EXPLORING THE INTERNET AS A UNIQUE SHOPPING CHANNEL TO SELL BOTH REAL AND VIRTUAL ITEMS: A COMPARISON OF FACTORS AFFECTING PURCHASE INTENTION AND CONSUMER CHARACTERISTICS

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ABSTRACT

The U.S. online retail sector has been steadily growing in the past years, but it is noteworthy that many Internet users are still reluctant to use online channels for shopping frequently. Given this consumer resistance and the fierce competition among shopping channels, this study aims to provide managerial insights into how online merchants can reinforce and maximize unique and differentiated values in executing shopping services as an Internet-based system. To that end, this study compares two types of products/services that online merchants can market —"real" and "virtual" items — with respect to factors affecting purchase intention and consumer characteristics. Using a survey of 350 college students, this study reveals that college students apply different criteria in making the decision to use an online shopping channel, according to the product types. Perceived benefits and risks of online shopping are salient factors affecting intention to purchase real items through the Internet, but they do not have any impact on intention to purchase virtual items. Specifically, perceived usefulness, ease of use, enjoyment, security, social norm, flow, and gender affect intention to purchase real items through the Internet. Social norm and gender are the two predictors of intention to purchase virtual items.

Keywords: Virtual, Real, E-commerce, Online shopping, Technology Acceptance Model

1. Introduction

The Internet is the fastest-growing medium, reaching 50 million users within five years since its introduction to the public [Katz 2007]. Behind this marked growth, there have been lingering doubts about whether the sheer number of Internet users can be converted into profit. Industry professionals and academics have singled out the Internet for lacking stable business models [Hoffman, Novak, & Peralta 1999; Knowledge@Wharton 2008]. A vexing problem for the Internet lies in the common consumers' perception that everything online is and should be free. After all, during the Internet bubble, most content online was free. Thus online businesses have tended to rely on investors and advertisers for revenue and capital. Online business models were not very diversified until the dot-com crash [Pauwels & Weiss 2008].

Online business models can be classified into four types: advertising, e-commerce, intermediaries, and services [Lewis 2000]. While advertising has been the common and predominant type of business model, the e-commerce sector has displayed steady growth in the United States. The U.S. online retail sector experienced a 21% increase in sales from 2006 to 2007 from $144.6 billion to $175 billion, according to Forrester Research [Internet Retailer 2007]. The outlook for future growth is similarly optimistic. The research firm projected that US online retail sales will reach nearly $249 billion by 2014 [Forrester Research 2010].

Despite the promising outlook for and steady growth of the online shopping industry, online sales still account for only a small fraction of retail sales in the United States. Online shopping accounted for only 4% of U.S. overall retail sales as of 2006, according to U.S. Department of Commerce [Knowledge@Wharton 2008]. It is projected that online shopping may account for 8% of overall retail sales in the U.S in 2014 [Forrester Research 2010]. Researchers have argued that only a few online companies have developed a successful mode of generating revenue online [Knowledge@Wharton 2008]. Presumably, online merchants are not fully exploiting the unique strengths and different values of Internet-based systems.

Unlike traditional shopping channels, firms that utilize online shopping as a means to generate revenue can sell both "real items" and "virtual items." This is due to the inherent and unique characteristics of cyberspace and the Internet. "Real items" refer to goods or services that can be used offline — no matter whether these goods or services are bought online or offline. Examples of real items include books, furniture, computers, clothes, flight

tickets, travel packages, and so on. "Virtual items" are goods or services whose purchase and use are constrained to a particular online space, as opposed to the concept of "real items." Examples of virtual items include avatars, virtual pets, profile layouts for specific Web spaces, virtual gifts, and music that can only be played on a particular Web space.

As a result of the emergence of the Internet as a shopping channel, some studies have examined factors that influence online shopping or have compared online and offline shopping channels [e.g., Aldridge et. al 1997; Browne, Durrett, & Wetherbe 2004; Chen, Gillenson, & Sherrell 2002; Dittmar, Long, & Meek 2004; Doolin, Dillon, Thompson, & Corner 2005; Wang et. al 1998; Pavlou 2003]. Others investigated the role of product types in consumers' choice of online shopping [Dahlen & Lange 2002; Shim, Eastlick, Lotz, & Warrington 2001]. However, most of the previous studies that investigated the Internet as a shopping channel tended to focus on real items. Instead of focusing only on real items, this study expands its scope to include virtual items. By doing so, this study aims to provide managerial insights into how online merchants can reinforce and maximize unique and differentiated values when offering shopping services on the Internet. Specifically, this study explores and compares the factors that facilitate or hinder intent to purchase real items and virtual items on the Internet.

Theoretically, this study integrates the Theory of Reasoned Action (TRA) and Technology Acceptance Model (TAM) with other perceptions of online shopping and consumer characteristics. The rationale for the theoretical integration is explained in the theoretical framework section. Following is a brief overview of classical product type typology to explain why this study classifies products and services into real and virtual items.

1.1. Product Type

Researchers use several typologies to categorize products/services [Alba, Lynch, Weitz, et al. 1997; Peterson, Balasubramanian, & Bronnenberg 1997; Klein 1998]. A common product/service category in conventional marketing research employs the asymmetry of product information as a criterion for classification. The classification divides products/services into three categories – search goods, experience goods, and credence goods [Nelson 1970, 1974]. *Search* goods are products with attributed information that can be fully known prior to purchase. *Experience* goods are products whose attribute information cannot be obtained until one directly experiences the product. *Credence* goods have attributes that consumers may not evaluate even after the purchase and consumption [Darby & Karni 1973; Nelson, 1970, 1974].

With the emergence of virtual items and virtual worlds, the classification among search, experience, and credence goods may not be as clear-cut as before. Under the traditional classification, virtual items may be similar to experience goods. However, consumers are able to search for those items and fully learn their attributes prior to actual purchase, because virtual items are readily available on the Web. In addition, the shifts in shopping environments may diminish the boundaries or impact of conventional product categories. Both online and brick-and-mortar shopping venues increasingly enable consumers to experience and gain knowledge about the attributes of products/services before purchase.

