them are more likely to be those who have sufficient experience with Web navigation in general and Web purchasing in particular to have developed greater confidence in their own expertise. Following the findings of Novak et al (2000) and this theoretical argument, we expect to find the same relationship. We further expect that an individual's perception of his or her skill at using the Web will be a predictor of his or her attitude towards making online purchases and his or her intention to make online purchases. These relationships are best explained in the low skill case; a person who is not confident in his or her Web abilities is less likely to have a favorable attitude towards making online purchases. Likewise this individual is unlikely to form an intention to do so. This relationship was proposed and supported by Limayem et al (2000). In addition, both the skill to attitude and skill to intention links were supported in a recent meta-analysis examining the predictive validity of the Theories of Reasoned Action and Planned Behavior (Hagger, Chatzisarantis and Biddle 2002).

### ***Computer Playfulness***

Computer playfulness is a specific case of the construct of playfulness in general; it captures an individual's degree of cognitive spontaneity in computer interaction (Webster and Martocchio 1992). In their analysis of the construct, the authors predicted that it would be directly related to positive mood, satisfaction, involvement, motivation and skill. It is the last of those relationships that is relevant here. The play-like aspects of technology use have been noted in the literature for many years. In 1981, Malone evaluated several aspects of computer games in an attempt to understand how learning in computer environment might be made more intrinsically motivating and enjoyable (Malone 1981). In 1992, Davis, Bagozzi, and Warshaw found that the degree to which people enjoy using computers was a significant predictor of their intentions to use them (Davis, Bagozzi and Warshaw 1992). In the current study, consistent with the findings of Webster and Martocchio (1992), we predict that an individual's tendency to computer playfulness will be associated with his or her perceived skill in Web use.

### ***Subjective Norm***

The construct of subjective norm is widely used in predicting intentional behavior; it captures the "person's perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein and Ajzen 1975). Subjective norm has consistently been shown to be a significant predictor of behavioral intention (Davis et al. 1989; Limayem, Khalifa and Frini 2000; Venkatesh and Davis 2000; Hagger et al. 2002) and we expect to find that relationship in the current study.

## **Intention to Purchase**

Behavioral intention to purchase online is the dependent variable in this study. Social psychology theories such as the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975) and the Theory of Planned Behavior (TPB) (Ajzen 1991) maintain that an individual's intention to perform a particular behavior is an effective predictor of actual behavior.

## **Hypotheses**

Formal statements of our hypotheses are as follows:

- H1: Perceived importance will have a direct, positive influence on attitude toward purchasing on the Web.
- H2: Perceived importance of making Web purchases will have a direct, positive influence on perceived skill.
- H3: Computer playfulness will have a direct positive effect on perceived skill.
- H4: Perceived skill will have a direct positive influence on attitude toward purchasing on the Web.
- H5: Subjective norm will have a direct positive influence on attitude toward purchasing on the Web.
- H6: Subjective norm will have a direct positive influence on an individual's intention to purchase on the Web.
- H7: Perceived skill will have a direct positive influence on an individual's intention to purchase on the Web.
- H8: An individual's attitude will have a direct positive effect on his or her intention to purchase on the Web.

## **Method**

A survey was developed by using existing scales (see Appendix A), and administered to undergraduate college students enrolled in an introductory computer course. Participants filled out the survey online. The instrument was presented in a format that was similar to that used in the Novak et al. study. Students were given extra-credit points for completing the survey and were assured that their responses would be kept confidential, with only aggregated survey results reported. The number of surveys completed was 346, with 46% male and 54% female respondents. The majority of the students (95%) were between 18 and 24 years of age, and 76% had been using the Web for more than three years.

The two-step modeling approach, introduced by Anderson and Gerbing (Anderson and Gerbing 1988), was utilized in this study. The first stage of this two-step process is to conduct a confirmatory factor analysis in order to determine whether the factor model fits the data. This establishes the measurement model and confirms both convergent and discriminant validity. Next, the hypothesized causal relations of the constructs are evaluated. This establishes the structural model. The following sections detail the confirmatory factor analysis, verifying the validity and reliability of the measures. The second phase is completed by conducting a path analysis using the AMOS version 4.01 structural equation modeling software package.

