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Measuring Consumer Motivations to Use Marketspace

Abstract

Participation in electronic commerce requires the diffusion of new technologies and techniques among the intended new electronic customers. This paper utilizes the theoretical perspective of uses and gratifications to develop measures of consumer motivations for access and use of the Internet, which is an important diffusion issue that precedes the decision to engage in electronic commerce. Motivations for the use of new commercial technology are the underlying factors that ultimately lead to the acceptance and subsequent diffusion of new commercial practices in consumer markets. Produced with the cooperation of America Online and HotWired, this research reports the results of a measure development study for three key measures that assess consumer adoption and use of commercial Internet services: Internet process motivations, Internet content motivations and Internet social motivations.

1.   Introduction

The Web is revolutionary; it represents a paradigm shift in the way that we do business (Palmer and Griffith 1998). The Internet is having a profound impact on the way that buyers and sellers interact in modern markets, and ubiquitous E-commerce networks may soon be a routine aspect of modern business practice (Grover and Pradipkumar 1999). Even so, Internet-based electronic marketing is still in the formative stages (Bakos 1998, Gallaugher 1999), and it is hard to estimate the impact or effect of this new mode of business. For this reason, scholars are investigating the various aspects of this emerging business model. One aspect of the electronic commerce business model involves understanding why consumers would choose to use electronic media to engage in commercial transactions, and that forms the basis for the specific focus of this research.

This paper contributes to the understanding of electronic commerce by developing a set of measures for assessing consumer motivations to access and subsequently use marketspace – the Web sites that make up much of the commercial Internet. Hence, the objectives of the paper are to document the steps of scale item elicitation, subsequent construct development and empirical confirmation of candidate scales useful for measuring consumer motivations to use Internet technology. The measures developed here are theoretically grounded in Uses and Gratifications Theory, which has been useful in understanding consumer uses of several new media innovations in the past, and which provides a robust theoretical platform for understanding consumer motivations to use commercial Internet space. It is expected that the measures developed and reported here will be similarly useful in explaining consumer use of the Internet as a new medium for commerce and communication.

1.1. The Medium *is* the Market

Modern society is information-oriented (Ball-Rokeach and Reardon 1988, Rogers 1986), and the "information society" is evolving away from traditional mass exposure media, toward the more interactive collection of communication media and commercial interfaces represented by the modern Internet (Stafford and Stafford 1998). The World Wide Web represents an enormous potential as both a communications medium and a venue for serving customers (Drèze and Zufryden 1997), though not all e-commerce takes place on Web sites (Strauss and Frost 2001). However, the question that most information age businesses must consider relates to the motivations that will bring consumers to utilize the marketspace composed of commercial Web sites (Stafford and Stafford 1998, 2001). Because of the unique and multifaceted nature of the Web as an instance of media and as an interface for commerce, it is important not only to understand what might motivate consumers to attend to marketing efforts on the Web, but also what might motivate them to use commercial Web sites, in general, since most consumer e-commerce activity requires site use.

Marketspace, or the electronic marketplace on the Internet, is where buyers and sellers meet to exchange goods and services for money or barter (Turban, Lee, King and Chung 2000). A large part of what makes businesses competitive in the marketspace is not the product offered for sale, but rather the information and content that the various commercial sites in marketspace offer in order to differentiate themselves from others (Alba, Lynch, Weitz and Janiszewski 1997, Hanson 2000, Turban, Lee, King and Chung 2000). Because of the economics of doing business on the Internet, a critical mass of buyers must be attracted to e-commerce sites for them to be commercially viable (cf., Bakos 1998, Turban, Lee, King and Chung 2000), and because of the

high cost of acquiring customers on the Internet, the drawing power of commercial sites is critical (Hanson, 2000). Hence, understanding the motivations that bring consumers to the marketspace of the Internet is a critical success factor in electronic commerce (Eighmey and McCord 1998, Lohse and Spiller 1998, Novak, Hoffman and Yung 2000, Schonberg, Cofino, Hoch, Podlaseck and Spraragen 2000, Weinberg 2000), and empirically-developed measures of these motivations would be useful for building better models of Web-based consumer commerce.