Previous research indicated that product type affects consumers' decisions regarding whether or not to use online stores [Bhatnagar, Misra, & Rao 2000; Peterson et al. 1997]. Some researchers focused on specific types of product or services such as books [Liang & Lai 2002], groceries [Dahlen & Lange 2002], search goods [Shim, Eastlick, Lotz, &Warrington 2001], and travel services [Ruyter, Wetzels, & Kleijnen 2001]. Others employed a conventional product classification, exploring how search, experience, and credence goods vary in their impact on the decision to use online shopping services [Girard, Silverblatt, & Korgaonkar 2002; Korgaonkar, Silverblatt, & Becerra 2004]. However, the product categories that existing research focused on are still limited to real items. Considering that the Internet is a unique venue that can carry and sell virtual items, and considering the growing popularity of virtual items online, this study classifies products and services into real and virtual items.

1.2. Sales of Virtual Items

Virtual item sales have been increasing in recent years. In 2009, the estimated sales of virtual items in the U.S. totaled $1 billion [Boykoff 2010]. The surging popularity of massive multiplayer online role-playing games (MMORPG) in the past several years have contributed to this growth. At Gaia Online, a MMORPG site, the more than 300,000 users spend $1 million per month buying virtual goods [Delaware Online 2008]. Worldwide sales of virtual items within the MMORPG domain increased from $100 million in 2004 to $200 million in 2006 [Biever 2004; Paul 2006]. The U.S. MMORPG-related virtual item economy has an estimated value of $250 million to $800 million per year [Ali 2007].

Social networking Web sites and virtual worlds are another potent driving force behind the rise of virtual items online. Cyworld.co.kr, a popular Korean social network that has attracted more than a third of the country's population and 90% of people in their 20s, generated $200 million in 2008 through sales of virtual items [Ashby 2009]. Items include avatars, and customized profile layouts that can be purchased and used only on Cyworld [Schonfeld 2006]. U.S. social networking sites also provide their users with many similar items such as music and

profile layouts — but usually for free. Recently, however, Facebook began to experiment with virtual items named virtual gifts (e.g., pure graphics on Facebook) as a peripheral revenue source. The estimated annual sales numbers of such virtual gifts range from 28.5 million to 43.5 million. Industry experts presume that the sales of virtual gifts currently account for about 10% of Facebook's annual revenue [Rosenberg 2008].

Virtual worlds are greatly enhancing the potential of virtual items as a revenue source. Users of virtual worlds such as Second Life, Utherverse, Club Penguin, Webkinz, and Stardoll can buy digital clothing, accessories, or furnishings for their avatars [Irvine 2007]. Some real-world clothing designers generate revenues from virtual worlds by charging 75 cents to $1.50 per virtual cloth to Second Life users [Gunderloy & Sherman 2008]. According to a report by Light Speed Venture Partners, such free-to-play virtual worlds including Habbo Hotel, Club Penguin, and Runescape have average revenue per user (ARPUs) ranging from about $1 to $2 — averaging at $1.40/monthly user [Virtual World News, 2008]. Second Life is monetizing at around $9.30 per user per month, a much higher rate than those of the other casual worlds [Liew 2008]. Seven million users of Second Life have spent millions of dollars on clothing for their avatars [Tedeschi 2007].

Despite the positive growth outlook for virtual item sales online, little research has been done so far regarding the determinants of purchasing virtual items online. To build a comprehensive model of e-commerce, this study integrates the constructs that have been considered critical for e-commerce in the real item context. This study examines whether the predictors used in a real item context are also valid for measuring intent to purchase virtual items.

2. Theoretical Framework

Researchers have examined the link between attitudes and behavioral intentions in consumers' technology use [Bagozzi & Kimmel 1995; Bagozzi, & Warshaw 1989; Mathieson 1991; Dabholkar 1992, 1996; Davis 1989, 1993; Davis; Taylor & Todd 1995; Davis & Venkatesh 1996]. Theory of Reasoned Action (TRA) is a theory that is widely applied to explain one's intention and actual behavior. TRA proposes that behavior is determined by an individual's intention to perform the behavior, and intention is a function of two determinants — attitudes and subjective norms [Ajzen & Fishbein 1980; Fishbein & Ajzen 1975]. While most of the support for the theory has come from the social psychology literature, there has been success in applying this theory to consumer decision-making [Sheppard, Hartwick, & Warshaw 1988; Taylor & Todd 1995]. Despite the wide applications of TRA across a variety of disciplines, TRA has a critical weakness in predicting the adoption of a new technology or system. The theory barely explains how perceived attributes, benefits, or risks of the system affect consumers' adoption decision-making, because TRA is not designed specifically for technology adoption.
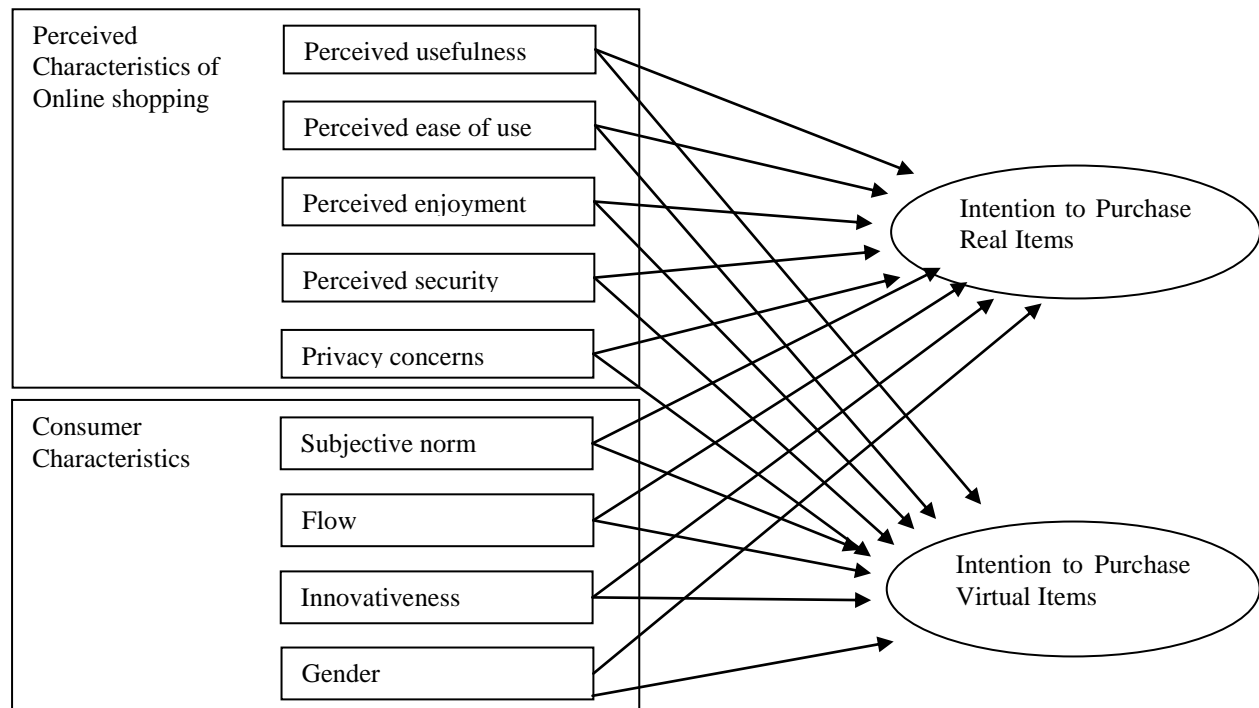