## **Results**

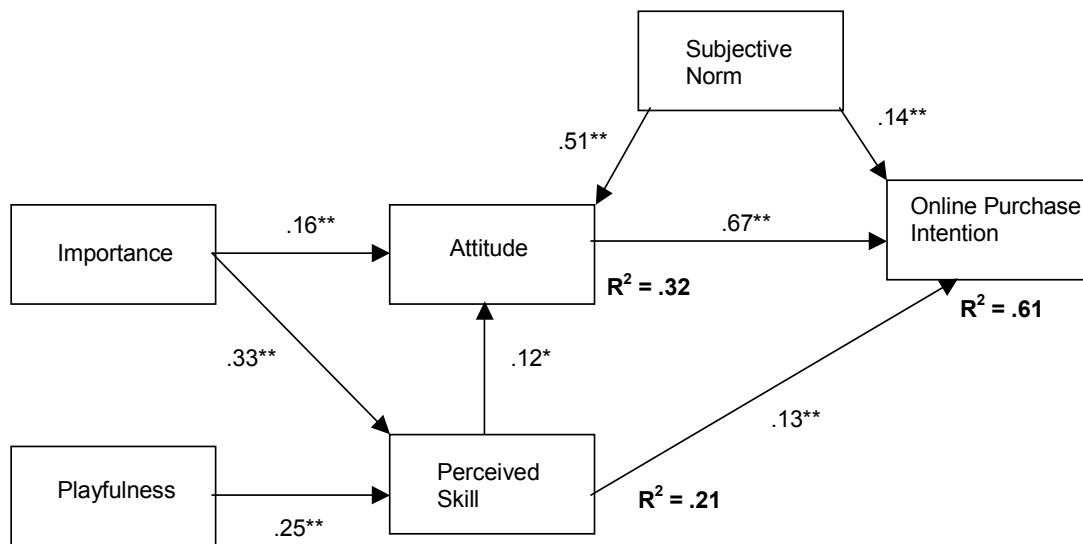
Evidence of construct validity and reliability are detailed in Appendices B, C, and D. Convergent validity is demonstrated with all factor loadings sufficiently large (Barki and Hartwick 2001; Yoo and Alavi 2001) and each t-value is twice the standard error of the loading (Anderson and Gerbing 1988) (see Appendix B). Convergent validity is also verified with the average variance extracted for each construct being at least 0.50, which indicates good convergent validity (Fornell and Larcker, 1981). A chi-square difference test for each pair of constructs and was used to evaluate discriminant validity. Discriminant validity was confirmed by showing significant chi-square differences between models that allowed paired constructs to correlate and models that constrained constructs' correlation to unity (Bagozzi and Phillips 1982) (see Appendix C). Discriminant validity was also confirmed using the average variance extracted (Fornell and Larcker 1981). Composite reliabilities reveal acceptable internal consistency with values greater than 0.70 (Fornell and Larcker 1981), with the exception of subjective norm (0.67). However, subjective norm is well established in the literature, and previously validated measures were used (Limayem et al. 2000). Also, subjective norm displays good convergent and discriminant validity. Composite reliabilities are shown in Appendix D along with the correlations, means, and standard deviations of the constructs.

All eight hypotheses were supported. Results of the hypothesis testing are detailed in Table 1.

**Table 1. Hypothesis Test Results**

Hypothesis	Relationship	$\beta$	P-value	Outcome
H1	Importance -> Attitude	.16	.0000	Hypothesis is supported
H2	Importance -> Perceived Skill	.33	.0000	Hypothesis is supported
H3	Playfulness -> Perceived Skill	.25	.0000	Hypothesis is supported
H4	Perceived Skill -> Attitude	.12	.0134	Hypothesis is supported
H5	Subjective Norm -> Attitude	.51	.0000	Hypothesis is supported
H6	Subjective Norm -> Intention	.14	.0003	Hypothesis is supported
H7	Perceived Skill -> Intention	.13	.0000	Hypothesis is supported
H8	Attitude -> Intention	.67	.0000	Hypothesis is supported
	<b>Intention R<sup>2</sup></b>	.61		
	<b>Attitude R<sup>2</sup></b>	.32		
	<b>Perceived Skill R<sup>2</sup></b>	.21		

Consistent with TRA/TPB both subjective norm and attitude were found to have a significant, positive influence on behavioral intentions. Perceived skill also exerts a positive effect on behavioral intentions both directly and indirectly through attitude. Playfulness indirectly influences intentions to purchase through its effect on perceived skill, and importance indirectly influences intentions through both attitude and perceived skill. Figure 1 shows the resultant model, which explains 61% of the variance in individuals’ intentions to make online purchases and demonstrates an excellent fit of the data.



\*p < .05; \*\*p < .01

Fit Measures	X <sup>2</sup>	X <sup>2</sup> /df	P	RMR	GFI	AGFI	NFI	Evaluation of Fit
Thresholds		≤ 5.0	≥ .05	≤ .10	≥ .90	≥ .80	≥ .90	
Figure 1	4.99	1.25	.288	.034	.99	.98	.99	Excellent

**Figure 1. Online Purchase Intention, Final Model**

## Discussion

The model that was developed and tested provides additional insight into consumers' online purchasing behavior and the psychological states that are determinants of attitudes and intentions to purchase. An individual's perceived skill at Web navigation was found to be a proximal antecedent of both consumer's attitudes and purchase intentions. From a practical sense, Web designers should consider whether functional aspects of their design add to or detract from that sense of skill. For example, sites with broken links and features that work in a counterintuitive fashion may be perceived by consumers as "too hard" causing them to seek out alternative Web sites for their purchases. Confusing navigation, slow response time, and the disregard of user preferences are just a few examples recently identified as "Prime Evils" of Web design (Paul 2000). Other considerations include issues such as technological compatibility. While there are certainly many technology savvy consumers who always have the latest Web browser with all available plug-ins installed on their machine, this may not be the typical consumer visiting an e-commerce Web site. Designers who base their sites on bleeding-edge technology may overlook those users who do not feel the need to upgrade to the latest and greatest software (Paul 2000).