1.2.   Conceptualizing Electronic Commerce

There is confusion in the literature with regard to a clear definition of electronic commerce (Riggins and Rhee 1998), and this confusion represents a critical research opportunity (Gallaugher 1999). Many marketing scholars tend to consider the Internet as an implicit extension of the promotional element of the marketing mix (e.g., Peterson, Balasubramanian, and Bronnenberg 1997) or as a venue for building long term customer relationships (Kleindl 2001). By contrast, information technology researchers consider commercial applications of the Internet ranging from the publishing metaphor or the "information industry" analogy (O'Reilly 1996, Palmer and Griffith, 1998), to virtual communities organized around commercial content supported by advertising media models (Armstrong and Hagel 1996, Kanan, Chang and Whinston 1998, Turban, Lee, King and Chung 2000).

The consensus appears to be that the Internet and its Web sites are "more than a store" (cf., Bellman, Lohse and Johnson 1999, Lohse, Bellman and Johnson 2000, Palmer and Griffith 1998, Riggins and Rhee 1998, Schonberg, Cofino, Hoch, Podlaseck and Spraragen 2000), extending far beyond the storefront metaphor to include the wide ranging consideration of networked telecommunications and the value chain it engenders for both business and consumer

marketspaces (cf., Grover and Pradipkumar 1999, Riggins and Rhee 1998, Strauss and Frost 2001).

1.3.   Measuring Motivations for using Marketspace

By far, the greatest use of the Internet is in the workplace or in support of work and job-related duties, as opposed to shopping (Bellman, Lohse and Johnson 1999); hence, the predominant use of the Internet and its resources appears to be communicative in nature.   For this reason, it seems useful to examine electronic commerce from the standpoint of a media model (Eighmey and McCord 1998, Lohse and Spiller 1998, Stafford 2000). Moreover, as a medium, there appear to be important social as well as commercial aspects of the Internet to consider (Armstrong and Hagel 1996).

The utility of the Internet as a powerful telecommunications medium is compelling, and it is clear that the marketspace is much more than just "Web sites positioned to sell goods to consumers" (e.g., Grover and Pradipkumar 1999, O'Reilly 1996, Palmer and Griffith 1998). What brings users to Web sites has direct business relevance in the commercial model (Novak, Hoffman and Yung 2000, Eighmey and McCord 1998, Weinberg 2000); thus, a critical aspect of electronic commerce is the process of understanding how commercial Web sites meet customer needs (Gallaugher 1999, Lohse, Bellman and Johnson 2000, Rao, Salam and Dos Santos 1998, Stafford and Stafford 2001).

Measurement research regarding commercial Web site effectiveness can take the perspective of either the site owner or the site user (e.g., Schonberg, Cofino, Hoch, Podlaseck and Spraragen 2000), but academic research and well-developed measures that assess aspects of site user preferences, sought benefits and actual uses represents a substantial contribution to the

evolving body of knowledge about electronic commerce and how it operates in the wired world (Gallaugher 1999, Lohse and Spiller 1998). Measures that increase the understanding of the motivations which bring consumers to the online space where commerce takes place clearly serve a critical antecedent role in the overall process of facilitating electronic commerce (e.g., Eighmey 1997, Eighmey and McCord 1998, Novak, Hoffman and Yung 2000, Stafford and Stafford 2001). One theoretical perspective that lends itself rather well to the study of Internet use motivations is media Uses and Gratifications.

2.   Uses and Gratifications for Marketspace

2.1.   Motivations for Internet Use

The uses and gratifications perspective (U&G) evolved in the communications and marketing literature as an effective way of identifying and profiling audience motivations for use of radio and early television media, and later in "new media" examinations of television improvements and evolutions, including cable television, video recorders and television remote controls activities among consumers. In this paradigm, a "gratification" is some aspect of satisfaction reported by users, arising from *use* of the medium in question (e.g., Herzog 1944), hence the terminology of *uses and gratifications.* Although U&G was developed in media studies, it is particularly useful in investigations of Internet use since the Internet is easily conceptualized in media terms, given that it is a overarching medium used for the carriage of other subsidiary media – a meta-medium, on other words (Stafford 2000).

In e-commerce venues, individual Internet users essentially control the communicative process by virtue of their power to initiate access to commercial sites (Stafford and Stafford 2001). Interestingly, U&G also focuses on focuses on how people choose to use media as

opposed the effects *of* the media on individuals, and it takes a user-level perspective, as opposed

to a mass-exposure perspective in understanding usage motivations (e.g., Klapper 1963). Given

the inherent interactivity and user-directed nature of Web media, it seems that U&G can be

useful for understanding motivations for Web use. If understanding motivational characteristics

of Web use is an important aspect of understanding the process of Web-based e-commerce, then

U&G provides the theoretical framework for understanding the specific motivational dimensions

that drive Web use, and the motivational dimensionality of use developed in line with time-tested

U&G methodologies readily adapt to measure construction, as will be shown.