Figure 1. Theoretical Framework

Technology Acceptance Model (TAM), which is derived mainly to explain the adoption of an information system, can be used to mitigate the shortcoming of TRA. Focusing on benefits or attributes of a system or technology, TAM postulates that perceived usefulness and ease of use are the two core predictors of whether individuals or organizations intend to embrace the system [Davis 1989; Davis et al. 1989; Davis, Bagozzi, & Warshaw 1992]. TAM is considered is the most widely accepted and applied theory to explain the adoption of a technology or system [Yi, Jackson, Park, & Probst 2006]. Nevertheless, meta-analysis of TAM has criticized it, saying that it disregards human and social change variables such as subjective norms [Legris, Ingham, & Collerette 2003], and exclusively focuses on audiences' perceptions of the system. In that regard, the integration of TAM with TRA, which takes into account social influences, will yield more reliable predictions for online shopping use.

Figure 1 illustrates the models suggested by this study. With the purpose of this study to identify the specific factors behind online shopping, the present study replaces the general attitude construct in TRA with three components of TAM: perceived usefulness, ease of use, and enjoyment that reflects the attributes of online shopping. TRA and TAM are parsimonious and robust because the focus is on generality across various disciplines and settings [Venkatesh & Davis 2000]. This study is not another test of the generality of TRA or TAM when applied to an online shopping context. Rather, this study aims to identify specific factors that affect the purchase intention toward real and virtual items online and consumer characteristics. Previous research has pointed out that TRA and TAM should be supplemented and extended with other constructs to be more comprehensive [Venkatesh & Davis 2000]. Therefore, this study adds other online shopping-related constructs (i.e., perceived security and privacy concerns) and consumer characteristics (i.e., innovativeness, flow experience, and gender).

2.1. Perceived Usefulness, Ease of Use, and Enjoyment

TAM posits that perceived usefulness and ease of use of a particular information system are the core drivers in establishing an attitude toward the system [Davis 1989; Davis, Bagozzi, & Warshaw 1989]. Numerous empirical tests done in contexts of different technologies and settings supported TAM as a parsimonious yet robust model to predict attitude and intentions of a new system adoption [Gefen & Straub 2003]. Previous studies found that perceived usefulness and ease of use are significant factors that affect consumers' intentions to use e-commerce [Fetscherin & Lattermann, 2008; Gefen & Straub 2000; Lee, Park, & Ahn 2001]. Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his/her job performance" (p. 320). Perceived ease of use refers to "the degree to which an individual believes that using a particular system would be free of real and mental efforts" [Davis 1989, p. 323].

Another important addition to the TAM model is perceived enjoyment. Perceived enjoyment is defined as "the extent to which the activity of using the system is to be perceived enjoyable in its own right, apart from any performance consequences that may be anticipated" [Davis et al. 1992, p. 1113]. Enjoyment is a factor that is widely considered important to a shopping experience, paired with convenience and social interaction [Javenpaa & Todd 1997]. Atkinson and Kydd [1997] found that perceived enjoyment strongly influences the entertainment purposes of the Web. Further, Ha and Stoel [2009] discovered that perceived enjoyment affects attitude toward online shopping.

Based on prior studies, it is legitimate to propose that perceived usefulness, ease of use, and enjoyment of online shopping are positively associated with the intention to purchase real and virtual items online. Therefore, the following hypotheses are suggested:

H1a. Perceived usefulness, ease of use, and enjoyment of online shopping are positively associated with intention to purchase real items over the Internet.

H1b. Perceived usefulness, ease of use, and enjoyment of online shopping are positively associated with intention to purchase virtual items over the Internet.

2.2. Perceived Security

The three components of TAM can reflect positive attitudes toward e-commerce. On the other hand, security and privacy have been conceptually proposed as barriers to the acceptance of e-commerce. Salisbury, Pearson, Pearson, and Miler [2001] defined perceived security on the Web as "the extent to which one believes that the World Wide Web is secure for transmitting sensitive information" (p. 166). Consumer-related Internet security typically involves the encryption of transactions to prevent third-party fraud or theft [Machrone 1998]. Security of transactions is one of the biggest disadvantages consumers cite regarding online shopping [Economist 2004], followed by consumers reporting that they are not able to see the product or service before purchasing [Browne, Durrett, & Wetherbe 2004].

Yenisey, Ozok, and Salvendy [2005] asserted that the security concern causes more and more people to hesitate when asked to submit sensitive information over the Web. Salisbury et al. [2001] empirically found that perceived security on the Web positively affects the intent to purchase items on the Web. More recent studies also indicate that security is a factor that influences online shopping behavior. Wang et al. [2006] suggested that many Internet users are still reluctant to purchase through online shopping because they are skeptical of how much privacy and security

they will have. Shergill and Chen [2005] found that perceived security critically influences the level of consumer satisfaction and consumer attitude toward online shopping. Kim and Park [2006] also found that perceived security of an online shopping site increases satisfaction with the information on the shopping site and thus the long-term relationship with the online shopping service provider. Thus, this study postulates that perceived security of online shopping increases consumers' intention to purchase both real and virtual items through the Internet.

H2a(b). Perceived security of online shopping is positively associated with intention to purchase real (virtual) items over the Internet.

