

# Motivations for Mobile Devices: Uses and Gratifications for M-Commerce

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## ABSTRACT

Uses and Gratifications is a media use paradigm useful for diagnosing user motivations for computer and technology usage. This study documents the exploratory processes of developing a mobile device uses and gratifications motivational inventory, beginning with qualitative inquiry and proceeding through exploratory analysis of motivational dimensions for usage. Results indicate that mobile device uses and gratifications are mainly centered on the speed and connectivity with which associated data and information services are available for busy technology users.

## Keywords

Mobile commerce, electronic commerce, Internet, user motivations, uses and gratifications.

## INTRODUCTION

Mobile commerce brings the Web to users, wherever they are, any time they want, thus providing a degree of information freedom unseen in other Internet services (Jarvenpaa, Lang, Takeda and Tuunainen, 2003). One of the most useful and compelling potential benefits of m-commerce is the ability to integrate telecommunications providers with financial services companies to provide device-based payment services for busy on-the-go users such that commerce activities become nearly seamless in their execution (Anon, 2003), much as has been the case with I-mode in Japan. Moreover, the heady attractions of being able to reach customers anywhere and anytime has predictably engaged the interests of businesses interested in forging ever closer and more productive relationships with customers (cf., Coursaris and Hassanein, 2002).

This paper begins the process of empirically determining and assessing mobile device user motivations, for purposes of developing and understanding of the range of activities and associated motivations related to mobile device usage and m-commerce activity. The robust media and technology usage theory of Uses and Gratifications, as recently demonstrated in studies of motivations for Internet use (cf., Stafford, 2003; Stafford and Stafford, 2001; Stafford, Stafford and Schkade, 2004,) is employed as a guiding methodology and theoretical basis for inquiry into user motivations for mobile device usage.

This paper begins with an exploration of the issues surrounding mobile device usage, followed by a review and discussion of Uses and Gratifications for Internet use

as a theoretical perspective upon which to ground investigations of m-commerce user motivations. Then, qualitative and quantitative exploratory studies of user motivations are described and reported. The paper concludes with a brief discussion of the unique aspects of mobile Internet usage motivations, as compared to recent studies of wire-line Internet usage motivations based on the Uses and Gratifications theory.

## M-COMMERCE AND MOBILE DEVICES

The futuristic predictions of what m-commerce might become have not come to be (Stafford and Gillenson, 2003), resulting in a pragmatic reassessment of the uses and utilities of mobile devices and the associated mobile business activities (e.g., Jarvenpaa et al., 2003). While some scholars define m-commerce as any form of mobile communication between a business and its customer (Frolick and Chen, 2004), there does appear to be a clear distinction between mobile information services and the purchase of goods via mobile devices. While early predictions were that all manner of e-commerce transactions would move to mobile devices, the emerging reality is that m-commerce is more informational than transactional in nature (Mylonopoulos and Doukidis, 2003; Stafford and Gillenson, 2003).

### User-Centric Orientation

There is a clear need to understand why users adopt mobile devices (Sarker and Wells, 2003), given the lack of a specific user focus in device development on the part of businesses. In examining mobile device users, a motivational perspective is needed (Jih and Lee, 2003-2004); as in all good design approaches, the best approach starts with end users and builds upon their stated desires and needs. Customers are the most important part of the m-commerce value chain (Coursaris and Hassanein, 2003), but businesses should understand that the simple possession and use of a mobile device on the part of a customer does not guarantee its use for beneficial commercial purposes.

Will users accept new technology-based services provided on mobile devices (Frolick and Chen, 2004)? In order to be assured of clearly understanding user motivations for mobile device usage, the best approach seems to be to go to the potential users first and try to understand the needs and potential uses such devices have for them.

### User Motivations

The challenge in m-commerce research is to understand

user needs and preferences (Varshney, 2003), and one way of examining mobile commerce customers in order to understand their needs and preferences is to apply existing theories that have been shown to be useful in similar or related contexts (Sarker and Wells, 2003). One such existing theory that shows promise is Uses and Gratifications, which is a media use theory from mass communications that has had recent and broad application to the problem of understanding motivations for Internet technology usage (cf., Johnson and Kaye 2002; Lin, 1999; Ruggiero, 2000; Stafford et al., 2004; Weiser, 2001).