2.2.   Two General Types of Gratifications

In order to apply U&G as a perspective for the development of Web use motivation measures, it

is useful to consider its use in previous research. In U&G theory, both in modern and in classic

applications, motivational dimensions of media use have consistently been either content related

or process related (Cutler and Danowski 1980, Stafford and Stafford 1996). In all previous U&G

work to this point, only two key motivational dimensions have emerged, and have done so

consistently: content gratifications and process gratifications.

Content gratifications concern the *messages* carried by the medium, and process

gratifications concern *actual use* of the medium, itself, in contrast to a specific interest in its

content (Cutler and Danowski 1980). Correspondingly, users of the Web may be motivated by

the process of random browsing for enjoyment (Hoffman and Novak 1996), or users of specific

Web sites might be motivated by the desire for specific site-related informational content

(Stafford and Stafford 1998), either as a product, itself, or in support of some potential product

purchase.

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In the formative days of uses and gratifications research, McGuire (1974) noted that it seemed less important to know how a user came *to* a medium than to understand how the medium could *hold* a user once browsing had its intended effect. So, while the mere act of Web surfing is inherently gratifying to some (Hoffman and Novak 1996), surfing as a primary motivator for use of marketspace may be limited (O'Reilly 1996) and studies of Internet shopping behavior have noted that informational site content is as important as featured products in generating shopping traffic (e.g., Alba, Lynch, Wietz and Janeszewski 1997).

Internet researchers have long been interested in how Web sites retain users (Barker and Groenne 1997), as well as the site design characteristics that impact e-commerce success (Gallaugher 1999, Hanson 2000, Lohse and Spiller 1998, Schonberg, Cofino, Hoch, Podlaseck and Spraragen 2000). Indications are that users' site choices are generally more motivated by content considerations than by recreational browsing (Drèze and Zufryden 1997, McDonald 1997, Stafford and Stafford 1998), and it appears that site content is the attraction that specifically brings consumers to sites, so that commercial transactions might take place. In short, it seems that the sort of Internet use that leads to e-commerce activity is related to content gratifications, as opposed to process gratifications.

2.3. A Third Gratification for Marketspace Use

The Internet is both an interpersonal medium *and* a mass exposure medium, which gives it the capability of serving as both a store and a communications venue (Eighmey and McCord 1998). The potential for the Web to serve both transactional and communicative purposes has long been recognized (Armstrong and Hagel 1996, Drèze and Zufryden 1997, Eighmey and McCord 1998, Lohse and Spiller 1998), and as businesses and individuals explore the potential of the Internet

for promoting and consummating business transactions, the question of how important

information, communication and entertainment services might be delivered has also been raised

(Peterson, Balasubramanian, and Bronnenberg 1997).

Currently, indications are that social motivations also play a role in consumer choices to

use marketspace. Several U&G studies have initiated the development of Internet-specific

dimensions from scratch, using traditionally prescribed U&G development methods (e.g.,

Stafford and Stafford 1998, 2001) and a strong social dimension has emerged.   U&G research in

the communications and marketing literature has consistently identified a content/process

dichotomy of usage motivations, and this has been arrived at through a well-understood and

time-tested U&G development process of free elicitation item generation followed by factor

analysis (cf., Bantz 1982, Levy and Windahl 1984). Many previous Internet U&G studies have

simply adopted these dichotomous measures directly from these previous studies (e.g., Eighmey

1997, Newhagen and Rafaeli 1996, Rafaeli 1988). As a consequence, previous U&G studies of

the Internet have not identified, nor assessed *social* motivations for marketspace use.