2.3. Privacy Concerns

Consumers have different expectations of privacy according to the type of media they are using. While consumers either tolerate or are resigned with disgust in terms of expectation of privacy in traditional media, consumers want control and protection of privacy in electronic media [Hoffman et al., 1999]. Information privacy is referred to as "the interest individuals have in controlling, or at least significantly influencing, the handling of data about themselves" [Clarke 2000, p. 4]. Because e-commerce Web sites lack face-to-face relationships with consumers, they tend to collect more personal information from consumers than do brick-and-mortar retailers. As a consequence, consumers are highly concerned about their information privacy online. Overall, privacy concerns decreased since 2001 [Jesdanun 2008], but have started to increase again recently. A survey conducted by the University of Southern California's Center for the Digital Future found that as of February 2007, 61% of American adults said they were very or extremely concerned about the privacy of personal information when buying online — an increase from 47% in 2006 [Jesdanun 2008].

Information privacy concerns have been an issue since the emergence of online shopping. Researchers have been testing information privacy as a plausible factor that might influence purchase behaviors online. However, earlier studies failed to detect a significant impact of privacy concerns on purchase intention or actual purchases online. Rohm and Milne [1998] reported that privacy, including acquisition and dissemination of consumer data, is one of the biggest concerns — both for those who purchased products online, and for those who did not. Other studies undertaken in the late 1990s and early 2000s also indicated that privacy concerns have no effect on online purchasing behaviors [Swaminathan, Lepkowska-White, & Rao 1999; Bellman, Lohse, & Johnson 1999; Miyazaki & Fernandez 2001].

More recent studies are more likely to support the importance of information privacy in the online shopping context. Wang et al. [2006], in their empirical study on relative weight of Internet commerce factors, identified privacy as one of the most critical factors in online marketing, along with safety and product quality. The findings indicated that as marketers of Web sites improve the level of privacy, as well as safety and product quality, more people will visit and shop online. Shergill and Chen [2005] revealed that information privacy constitutes the consumers' primary concern that affects perceived risks of online shopping and purchase intention online. Other studies also found that consumers' privacy concerns negatively affect their purchase intention or attitude toward products or services via e-tailers [Dinev & Hart 2006; Eastlick, Lotz, & Warrington 2006; Lian & Lin 2008].

So, we see that recent studies are more likely than earlier studies to find an impact of privacy concerns on online shopping behaviors. This is because there is an increasing tendency for Web proprietors and online merchants to collect a substantial amount of data from consumers for the purpose of delivering personalized and tailored services. Technology advancement has enabled Web proprietors and online merchants to track consumer behaviors online. Based on the findings from recent empirical studies, the following hypotheses are argued:

H3a(b). Privacy concerns about online shopping are negatively associated with intention to purchase real (virtual) items over the Internet.

2.4. Subjective Norm

TRA specifies a subjective norm as a determinant of individuals' behavioral intentions. Subjective norm is defined as "the perceived social pressure that most people who are important to him/her think he/she should or should not perform the behavior in question" [Fishbein & Ajzen 1975, p. 302]. The higher the level of subjective norm, the higher the behavioral intention [Taylor & Todd 1995; De Vos, Ter Hofte, & De Poot 2004]. Empirical studies applying TRA have found that social influences positively affected an individual's behavior [Cheung, Chang, & Lai 2000; Ross, Kohler, Diane, Grimley, & Anderson-Lewis 2007; Zhang & Mao 2008]. Compeau and Higgins [1995] maintained that the encouragement from significant others, which is one source of subjective norms, is expected to influence outcome expectations. Numerous empirical studies have found that social factors positively impact an individual's IT usage [Venkatesh & Morris 2000; Bhattacherjee 2000; Hsu & Chiu 2004 a, b; Huang & Chang 2005; Wu & Chen 2005]. With respect to the influence of the social norm, specifically on online shopping behaviors, Crespo and Rodrı́guez [2008] discovered that it positively affects attitudes toward online shopping. Previous studies found that the subjective norm positively affects the intention to purchase online [Grandón, Nasco, Mykytyn 2010; Järveläinen 2007; Nasco, Toledo, & Mykytyn 2008]. Applying the theory to online shopping, the

following hypotheses are proposed:

H4a(b). Subjective norm is positively associated with intention to purchase real (virtual) items over the Internet.

2.5. Flow

Csikszentmihalyi's Flow Theory views flow as a state in which individuals might be oblivious to the world around them and lose track of time — and even self — as a result of high-level engagement in an activity [1975, 1990, 2000]. People in a flow state are depicted as intrinsically motivated, interested in the challenging tasks at hand, being unconscious of themselves while performing the tasks, feeling a unity between consciousness and activities, and often losing sense of physical time [Csikszentmihalyi 1990, pp. 48–66]. The flow construct has been applied within varying contexts including shopping, sports, hobbies, computer use, media consumption, and so forth [Csikszentmihalyi 1977, 1990, 1997; Csikszentmihalyi & LeFevre 1989; Csikszentmihalyi & Csikszentmihalyi 1998].

Recently, the flow construct has arisen as a key to understanding consumer behaviors online [Hoffman & Novak, 1996; Novak, Hoffman, & Yung, 2000]. Hoffman and Novak [1997] suggested that both frequency and duration of Web site visits increase as Web sites facilitate the flow experience. Shin [2006] empirically found a positive correlation between flow and satisfaction with a virtual course. Focusing on unplanned purchases online, Koufaris [2002] failed to find a relationship between unplanned purchases and flow variables.

The role of flow may differ according to the shopping values sought by consumers. Existing research suggested that consumers rely on two different sets of values in making shopping decisions: hedonic and utilitarian [Babin, Darden, & Griffin 1994; Babin & Darden 1995]. Hedonic shopping value reflects the value received from the multisensory, fantasy-related and emotive feeling one gets from having a particular product, whereas utilitarian shopping value focuses on the acquisition of products and/or information in an efficient manner and can be viewed as reflecting a more task-oriented, cognitive, and non-emotional outcome [Babin et al. 1994; Holbrook & Hirschman 1982]. Utilitarian value is more associated with cognitive aspects of attitudes, such as economic benefit [Zeithaml 1988], convenience, and time savings [Jarvenpaa & Todd 1997; Teo 2001].