Computer playfulness was found to be a significant predictor of individuals' perceived skill. It is thought that those individuals with the tendency to interact with computer technology in a playful manner are more likely to explore different features and to be more creative in their use of the software (Webster and Martocchio 1992). The practical implications of this finding are that Web sites should be designed in such a way as to enhance the intrinsic enjoyment of the online shopping experience and thereby capitalize on that sense of playfulness. The aesthetic design of the Web page is a key factor in determining its appeal to the consumer (Schenkman and Jonsson 2000). Researchers have long recommended the considered use of color and graphics to engage the user's attention and to enhance the user experience (Nielsen 1996).

To foster perceptions of importance, Web designers may wish to focus on creating sites that are both practical and useful so as to give consumers a sense that the Web offers them reliable functionality. This point may be best illustrated in the negative; if consumers are not confident in the functionality and reliability of a Web site, it is likely to detract from their sense of importance about using the Web.

Overall, the findings of this study underscore the importance of understanding the target audience of a Web site. A site which is designed by a technologically sophisticated IS professional may be very appealing to someone with a comparable level of technological know how, but be seen as unapproachable to the casual browser. Researchers have consistently pointed out the importance of involving end-users in the design process (Dickstein and Mills 2000; Upchurch, Rugg and Kitchenham 2001). The current study underscores this importance by enhancing our understanding of user behavior.

## Limitations and Future Research

One of the limitations of this study is the selected sample; the results may not generalize beyond the undergraduate college student population. Although college students comprise a market segment that is of interest to companies selling their products online, future studies should expand the research to encompass additional online consumer populations. The dependent variable in this study was intention to purchase online; tracking actual purchasing behavior is recommended for further studies. Future research will also want to consider other variables such as antecedents to importance, playfulness, and additional antecedents to attitude.

## Conclusion

The current study has extended theoretical knowledge of the antecedents predicting attitudes toward online shopping and individuals' intentions to make online purchases. Perceptions of Web skill were identified as a significant predictor of both attitude and intentions. Psychological experiences of both playfulness and importance were also found to affect Web purchase intentions indirectly through their influence on attitude and Web skill perceptions. The model explains 32% of the variance in attitude toward online shopping and 61% of the variance in behavioral intentions to purchase.

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## Appendix A. Measurement Scales

<p><b>Intention to Purchase Online</b> (Source: Limayem et al)</p> <ol style="list-style-type: none"><li>1. I intend to purchase through the Web in the near future (i.e. next 3 months)</li><li>2. It is likely that I will purchase through the Web in the near future</li><li>3. I expect to purchase through the Web in the near future (i.e. next 3 months)</li></ol>
<p><b>Attitude toward Purchasing Online</b> (Source: Limayem et al)</p> <ol style="list-style-type: none"><li>1. Online shopping is a good idea.</li><li>2. I like to shop through the Web</li><li>4. Online shopping is exciting</li></ol>
<p><b>Subjective Norms</b> (Source: Limayem et al.)</p> <ol style="list-style-type: none"><li>1. The members of my family (e.g., parents, spouse, children) think that I should make purchases through the Web.</li><li>3. My friends think that I should make purchases through the Web.</li></ol>
<p><b>Importance</b> (Source: Novak et al.)</p> <ol style="list-style-type: none"><li>1. Important/unimportant</li><li>2. Irrelevant/relevant (R)</li><li>3. Means a lot to me/means nothing to me</li><li>4. Matters to me/doesn't matter</li><li>5. Of no concern/of concern to me (R)</li></ol>
<p><b>Playfulness</b> (Source: Novak et al.)</p> <ol style="list-style-type: none"><li>5. I feel creative when I use the Web.</li><li>6. I feel playful when I use the Web.</li><li>7. I feel spontaneous when I use the Web.</li></ol>
<p><b>Perceived skill</b> (Source: Novak et al.)</p> <ol style="list-style-type: none"><li>1. I am extremely skilled at using the Web.</li><li>2. I consider myself knowledgeable about good search techniques on the Web.</li><li>4. I know how to find what I am looking for on the Web.</li><li>5. How would you rate your skill at using the Web, compared to other things you do on the computer?</li><li>6. How would you rate your skill at using the Web, compared to the sport or game you are best at?</li></ol>