2.4.   The Need for Internet-Specific Uses and Gratifications Measures

Researchers have compared the Web to television in terms of potential effects and uses (Eighmey

1997, McDonald 1997; Peterson, Balasubramanian, and Bronnenberg 1997), and in some cases,

the television metaphor is apt since much of what we know about motivations for commercial

media use arises from television research (Rubin 1981).   The classic "television" U&G metaphor

was useful in early U&G studies of consumer use of Web sites (e.g., Newhagen and Rafaeli

1996, Rafaeli 1988), and in modern marketspace, understanding the motivations that bring

consumers to a site can be an e-commerce success characteristic, since the "segment of one"

approach can only be profitable if a marketer can reliably attract and serve *numerous* individual customers (Stafford and Stafford 1998, Turban, Lee, King and Chung 2000). Hence, knowledge of what consumers desire and benefit from in accessing commercial Web sites will provide Internet marketers with the ability to better [more profitably] serve their audiences (Gallaugher 1999, Lohse, Bellman and Johnson 2000, Rao, Salam and Dos Santos 1998, Stafford and Stafford 2001). To that extent, adaptation of U&G television scales has value.

However, for e-commerce purposes, using measures developed in the mass exposure entertainment medium of television may be limiting, since the Internet is both an interpersonal and a mass exposure channel (Eighmey and McCord 1998). Moreover, very little work has been done to specifically adapt U&G approaches to the Internet, and it is important to understand the new communications processes and user interactions on the Internet (Kannan, Chang and Whinston 1998). Preliminary U&G work on consumer Web site applications has shown much promise (e.g., Stafford & Stafford, 1998, 2001), and has broadened the traditional U&G conceptualization of process and content gratifications to include specific social motivations. But these studies are exploratory and require confirmation and additional analysis before the Internet-specific profiles of user motivations can be considered useful for measurement purposes.

3.   Method

3.1.   The Uses and Gratifications Development Process

As demonstrated in previous television studies, the general approach to building a U&G profile is to determine key motivations for using a particular medium. This is accomplished through a characteristic two-stage research design, in which an exploratory list of descriptive adjectives characteristic of user motivations is developed, followed by a second stage of factor analysis to

group the descriptors into dimensions representative of general areas of audience motivations and intended uses for a medium (cf., Bantz 1982, Levy and Windahl 1984).

3.2.   Marketspace-Specific U&G Measure Development

This general procedure was utilized here to develop a profile of uses and gratifications for marketspace, with one enhancement. Since the goal of the research is the development of measures, rather than simply the development of U&G dimensions unique to marketspace, the standard U&G development procedure of collecting a pool of descriptive adjectives and reducing them to dimensions of motivation through principle components analysis is supplemented by fitting a confirmatory measurement model in LISREL. Structural equation modeling has recently become an accepted methodology for instrument validation in MIS research (e.g., Geffin, Straub and Boudreau 2000), and its use here will provide empirical evidence for trait validity and construct reliability of the component measures tentatively identified through the traditional U&G development process.

3.2.1. Initial Inventory of Descriptors. Initially, a list of descriptive adjectives was compiled with the cooperation of HotWired, a major Internet-themed Web site. HotWired agreed to display an open-ended questionnaire during their sign-on sequence for the period of one week. A word association technique drawn from the cognitive psychology literature was utilized (cf., Szalay and Deese 1978, Friedmann and Fox 1989), and four open-ended questions were developed and included in the questionnaire to elicit a list of descriptive terms related to motivations for and actual uses of the World Wide Web:

1) What is the first thing that comes to mind when you think about what you enjoy most when accessing the Web?

2) What other words describe what you enjoy about interacting with the Web?

3) Using single, easy-to-understand terms, what do you use the Web for?

4) What on-line activities are most important to you?

During the week the questionnaire was posted on HotWired, 98 individuals agreed to participate, providing a total of 179 descriptive terms. As shown in Table 1, 45 of these terms were mentioned by 4 or more of the respondents, and this formed the list of terms to be used in the second stage of the research.

Table 1 about here

3.2.2. Initial Factor Analysis.   A questionnaire was placed in the AOL Opinion Place research Web site for data collection. Respondents were instructed to indicate their perceived level of importance for each of the 45 candidate trait terms with regard to their motivations in accessing the Web. A scale of one to seven, with seven being the most important, was used; the questionnaire was active for data collection over a three-week time period.

The sample frame consisted of AOL members volunteering for participation in online research projects in exchange for free online time; random sampling within this group resulted in 1258 usable responses. Over 48% of the sample were men, and 51.9% were women, with 16.6% between 18-24 years of age, 21% between 25-34, 19.8% between 35-44, 20.4% between 45-54, and 22.2% reporting 55 years of age or older.