Online shoppers tend to seek utilitarian values rather than hedonic values [Reibstein 2002], given the context where the items that are sold are a constraint to real items, because online shopping services lack multisensory attributes. Meanwhile, Sherry [2004] argued that flow experience stimulates emotional pleasure, i.e. an escape into a fantasy. Thus, this study proposes that flow experience may deter consumers from achieving their shopping goals efficiently when they try to purchase real items through online shopping. On the other hand, flow experience may facilitate the purchase intention of virtual items because virtual items are designed with fantasy and emotional pleasure in mind. Therefore, the following hypotheses are proposed:

H5a. Flow experiences are negatively associated with intention to purchase real items over the Internet.

H5b. Flow experiences are positively associated with intention to purchase virtual items over the Internet.

2.6. Innovativeness

Individual innovativeness tends to differentiate adopters from non-adopters of new technologies [Lin 1998; Lin & Jeffres 1998; Busselle, Reagan, Pinkleton, & Jackson 1999]. Early adopters are said to possess a higher degree of personal innovativeness [Rogers 2003]. Some researchers have found a positive impact of general innovativeness on the adoption of various new systems. However, other researchers criticize the application of individual innovativeness to the adoption of a system in different domains, because general innovativeness disregards the possible differences in individual innovativeness across domains.

Some previous research has employed two types of consumers' innovativeness: open-processing or general innovativeness and domain-specific innovativeness [e.g. Bass 1969; Rogers & Shoemaker 1971; Goldsmith & Hofacker 1991]. While general innovativeness measures an individual's tendency to seek novelty or to be more receptive to new ideas in general [Leung & Wei 1998; Lin 1998; Lin & Jeffres 1998; Li 2003; Rogers 2003], domain-specific innovativeness measures individuals' innovativeness within a particular product field [Citrin, Sprott, Silverman, & Stem 2000, p. 294]. Indeed, Gatignon and Robertson [1985] found little overlap in innovativeness across domains. Citrin, Sprott, Silverman, and Stem [2000] empirically examined the impact of general innovativeness and domain-specific innovativeness on the use of the Internet for shopping. They found a positive influence of domain-specific innovativeness on the use of the Internet for shopping, but they failed to prove the impact of general innovativeness. Therefore, this study applies domain-specific innovativeness and proposes the following hypotheses:

H6a(b). Individual shopping innovativeness is positively associated with intention to purchase real (virtual) items over the Internet.

2.7. Gender

Gender difference with respect to Internet use in the U.S. has decreased in recent years. More males used the Internet than females in the nascent years of the Internet, and as such online shopping was prevalent among males in

the late 1990s [Pew 1998; Ernest & Young 1999]. More recent industry surveys, however, have revealed a different trend in which females are generally more dominant in online shopping [E-marketer 2010; Pew Internet and American Life 2002; Sky New 2002]. As of 2010, females accounted for 58% of online buyers and 61.2% of online purchases. During the same year, females also spent more money online than males [E-marketer 2010].

Despite these results of industry reports, existing scholarly research shows that males are still more likely to purchase online than are females [Teo 2001; Stafford, Turan, & Raisinghani 2004; Doolin et al. 2005]. The discrepancy between the industry reports and scholarly research with respect to gender differences in online shopping may be attributed to inconsistency in defining online shopping. That is, some of the studies might entirely focus on purchasing real items through the Internet, excluding the purchase of virtual items in its definition of online shopping. Dittmar et al. [2004] argued that the reason why women are less likely to shop online arises from the different conventional shopping motivations of males and females. Because the online shopping environment does not offer emotional involvement and social interaction, females are less likely to shop online.

Although some researchers consider gender merely as a control variable [Lee & Turban 2001], other aforementioned studies [Teo 2001; Stafford, Turan, & Raisinghani 2004; Doolin et al. 2005] found solid evidence of the gender effect in the context of online shopping for real items. From an online merchants' managerial perspective, gender is an important consumer characteristic. Thus, this study explores the gender effect when the item scope that is sold online is extended to include both real and virtual items. In the context of real items, this study postulates that males are more likely to purchase online than females, based on previous studies that primarily focus on purchasing real items online. Girard, Korgaonkar, and Silverblatt [2003] found that females are more inclined to shop online for hedonic experience goods. Virtual items can be classified as hedonic experience goods in that those items are designed for emotional and multisensory pleasure rather than for necessity. Thus, it is legitimate to propose that females are more likely to purchase virtual items than males.

H7a. Males are more likely than females to purchase real items over the Internet.
H7b. Females are more likely than males to purchase virtual items over the Internet.

3. Method

3.1. Sample and Procedures

As the Internet becomes more and more pervasive, college students are a consumer segment that is particularly active and has more heavy Internet users than most other population segments [U.S. Department of State 2002; Kim & LaRose 2004]. College students have also been the primary users of online shopping [Cassis 2007]. They spend more money online than any other demographic segment in the U.S. [O'Donell & Associates, LLC 2004]. Roemer [2003] revealed that college students spent a total of $1.4bn on online shopping as of 2002.

Basil [1996] suggested that the use of college student samples is valid if the demographic group is of interest to the topic of study. The employment of the college student sample is reasonable in studying purchase intention of real and virtual items through the Internet because college students are active users of online shopping, as mentioned previously. The venues where virtual items are widely available include social networking Web sites, virtual worlds, and online game sites; they also support the idea that college students are an important segment for this study. More than 80% of U.S. college students use social networking sites on a regular basis [Arrington 2005; The Info-Shop.com 2007]. Nearly all college students had played video games, including online games, and two out of three still play regularly [Lee & LaRose 2007].

To examine the proposed hypotheses, a survey method was employed. Definitions and examples of real and virtual items were given in the survey questionnaire. Prior to the main surveys, a pretest with a sample of 38 undergraduate students was undertaken to detect problems with the questionnaire. Wordings and orders of a few questions were slightly modified after the pretest. For the main surveys, a sample of 350 undergraduate students with different majors was employed from multiple classes at a large southeastern university. The sample was composed of 33.4% males (n =117) and 66.6% females (n = 233). The mean age of the participants was 20.07 ($SD = 2.02$). Freshmen accounted for 18.6%, sophomores 29.7%, juniors 36.0%, and seniors 15.7%. Ninety-seven percent of the respondents answered that they have purchase real items via the Internet. In terms of virtual items, 62% of respondents purchased virtual items, whereas 38% have not purchased virtual items.