## USES AND GRATIFICATIONS FOR TECHNOLOGY

Uses and Gratifications theory has spanned user motivation studies of media ranging from radio (Herzog, 1944) and television (cf., Katz, 1959; Lin, 1999), to cable TV and VCR remote controls (Stafford and Stafford 1996), and now the Internet (Eighmey and McCord, 1998; Ruggiero, 2000; Stafford, 2003; Stafford et al., 2004) and cellular phones (Leung and Wei, 2000). Gratifications are typically defined as some aspect of satisfaction reported by users, related to the active *use* of the medium in question (Herzog, 1944). Since individual users essentially control the communicative process of the Internet by virtue of their power to initiate access to commercial sites (Stafford & Stafford, 2001), the user-centric approach of U&G provides the theoretical framework for understanding the specific reasons that bring consumers to the mediated online spaces where commerce transpires (Stafford et al., 2004).

### Process and Content: The Generic Usage Motivations

Results from existing U&G research (e.g., Stafford and Stafford, 1996) suggest that people use media either for the content carried by a medium (in some cases this is information, in other cases, entertainment), or for the simple experience and enjoyment of the actual usage process (much akin to playing with the technology for fun, or surfing the Web). Researchers typically categorize these two dimensions simply as *content* gratifications and *process* gratifications.

Initial research on Internet Uses and Gratifications indicates that users are generally more motivated by content considerations than by recreational browsing (McDonald, 1997), in recognition of the value that users place in the availability of information online. Yet, only one Internet U&G study, to date (e.g., Stafford et al, 2004), has constructed U&G measures specific to Internet use, as opposed to adapting scales constructed for television research. Since the results of Internet U&G studies based on scales from television research have subsequently not been very predictive of Internet use (Lin, 1999), there is a clear need to extend the process of developing U&G measures specific to not only the Internet but also to the unique user interface of the mobile device, when using U&G to understand mobile device user motivations.

## Social Gratifications: An Emerging Internet U&G Dimension

Internet Uses and Gratifications research has recently identified social motivations as a usage factor motivating Internet use (Stafford and Stafford, 2001), and this social gratification has been construct-validated along with Internet-specific process and content scales in specific Internet contexts (e.g., Stafford et al., 2004). The social motivations for mobile Internet use arise from the satisfactions provided by e-mail and telecommunications functionality of the mobile network. Social gratifications may be particularly cogent in studies of m-commerce and mobile device usage, since the main aim of business in m-commerce is to further the social interaction between individuals and businesses (Mylonopoulos and Doukidis, 2003).

In examining motivations for mobile device and m-commerce adoption, a user-centric perspective has been recommended (cf., Mylonopoulos and Doukidis, 2003; Roussos, Peterson and Patel, 2003; Varshney, 2003), and the U&G approach to understanding technology use is user-centric, since it begins empirical inquiry with technology users, typically utilizing a qualitative inquiry to assess a potential range of satisfactions and associated uses related to the target technology, then progressing to multivariate assessment of motivational dimensions based on user-elicited activities and motivations for technology use (e.g., Stafford, et al., 2004). A U&G domain sampling and dimension elicitation process is followed here, in accordance with an approach that has become standardized over several decades of research practice.

## METHOD

The investigation of mobile device Uses and Gratifications begins with a qualitative assessment of usage motivations, as has been typical in previous Internet U&G studies (e.g., Stafford et al., 2004). Eighteen business professionals enrolled in an Executive MBA program at a southern university participated in a word association task designed to elicit the descriptive terms that characterized motivations for mobile device usage. Consistent with Varshney's (2003) definition for the platforms for m-commerce activity, executives who had experience with either handheld mobile devices or IEEE 802.11-equipped portable computers were recruited for participation. Utilizing a protocol adopted from cognitive psychology studies of attitudes and motivation (cf., Friedmann and Fox, 1989; Szalay and Deese, 1978), the word association task probed for highly salient thoughts about mobile devices. The technique utilized a "first thoughts" approach (Szalay and Deese, 1978), on the principle that the first thought one has in response to a target stimulus is usually most representative of attitudes about that stimulus. The typical approach used in psychological studies of attitude and motivation instructs respondents to:

*Write down the first thing that comes to mind when you think about what you enjoy or find useful about using mobile devices.*

A pencil-and-paper response format was used for data collection. In line with the prescribed technique (Szalay and Deese, 1978), once the subjects completed their responses to the initial probe, they received a second probe asking them:

*What other words come to mind that describe your mobile device usage satisfactions and activities?*

A total of 19 individual descriptive adjectives were collected in this word association task. All 19 of the descriptive terms were combined into a questionnaire and associated with 5-point Likert-style agree/disagree scales to support a multivariate investigation of potential dimensionality of the group of descriptors. The resulting instrument was administered to a sample of 54 graduate students. The resulting data were analyzed for dimensionality in SPSS 10.0, using principle components factor analysis with oblique rotation (to prevent artificial segregation of terms bearing associations across factors), and the results were examined to begin constructing profiles of general user motivation areas related to use of mobile devices.