In keeping with sample size recommendations for factor analysis, approximately 25% of the sample (343 subjects) was devoted to an initial analysis (Hair, Anderson and Tatham 1995). The remainder of the sample was reserved for subsequent fitting of a measurement model, and calculation of construct reliabilities and internal consistency figures for trait validation purposes.

The initial factor analysis, using SPSS 10 (SPSS 2000), utilized a common factor model

rather than a principle components model in light of the developmental purpose of the study

(e.g., Anderson and Gerbing 1988). Varimax rotation was specified in order to identify variables

that might indicate potential constructs, and factor loadings were examined at .5 and above on

each potential construct, consistent with recommendations for identification of highly significant

variables (e.g., Hair, Anderson and Tatham 1995). Eleven factors with eigenvalues greater than

one were initially retained, and scree plot analysis identified 3 of these 11 factors for further

evaluation. Table 2 displays the rotated loading matrix for these factors. Items loading at .5 or

above are highlighted in bold.

Table 2 about here

The initial factor, accounting for 24.4 percent of variance, was indicated by variables such

as "resources," "search engines," "surfing," "technology," and "web sites." This tends to suggest

a theme of browsing or surfing the Web, and is very much in keeping with the sprit of the U&G

process motivation for media use. The second factor, accounting for 7.3 percent of variance was

indicated by the variables "education," "information," "knowledge," "learning," and "research."

This factor is strongly representative of the U&G content motivation. The third factor,

accounting for 5.1 percent of variance included the variables "chatting," "friends," "interaction,"

and "people." This is the social factor and represents a candidate for a new social dimension of

uses and gratifications specific to the Internet.

3.3. LISREL Measurement Model

Using the remaining 915 data points from the America Online sample, the three constructs and

their indicators were subjected to confirmation through a measurement model in LISREL 8.12

(Jöreskog and Sörbom 1993). This model was expected to provide evidence of trait validity in

its component forms of discriminant validity and convergent validity (cf., Campbell 1960, Peter 1981).

3.3.1. Model Fit. Confirming the model was a relatively uncomplicated process, given the straightforward factor structure. The $\chi^2_{(79)}$ was 242.82 (p = .000). However, because the χ^2 statistic is not always the best indication of model fit (e.g., Mulaik, James, Van Alstine, Bennett, Lind and Stilwell 1989, Bagozzi and Yi 1988), a range of additional fit indices are reported. In assessing model fit, the goodness-of-fit index (GFI) = .97 (AGFI = .95), the root mean-square residual (RMSR) = .11 (SRMR = .043), the normed fit index (NFI) = .96 and the comparative fit index (CFI) = .97.

Taken together, these figures provide evidence of reasonably good fit, suggestive of trait-valid component measures in the form of the scales indicating each construct. Internal consistency for the three scales was also strong, evidenced by a coefficient alpha of .8198 for the scale indicating the searching construct, .8537 for learning, and .80 for socializing.

3.4.   Discriminant Validity and Chi Square Difference Tests

An accepted test of discriminant validity is to constrain the estimated correlation parameter Φ_{ij} between pairs of components to 1.0, and conduct a χ^2 difference test on the values obtained from the models containing the constrained pairs, and the unconstrained model in which Φ_{ij} varies freely (Jöreskog 1971). A significantly lower χ^2 value on the unconstrained model as compared to the constrained model provides evidence that the dimensions being compared are not perfectly correlated (i.e., the two factors are distinct), and that discriminant validity is achieved (Bagozzi and Phillips 1982).   This procedure was followed for each possible pair of the three dimensions, with each test conducted separately (e.g., Byrne 1989).

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As shown in Table 3, the unconstrained model had a significantly lower value of χ^2, at the

p < .05 significance level, than all three of the models with constrained pairs. Thus, evidence of

discrimination between the three constructs is clearly demonstrated.

Table 3 about here

3.5.   Convergent Validity

Convergent validity can also be assessed via structural equation modeling by determining

whether indicator variables load significantly on their specified construct (Anderson and Gerbing

1988). In modern versions of LISREL (Jöreskog and Sörbom 1993), this is easily assessed by

examining the associated t-value for the respective value of λ_x (Byrne 1989). This information is

represented along with each indicator's loading coefficient in the Figure.   Each variable loading

value exhibits highly significant loadings, and the overall trend is supportive of convergent

validity -- notwithstanding the over-arching trait validity evidence provided by successfully

fitting the measurement model (e.g., Anderson and Gerbing 1988).