3.2. Measures

Appendix 1 shows the measure, reliability of each construct, and descriptive statistics. All of the measures confirmed reliability, yielding Cronbach's alphas from .63 to .96. The generally agreed lower limit for Cronbach's α for reliability is .70, but it can be decreased to .60 in exploratory research [Hair et al. 1998].

The three components of TAM measures were adapted from previous studies [Davis 1989; Davis et al. 1989; Davis et al. 1992]. The mean score of perceived ease of use regarding online shopping ($M = 5.84$, $SD = 1.08$) was the highest. The means for perceived usefulness ($M = 5.57$, $SD = 1.23$) and enjoyment ($M = 5.17$, $SD = 1.23$) were

slightly lower than that.

For perceived security of purchasing products/services over the Internet, two items were borrowed from Vijayasarathy [2003]. The mean for perceived security of online shopping was 4.51 (*SD* = 1.50). Measures of privacy concerns were adapted from Smith, Milberg, and Burke [1996] and Culnan and Armstrong [1999]. This measure has a mean of 5.20 (*SD* = 1.23). Subjective norms of purchasing real and virtual items via the Internet were measured using three items adapted from Mathieson [1991]. Subjective norm for purchasing real items via the Internet (*M* = 4.80, *SD* = 1.14) was higher than the subjective norm for purchasing virtual items (*M* = 3.31, *SD* = 1.47). It means that the respondents tended to believe that the people important to them are more supportive of purchasing real items than virtual items via the Internet.

For domain-specific innovativeness of shopping, four items were adapted from prior research [Goldsmith, Hauteville, & Flynn 1997; Goldsmith, Freiden, & Eastman 1995]. The mean of this measure was 4.04 (*SD* = 1.00). All of the constructs mentioned above were measured on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). To measure flow, respondents were first asked to read the description of what flow is and then to assess how much they agree with two statements adopted from Novak, Hoffman, and Yung [2000]. One item asked about the frequency of flow experience on a seven-point scale (1 = never, 7 = all the time). The other item asked whether, most of the time, the respondent felt that he/she is in flow on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). This measure has a mean of 3.28 (*SD* = 1.45).

Finally, measures of purchase intention toward real and virtual items via the Internet were adapted from Venkatesh and Davis [2000]. The purchase intentions were measured for real and virtual items, respectively, using three items. Respondents were asked how much they agree with the likelihood of adoption on a seven-point Likert scale (1 = strongly agree, 7 = strongly disagree). The mean for purchase intention of real items via the Internet [*M* = 5.70, *SD* = 1.37] was higher than the one for the purchase intention of virtual items (*M* = 3.00, *SD* = 1.68).

4. Results

To understand the factors that predict how likely college students are to purchase real and virtual items via the Internet, two multiple regressions were carried out separately for real and virtual items. Prior to performing the multiple regressions, variance inflation factor (VIF) was first consulted to evaluate if there existed any multi-collinearity problems. VIF ranged from 1.04 to 2.45, which indicated no multi-collinearity problems among variables. The results from the multiple regressions for real and virtual items are exhibited in Table 1. Coefficients for the independent variables and their p-values were used to determine whether each of the hypotheses is supported or not supported.

Table 1. Multiple Regression Analyses of Variables Predicting Purchase Intention of Real and Virtual Items through the Internet

	Real items		Virtual items	
	β	t	β	t
Perceived usefulness	.29	4.98***	.03	.54
Perceived ease of use	.15	3.22**	-.02	-.45
Perceived enjoyment	.14	2.66**	.02	.72
Perceived security	.12	2.53**	.04	.76
Privacy concerns	-.05	-1.38	.02	.54
Subjective norm	.23	5.03***	.66	16.31***
Innovativeness	-.02	-.46	-.04	-.82
Flow	-.08	-2.15*	.05	1.21
Gender	.09	2.28*	.09	2.08*
R^2	.54		.46	
Adjusted R^2	.53		.45	

Note: *: p < .05; **: p <.01; ***: p <.001 (one-tailed)

Hypotheses 1a proposed a positive association of perceived usefulness, ease of use, and enjoyment with intention to purchase real items through the Internet. Hypothesis 1a was supported. Perceived usefulness (β = .29, *p* < .001) was the most salient predictor among the three constructs in TAM. Perceived ease of use (β = .15, *p* < .001) and enjoyment (β = .14, *p* < .01) were also positively associated with purchase intention of real items. The analysis, however, failed to support hypothesis 1b, which postulated that perceived usefulness, ease of use, and enjoyment are associated with purchase intention of virtual items. None of the perceived usefulness, ease of use, or enjoyment was

significant.

Hypotheses 2a and 2b proposed that the more secure college students perceive online shopping to be, the more likely they are to purchase real and virtual items over the Internet, respectively. The logic was supported for real items, but not supported for virtual items. Hypotheses 3a and 3b proposed the negative association of privacy concerns with purchase intention toward real and virtual items over the Internet. Neither of the hypotheses was supported.

Hypotheses 4a and 4b regarding the impact of subjective norms were both supported. Subjective norm was positively associated with purchase intention of real ($\beta = .23$, $p < .001$) and virtual items ($\beta = .66$, $p < .001$) via the Internet, respectively. Hypotheses 5a and 5b argued for the association between flow experience and likelihood of purchasing real and virtual items, respectively. Hypothesis 5a, illustrating the inverse association between flow and purchase intention of real items, was supported ($\beta = -.08$, $p < .05$). However, the analysis failed to find the association of flow with purchase intention of virtual items.

Hypotheses 6a and 6b posited that individual shopping innovativeness has positive associations with purchasing real and virtual items over the Internet, respectively. Neither of the hypotheses was supported. Hypothesis 7a and 7b discussed gender discrepancy in purchase intention. The regression analysis showed that males are more likely than females to purchase both real ($\beta = .09$, $p < .05$) and virtual items ($\beta = .09$, $p < .05$) via the Internet.