## Appendix B. Convergent Validity

Items	Loadings	S.E.	T-value	P-value	Average Variance
Importance-1	.793	.072	17.286	<.001	.62
Importance-2	.577	.089	11.356	<.001	
Importance-3	.860	.07	19.541	<.001	
Importance-4	.928	.065	22.086	<.001	
Importance-5	.739	.08	15.619	<.001	
Playfulness-1	.645	.086	11.33	<.001	.50
Playfulness-2	.815	.095	13.929	<.001	
Playfulness-3	.660	.095	11.567	<.001	
Perceived Skill-1	.813	.089	17.183	<.001	.51
Perceived Skill-2	.853	.087	18.382	<.001	
Perceived Skill-3	.693	.092	13.859	<.001	
Perceived Skill-4	.629	.076	12.24	<.001	
Perceived Skill-5	.548	.115	10.347	<.001	
Attitude-1	.870	.05	15.127	<.001	.69
Attitude-2	.913	.052	19.839	<.001	
Attitude-3	.805	.045	21.468	<.001	
Subjective Norm-1	.704	.06	11.494	<.001	.50
Subjective Norm-2	.711	.062	11.591	<.001	
Intention-1	.926	.052	22.428	<.001	.85
Intention-2	.891	.051	21.017	<.001	
Intention-3	.955	.051	23.687	<.001	

- Convergent validity is demonstrated based on the following criteria: (1) t-values of each loading are significant at the .05 level and are at least twice the standard error of loading (Anderson and Gerbing 1988) (2) factor loadings are all greater than .5, which is sufficiently large to indicate convergent validity (Barki and Hartwick 2001; Yoo and Alavi 2001) (3) average variance extracted should be  $\geq .50$  (Fornell and Larcker 1981).

## Appendix C. Discriminant Validity

Construct Pair	$\Delta$ Chi-Square	$\Delta$ Degrees of Freedom	Significance Level
Subjective Norm – Attitude	49.14	1	<.0001
Subjective Norm – Importance	994.7	1	<.0001
Subjective Norm – Perceived Skill	106.65	1	<.0001
Subjective Norm – Playfulness	102.5	1	<.0001
Subjective Norm – Intention	52.5	1	<.0001
Intention – Importance	976.4	1	<.0001
Intention – Perceived Skill	578.2	1	<.0001
Intention – Attitude	246.2	1	<.0001
Intention – Playfulness	227.6	1	<.0001
Attitude – Perceived Skill	601.2	1	<.0001
Attitude – Importance	822.8	1	<.0001
Attitude – Playfulness	224.9	1	<.0001
Perceived Skill – Importance	499.7	1	<.0001
Perceived Skill – Playfulness	179.6	1	<.0001
Importance – Playfulness	223.7		

- Discriminant validity is evaluated by a chi-square difference test between an unconstrained model estimating the correlation between a pair of constructs and a constrained model with the correlation between that pair of constructs fixed to unity. A significant chi-square difference demonstrates discriminant validity by showing that the correlation between the pair of constructs is significantly less than 1.0 (Fornell and Larcker 1981; Bagozzi and Phillips 1982).

	Importance	Playfulness	Perceived Skill	Attitude	Subjective Norm	Intention
Importance	<b>.62</b>					
Playfulness	.06	<b>.50</b>				
Perceived Skill	.15	.19	<b>.51</b>			
Attitude	.04	.04	.05	<b>.69</b>		
Subjective Norm	.001	.03	.005	.45	<b>.50</b>	
Intention	.03	.04	.08	.68	.39	<b>.85</b>

- Discriminant validity is evaluated by comparing the average variance to the squared correlations. The average variance is displayed along the diagonal, and the squared correlations are displayed below the diagonal. To demonstrate discriminant validity, the average variance should be larger than the corresponding squared correlations for the constructs (Fornell and Larcker 1981).

## Appendix D. Correlations, Means, Standard Deviations, and Composite Reliabilities

	<b>Involvement</b>	<b>Playfulness</b>	<b>Perceived Skill</b>	<b>Attitude</b>	<b>Subjective Norm</b>	<b>Intention</b>
Involvement	1.00					
Playfulness	.24	1.00				
Perceived Skill	.38	.44	1.00			
Attitude	.20	.23	.22	1.00		
Subjective Norm	.03	.16	.07	.67	1.00	
Intention	.17	.20	.29	.82	.63	1.00
Mean	2.99	5.12	5.67	3.08	2.7	3.08
Standard Deviation	1.307	1.306	1.429	.956	.865	1.17
Composite Reliability	.89	.75	.84	.90	.67	.95

- Attitude and Intention measured on 1 - 5 scale
- All other constructs measured on 1 – 9 scale
- Threshold for composite reliability  $\geq .70$