Figure about here

3.6.   Construct Reliability

Internal consistency is generally supported by coefficient alpha figures above the level of .7 for a

candidate scale (e.g., Nunnally 1978), but Gerbing and Anderson believe that coefficient alpha is

a better indicator for unidimensionality than for reliability (1988, p. 190). However, according to

Hair, Anderson and Tatham (1995), construct reliability can be readily calculated in a structural

equation modeling framework. The formula is given as:

$$\frac{[\sum (\text{standardized loadings})]^2}{[\sum (\text{standardized loadings})]^2 + \sum (1 - \text{standard error})^2}$$

This value is calculated for each construct in the measurement model, and meets or

approaches the .90 level for each construct. For completeness, both construct reliability and

internal consistency figures for component scales are shown in Table 4 for each construct of the

measurement model.

Table 4 about here

4.   Discussion

The paper reports the development of a set of scales for measuring consumer uses and

gratifications of Internet marketspace. The outcome of the study reported here is the provision of

useful and trait-valid dimensions of motivational gratifications for Internet use, including

indicators of content, process and social gratifications for Internet use. Such indicators of usage

gratification, having been developed, and then empirically confirmed, represent candidate scales

useful for further work in understanding the motivations for technology use among online

consumers.

As part of this study, evidence of discriminant validity and convergent validity is

provided for the scales indicating Internet process, content and social motivations for use. The

scales all exhibit good degrees of internal consistency and construct reliability. Consequently,

these scales can be considered trait-valid, and may be useful for developing emerging theories of

consumer online shopping and modeling commercial use of the Internet. Theoretical

applications of these scales in more complex models of marketspace would be useful not only for

a better understanding of e-commerce motivations, but also for providing the final step of construct validation through structural models which examine theoretically specified nomological networks of variables and constructs in which the proffered marketspace motivation scales are fitted.

4.1.   Nomological Validation

In the SEM approach to measure validation, two general steps are required before a scale is considered to be construct validated (cf., Anderson and Gerbing 1988, Gerbing and Anderson 1988). The first step involves the development of evidence of trait validity (as comprised of convergent and discriminant validity) through a well-fitting measurement model. This establishes the validity of the scales representing variables that indicate constructs of interest.

The second step to providing evidence of construct validity is by theoretically linking the construct of interest to other related constructs in a meaningful way. This is assessed through a structural model fitted only after the measurement properties of the candidate scales are well established. This two-step approach is particularly useful in the development of new theory, since it provides for initial validation of candidate scales, followed by theoretical speculation in alternative testing of candidate theoretical networks of constructs (Anderson and Gerbing 1988).

In the case of marketspace, and electronic commerce, in general, we are just beginning to develop theoretical insights about the behavior of online customers. Hence, this two-step approach would appear to be inherently useful in the initial stages of theoretical exploration of online customer behavior. Since construct validity is arrived at only through ongoing examination of theoretical relationships (Peter and Churchill 1986), the scales that are validated here are presented with evidence of *trait validity*, in anticipation of their use in future structural

modeling approaches to theory development and testing in the nascent field of online commerce. Several alternative approaches to theory development and subsequent construct validation of the candidate scales are suggested.

4.2   Future Research

4.2.1. Internet Interaction and Active Use. The Hoffman and Novak (1996) "interaction" construct seems particularly useful in designing a nomological network (i.e., series of theoretical relationships) in which to test the learning, searching and socializing scales offered here. Hoffman and Novak conceptualize the success of e-commerce as a matter of the degree to which customers interact with elements of a commerce site (Turban, Lee, King and Chung 2000), and since there are several uses for sites and several ways to interact with them, the scales offered here would likely be very useful in models which specify interactivity as a measure of site effectiveness.

In particular, given the active use tenet of U&G theory, the interaction construct appears to hold considerable promise for theory building based on the measures developed here. The Hoffman and Novak construct has typically oriented to the "flow" concept, characterizing the Web browsing experience. This implies that there should be close theoretical correspondence with the U&G process gratification construct, but not necessarily with the U&G content gratification construct. Hence, structural equation models specified for nomological validation of the measures offered here should demonstrate strong relationships (signified by strong and significant γ_{ij} loadings in a structural model) between measures of Hoffman and Novak's interaction construct and the U&G process scale. Weak relationships could be expected between interaction and content gratifications.