5. Discussion

This study started from an idea that one of the differences between online shopping and brick-and-mortar retailers is that the former is capable of marketing virtual items, which the latter is able to neither carry nor sell. The purpose of this exploratory study is to identify and compare factors that explain college students' likelihood to purchase real and virtual items through the Internet. This study found that male college students who have less flow experience and who perceive online shopping more useful, easy to use, enjoyable, and secure are more likely to purchase real items via the Internet. In addition, the more social influences college students recognize, the more likely they are to buy real items through the Internet. In summary, online shopping sites that sell real items can increase the likelihood that people will purchase real items through the Internet by reinforcing usefulness, ease of use, enjoyment, and security of the shopping services. The findings indicate that the constructs in TAM and TRA, along with Internet-specific factors such as security and flow, are relevant for boosting intent to purchase real items via the Internet.

However, this study also finds that some of the factors that might be considered pivotal for online shopping business in the context of real items do *not* work for virtual items. None of the constructs in TAM — perceived usefulness, ease of use, and enjoyment of online shopping —affects consumers' intent to purchase virtual items. Security and privacy concerns about online shopping did not affect the intent either. The differences between real and virtual items in terms of factors affecting consumers' intention to shop online imply that online shopping service providers should emphasize different features and target different characteristics of consumers depending on whether they carry real or virtual items. A possible reason behind the lack of critical impacts of plausible benefits and risks of online shopping on the purchase intention of virtual items can be attributed to the unique relationship between online and virtual items. Unlike real items, the Web is the sole venue where consumers can trade virtual items. Thus, risks such as security concerns may not be a fatal flaw that deters college students from purchasing virtual items. The findings indicate that subjective norm and male gender, which are the common factors behind purchase intention of both real and virtual items, are the only two statistically significant factors that predict the purchase intention of virtual items.

When focusing on individual constructs, this study adds solid evidence that perceived usefulness and ease of use determine intention to purchase real items via the Internet. This builds upon previous studies, which explicitly or implicitly limited the theoretical and empirical applications to real items [Gefen & Straub 2000; Lee et al. 2001; Lin 2007; Barkhi, Belanger, & Hicks 2008]. An online shopping site that sells real items competes not only with other online shopping sites but also with different types of shopping channels such as brick-and-mortar retailers, television shopping, and catalog shopping. Considering that perceived usefulness of online shopping is the second strongest predictor for purchase intention of real items, and that the other benefits (i.e., ease of use and enjoyment) are also salient, online shopping sites should balance those different values. But this study's findings imply that delivering efficiency and establishing relative advantages are the most essential and critical factors for e-commerce Web sites.

Korgaonka, Silverblatt, and Girard [2006] found that the preference for online shopping is the highest for search products. Taken together with the importance of perceived usefulness, online shopping sites should provide detailed and resourceful information concerning product attributes to ensure that they satisfy the utilitarian values of shopping. Also, rapid access to new products and services are the key to attract consumers. The current study also found that the effect of perceived ease of use is still valid for purchase intention of real items from online retailers,

even though college students are familiar and comfortable with Internet and Internet-based systems compared to other consumer segments. Online merchants that sell real items should make shopping and transaction procedures easy and simple.

Along with perceived usefulness and ease of use, this study suggests that perceived enjoyment is also important for boosting sales of real items online. Atkinson and Kydd [1997] found that perceived enjoyment strongly influences the entertainment purposes of the Web. Some people see shopping as a recreational activity. Non-adopters would perceive online shopping as insufficient for gratifying the recreational need or intrinsic shopping value, because the online shopping environment tends to offer relatively little emotional involvement, social interaction [Dittmar et al. 2004], and multisensory stimulations. To promote the sales of real items online to young consumers, the findings of this study stress that online shopping sites need to establish enjoyable shopping environments. The impact of perceived enjoyment of online shopping ($\beta = .14$) is as strong as perceived ease of use ($\beta = .15$).

With respect to security and privacy, the findings show that security is a critical determinant affecting the purchase intention of real items over the Internet—but it does not affect purchase intention of virtual items. A plausible reason behind the finding is the perceived price difference between real and virtual items. Apparently, people have experienced that real items are more costly than virtual items. The finding of this study is consistent with Lian and Lin [2008], who found that perceived security positively affects attitude toward purchasing expensive and infrequently purchased items online. As aforementioned, another plausible reason may be the exclusive availability of virtual items online. Given this exclusivity, consumers appear to be less likely to care about security when purchasing virtual items.

A perception of online security promotes an intention to purchase real items over the Internet. However, there is no impact related to privacy concerns. While many previous studies *conceptually* argued that a perceived lack of security and privacy would prevent the growth of e-commerce [e.g., Vijayasarathy 2004], there has been little empirical evidence to support this. In addition, some studies did not distinguish between the terms of security and privacy. This study empirically demonstrates that transaction security is a more important factor than privacy in influencing intent to purchase real items via the Internet. To boost online shopping security, online merchants can diversify the ways for consumers to pay for the products/services and encrypt data during and after transaction.

Subjective norm was proved important in increasing the likelihood of online shopping for both real and virtual items. Previous studies that found social influences regarding adoption intention of an information technology suggested that the impact of social pressures are mostly derived from peers, rather than supervisors or superiors in organizational and individual settings [Saidel & Cour 2003; Liao, Chen, & Yen 2007; To, Liao, Chiang, Shih, & Chang 2008]. Considering that college students are highly involved with peer groups, the present findings reiterate the importance of subjective norms in online shopping.

Interestingly, subjective norm has the strongest impact on college students' intention to purchase virtual items. While the conceptual model for purchase intention of virtual items explains 47% of the variance, the construct of subjective norm alone explained 45% of the variance when further regression analysis was performed. The finding highlights that community-based Web sites such as social networking sites are a suitable venue that can launch or promote virtual items more aggressively than can e-commerce sites that solely focus on selling products or services such as e-Bay or Amazon.

Subjective norm is the second-largest factor influencing college students' intent to purchase real items via the Internet. The salience of a subjective norm for real items implies that online shopping malls offering real items catering to a college student market should add features that boost social influence and word of mouth. Some online shopping Web sites have already embraced a concept of "social shopping" that adds functions allowing for interaction with friends and other users while shopping [Tedeschi 2006; McCarthy 2008].

In terms of consumer characteristics, flow experience has a negative association with intention to purchase real items through the Internet. Korgaonka et al. [2006] found that the preference for online shopping is the highest for search products compared with experience goods and credence goods. Reibstein [2002] found that cost savings are a primary reason for purchasing products and services through online channels. Thus, excessive flow state may hinder consumers from accomplishing the shopping task of purchasing real items online efficiently. The finding from this study can be supported by Chen [2000], who asserted that flow is a neutral experience. Chen also stated that flow has a negative effect on the performance of a task once it passes an optimal level.