More interestingly, there are few expectations supplied by existing theory as to what connection might be expected between Web site interaction behavior and social gratifications for marketspace use. This relationship represents a potent avenue for additional exploratory research, in the process of building new theories of socially motivated Internet use.

4.2.2. Technology Adoption Research. The measures offered here might fit well in structural equation models of Internet adoption, such as the theoretically robust constructs of the Technology Acceptance Model (cf., Davis 1989, Venkatesh and Davis 1996, 2000). One avenue that has been repeatedly identified as a necessary step for future extensions of the Technology Acceptance Model (TAM) is the role of antecedents to technology adoption decisions (Venkatesh and Davis 1996, 2000). Consumer adoption of Internet technology is a matter of concern to both service providers and e-tailers, since online shopping cannot take place until consumers adopt online shopping technology.

For that reason, the measures offered here may be used in structural equation models that examine cause and effect entry-state relationships in consumer adoption decisions with regard to online shopping and marketspace use. The U&G measures provide indications of the type of factors that motivate access to marketspace, but an important theoretical consideration concerns the subsequent and *continued use* of marketspace, once accessed. Hence, nomological validation efforts involving the U&G measures developed here and the TAM could be very fruitful.

5. Conclusion

Understanding consumer motivation to access marketspace is critical to the success of e-commerce. Uses and gratifications theory is robust and useful in the development of measures that assess consumer motivations related to Internet use. Measures developed in accordance with

the U&G framework are useful for assessing consumers' likely uses of marketspace, including the actual process of using marketspace interfaces, appreciation for the content found at marketspace sites, and the desire for the social relationships found in and enhanced by marketspace.

The Internet, and its marketspace, is an entirely new medium of human interaction and commercial endeavor. Ongoing efforts designed to measure and understand consumer use of this dynamic new commercial venue will aid businesses in the effort to provide products and services that are more responsive to consumer needs, and which provide greater degrees of value in recognition of the vast and unique efficiencies that this new medium provides to firms, specifically, and society, in general.

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TABLE 1
Motivational Inventory from HotWired Questionnaire

Item	Overall Frequency of Response
Information	114
Email	49
Research	45
News	41
Software	31
Chatting	24
Entertainment	24
Communication	23
Fun	20
Access	17
Work	15
People	13
Web Sites	12
Speed	12
Updates	12
Freedom	11
Interaction	11
Games	11
Knowledge	11
Surfing	11
New	10
Technology	9
News Groups	9
Resources	9
Education	8
Interesting	8

Easy	8
Stocks	7
Answers	7
Browsing	6
Variety	6
Learning	6
Weather	6
Progressive	5
Friends	5
Shopping	5
Search Engines	5
Relaxing	4
Sports	4
Ideas	4
Money	4
Searching	4
Current	4
Homework	4
Government	4

TABLE 2
Results of Initial Factor Analysis

Variable *% Variance* *Explained*	Factor 1: Searching 24.4%	Factor 2: Learning 7.3%	Factor 3: Socializing 5.1%
Access	.125	.360	-.004
Answers	.187	.320	.018
Browsing	.449	.111	.04
Chatting	.03	.02	**.681**
Communication	.106	.187	.246
Current	.07	.07	.08
Email	.172	.05	.09
Easy	.08	.05	.07
Education	.118	**.581**	.109
Entertainment	.08	.002	.282
Freedom	.05	.288	.176
Friends	.01	.01	**.612**
Fun	.101	.06	.243
Games	-.03	.004	.120
Government	.107	.256	-.006
Homework	.148	.318	.210
Ideas	.282	.424	.174
Information	.291	**.617**	.02
Interaction	.257	.08	**.661**
Interesting	.217	.246	.135
Knowledge	.227	**.660**	-.02
Learning	.224	**.679**	.07
Money	.05	.180	.09
New	.260	.261	.241
News	.06	.275	.03
Newsgroups	.160	.141	.445
People	.174	.138	**.709**
Progressive	.314	.402	.203
Relaxing	.116	.114	.205
Research	.234	**.542**	-.02
Resources	**.522**	.370	.03
Search Engines	**.644**	.125	.07
Searching	**.657**	.274	.04
Shopping	.307	.03	.05
Software	.479	.183	.120
Speed	.347	.203	.135
Sports	-.02	-.04	.223
Stocks	.07	-.06	-.04
Surfing	**.553**	.02	.136
Technology	**.566**	.220	.04
Updates	.445	.157	.130
Variety	.463	.04	.135
Weather	.157	.107	.122
Web Sites	**.564**	.203	.07
Work	.307	.221	.06

TABLE 3
Tests of Discriminant Validity
Chi Square Difference Tests

Model with Correlation Between Factors Free	$X^2_{(79)} = 242.82$
Models with Correlation Between Factors Constrained to Unity ($\Phi = 1$)	1) $\Phi_{2\,1} = 1$, $X^2_{(83)} = 3487.90$ 2) $\Phi_{3\,1} = 1$, $X^2_{(83)} = 3490.75$ 3) $\Phi_{3\,2} = 1$, $X^2_{(83)} = 3560.87$
Difference Tests	1) $\Delta \chi^2_{(4)} = 3245.08$, $\chi^2_{(4)} = 9.49$, $p < .05$ 2) $\Delta \chi^2_{(4)} = 3247.93$, $\chi^2_{(4)} = 9.49$, $p < .05$ 3) $\Delta \chi^2_{(4)} = 3318.05$, $\chi^2_{(4)} = 9.49$, $p < .05$

TABLE 4
Construct Reliability Calculations

ξ_1 ***Searching***	ξ_2 ***Learning***	ξ_3 ***Socializing***
$[\Sigma \text{ (standardized loadings)}]^2$	$[\Sigma \text{ (standardized loadings)}]^2$	$[\Sigma \text{ (standardized loadings)}]^2$
15.5236	**13.69**	**8.4681**
$\Sigma(1\text{-standard error})^2$	$\Sigma(1\text{-standard error})^2$	$\Sigma(1\text{-standard error})^2$
1.2049	**1.7189**	**1.3257**
$\dfrac{[\Sigma \text{ (standardized loadings)}]^2}{[\Sigma \text{ (standardized loadings)}]^2 + \Sigma(1\text{-standard error})^2}$	$\dfrac{[\Sigma \text{ (standardized loadings)}]^2}{[\Sigma \text{ (standardized loadings)}]^2 + \Sigma(1\text{-standard error})^2}$	$\dfrac{[\Sigma \text{ (standardized loadings)}]^2}{[\Sigma \text{ (standardized loadings)}]^2 + \Sigma(1\text{-standard error})^2}$
.928	**.8878**	**.8646**
Internal Consistency (Cronbach's alpha)	Internal Consistency (Cronbach's alpha)	Internal Consistency (Cronbach's alpha)
.8198	**.8537**	**.80**

FIGURE
Measurement Model

$\delta_{1\,1}$ .43 (16.02) → Resources

$\delta_{2\,2}$ .59 (18.10) → Search Engines

$\delta_{3\,3}$ .47 (16.56) → Searching

$\delta_{4\,4}$ .71 (19.49) → Surfing

$\delta_{5\,5}$ .62 (18.96) → Technology

$\delta_{6\,6}$ .55 (17.83) → Web Sites

$\delta_{7\,7}$ .73 (20.37) → Education

$\delta_{8\,8}$ .42 (17.91) → Information

$\delta_{9\,9}$ .22 (10.51) → Knowledge

$\delta_{10\,10}$ .36 (16.56) → Learning

$\delta_{11\,11}$ .46 (16.17) → Research

$\delta_{12\,12}$ .68 (16.69) → Chatting

$\delta_{13\,13}$ .48 (8.84) → Friends

$\delta_{14\,14}$ .15 (2.16) → Interactions

$\delta_{15\,15}$ .52 (11.49) → People

.75 (24.73)
.64 (19.81)
.73 (23.58)
.54 (16.08)
.61 (18.96)
.67 (21.28)

.52 (16.11)
.76 (26.06)
.88 (31.79)
.80 (27.90)
.74 (23.87)

.57 (15.06)
.72 (16.05)
.92 (20.34)
.70 (17.52)

ξ_1 *Searching*

ξ_2 *Learning*

ξ_3 *Socializing*

$\Phi_{2\,1}$ .72 (33.06)

$\Phi_{3\,1}$ .38 (10.80)

$\Phi_{3\,2}$ .34 (10.03)

$\chi^2_{(79)}$ = 242.82 (p = .000)
GFI = .97
AGFI = .95
RMSR = .11
SRMSR = .043
NFI = .96
CFI = .97