This study also found that males are more likely than females to purchase both real and virtual items. The result is consistent with previous studies on online shopping in a real item context, suggesting that males are more likely to purchase products/services online than female in general [Doolin et al. 2005; Stafford, Turan, & Raisinghani 2004]. The gender discrepancy in the online shopping context stems from the different shopping orientation of males and females. Men are more likely than women to be utilitarian, whereas women are more oriented toward hedonic values

than men in shopping [Diep & Sweeney 2008; Swaminathan et al. 1999]. Dittmar et al. [2004] and Zhou, Dai, and Zhang [2007] cited the lack of emotional involvement and social interaction as the reasons why females are less likely to buy real items online. Thus, online merchants should focus their efforts on increasing social interaction and multisensory values of online shopping, in order to appeal to more female consumers. The finding of this study appears to contradict Girard et al. [2003], who found that women are more likely to shop online for hedonic experience goods. Virtual items might be seen as similar to hedonic experience goods in a conventional product-type typology, but this study suggests that there is a need for future research that explores virtual items in relation to conventional product categories.

This study provides managerial implications regarding what online firms that offer shopping services should take into account, according to product type. It also yields theoretical insights into the impact of product type on the adoption of online shopping. Nevertheless, it is worthy to note that there are some limitations in this study. As an exploratory study, this study employed a sample of college students recruited from a single university. The sample characteristic leads us to caution about the generalizability of the findings. Future studies can examine this research topic using a random sample of college students across the U.S., and be extended to include a general population including diverse groups of consumers. Also, the examination of the topic can be also replicated in other countries where virtual items are more commonly traded than the U.S.

6.   Conclusion
     The findings of this study emphasize that college students apply different criteria in making a decision to use an online shopping channel, according to whether the products or services are real or virtual items. Online merchants should emphasize different values according to the product types (i.e., real and virtual items). Factors in intention to purchase real items through the Internet include perceived usefulness, ease of use, enjoyment, security, social norm, flow, and gender. On the other hand, social norm and gender are the two factors that affect intention to purchase virtual items.

Overall, the conceptual models are statistically significant in predicting intention to purchase both real items (F = 44.32, $p < .001$) and virtual items (F = 33.04, $p < .001$) via the Internet. The models explained a greater amount of variances affecting intent to purchase real items than for virtual items, with 54% and 47% of the explained variances for real items and virtual items, respectively. Considering that the conceptual model is based on existing studies that examine e-commerce behaviors in the real-item context, the higher explaining power of the conceptual model here for real items is reasonable. The finding of this study highlights that there are more unexplored factors behind purchase intention toward virtual items. The findings also indicate that the integration of TRA with TAM and other Internet-related constructs is acceptable in predicting intention to purchase real items through the Internet. On the other hand, the integration does not work quite as well for virtual items. Taken together, they can provide researchers with more theoretical or empirical studies on intention to purchase virtual items in the future.

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Appendix 1. Measures and Descriptive Statistics

Constructs	Measures	M	SD
Intention to purchase real items via the Internet [Cronbach's α = .96]	I intend to purchase <u>real items</u> over the Internet.	5.70	1.37
	It is likely that I will purchase <u>real items</u> over the Internet.		
	I expect to purchase <u>real items</u> over the Internet.		
Intention to purchase virtual items via the Internet [Cronbach's α = .98]	I intend to purchase <u>virtual items</u> over the Internet.	3.00	1.68
	It is likely that I will purchase <u>virtual items</u> over the Internet.		
	I expect to purchase <u>virtual items</u> over the Internet.		
Subjective norm of real items	People important to me would support my purchase of <u>real items</u> via the Internet.	4.80	1.14
	People who influenced my behavior would want me to purchase <u>real items</u> via the Internet.		
[Cronbach's α = .85]	People whose opinions I valued would prefer that I purchase <u>real items</u> via the Internet.		
Subjective norm of virtual items	People important to me would support my purchase of <u>virtual items</u> via the Internet.	3.31	1.47
	People who influenced my behavior would want me to purchase <u>virtual items</u> via the Internet.		
[Cronbach's α = .96]	People whose opinions I valued would prefer that I purchase <u>virtual items</u> via the Internet.		
Perceived usefulness	Shopping via the Internet is (would be) useful for me.	5.57	1.23
	Shopping via the Internet makes (would make) me more efficient.		
[Cronbach's α = .93]	Shopping via the Internet makes (would make) my life easier.		
Perceived ease of use	Learning to shop over the Internet is (would be) easy for me.	5.84	1.08
	It is (would be) easy to get Internet shopping services to do what I want to do.		
[Cronbach's α = .90]	Internet shopping is (would be) easy to use.		
Perceived enjoyment [Cronbach's α = .94]	I (would) find shopping over the Internet to be enjoyable.	5.17	1.23
	The actual process of shopping over the Internet is (would be) pleasant.		
	I (would) have fun shopping over the Internet.		
	I (would) find shopping over the Internet to be interesting.		
Perceived security [Cronbach's α = .96]	Using credit cards to make purchases over the Internet is (would be) safe.	4.51	1.50
	Making payments over the Internet is (would be) secure.		
Privacy concerns	I am concerned that the information I submit on the Internet could be misused.	5.20	1.23
	I am concerned about submitting information on the Internet because of what others might do with it.		
[Cronbach's α = .94]	I am concerned about submitting information on the Internet because it could be used in a way I did not foresee.		
Flow	In general, how frequently would you say you have experienced "flow" when you use the Internet?	3.28	1.45
[Cronbach's α = .89]	Most of the time I use the Internet I feel that I am in flow.		
Innovativeness	In general, I am among the last in my circle of friends to purchase a new product or service over the Internet. (R)	4.04	1.00
	If I heard that a new product or service that I was interested in was available on the Internet, I would be interested enough to buy it.		
	Compared to my friends, I do little shopping for new products or services. (R)		
	I would consider purchasing a new product or service even if I hadn't heard of it yet.		
	In general, I am the last in my circle of friends to know the names of the latest products or services and their trends. (R)		
[Cronbach's α = .71]	I know more about new products or services than other people do.		

Note: (R) represents reverse codes.