**RESULTS**

**Interpretive Analysis**

There is some basic interpretation that can be drawn from the pattern of interpretive results, in comparing first thought elicitations to second thought elicitations, and in considering the frequency of response for key terms at each response level. As shown in Table I, there was overlap in the list of 19 unique adjectives; some 60% of the terms were mentioned as both first and second thought responses across the group. Of the 19 specific terms collected, convenience (most mentions as a first thought) and efficiency (most mentions as a second thought) featured prominently, producing repeated mentions by different individuals. Mobility (2 mentions, first thought), and accessibility (2 mentions, first thought) appeared to compliment the primary (i.e., first thought) quality of convenience, as repeatedly mentioned primary responses to the probe about usefulness of mobile devices. Connectivity (2 mentions, second thought) appears to compliment the secondary quality of efficiency that arises as a secondary response to the probe about mobile device usefulness.

Based on interpretive analysis of the response to a word association task among a small sample of Executive MBA students, mobile device user motivations seem to center on the convenience of being able to access business information while away from one’s desk. This bears out the second thought characterization of efficient business operations enhanced by mobile connectivity to corporate data resources. Convenience and efficiency are very much motivations of the workplace, and motivations for using

mobile devices seem to be along the lines of getting more functionality out of limited time, in view of the ability to access communications and data services at times when one would previously have been out of touch and less productive as a decision maker, such as is the case during travel or attending meetings away from the office.

Trait Term	1 <sup>st</sup> Thought/2 <sup>nd</sup> Thought	
Access	1	1
Accessibility	2	1
Balance	1	0
Connectivity	1	2
Connection	1	0
Convenient	5	1
Clunky	0	1
Ease of Use	1	0
Efficiency	0	4
Flexible	1	0
Immediate	1	0
Information	0	1
Instant	0	1
Mobility	2	1
Productivity	0	1
Quick	1	0
Simple	0	1
Usable	0	1
Wireless	1	0
	18	16

**Table 1. Free-Elicitation Results**

**Empirical Analysis**

Factor analysis results, using principle components extraction and oblique rotation methods, produced three coherent factors with eigenvalues greater than one that together explained about 53% of variance. Unlike previous applications of U&G methods to Internet technologies, where 3 clear distinctions were found with regard to motivations for content use, motivations for use of the medium, and social motivations for technology use, the motivations derived in this U&G profile of mobile device users seem very much *process-oriented*, to the exclusion of other usage dimensions. As shown in Table 2, the three factors, characterized as “useful,” “quick,” and “in touch,” were oriented very much to usage processes and benefits of usage processes. Things like speed and efficiency spanned factors, emphasizing the business process functionality that such devices provide busy managers.

The first factor in the analysis, termed “Useful,” describes aspects of usage and ease of usage that are clearly usage process oriented. The key variables characterizing this first factor, accounting for almost 30% of variance, are “ease of use,” “usability,” “simplicity,” and “productivity.” Mobile devices are, indeed, very useful to managers on the go.

	<b>"Useful"</b> 29.7% of variance	<b>"Quick"</b> 12.09% of variance	<b>"In Touch"</b> 11.6% of variance
Access	.223	.302	<b>.763</b>
Accessibility	.378	.257	<b>.845</b>
Balance	.384	.293	<b>.536</b>
Connections	.008	.395	.179
Connectivity	.282	.389	.364
Convenient	.196	.341	.009
Clunky	.005	.201	.605
Ease of Use	<b>.776</b>	.245	.236
Efficiency	<b>.739</b>	<b>.575</b>	.262
Flexibility	.160	.120	-.127
Immediate	.166	<b>.865</b>	.332
Information	.462	.721	-.137
Instant	.315	<b>.835</b>	.413
Mobility	.000	.134	.000
Productivity	<b>.638</b>	.347	.009
Quickness	<b>.527</b>	<b>.699</b>	<b>.605</b>
Simplicity	<b>.842</b>	.320	.361
Usability	<b>.869</b>	.229	.128
Wireless	.197	.002	.125

**Table 2. Structure Matrix**

The sense of immediacy in networked communications is clear in factor two, "Quick," as indicated by the key variables "immediate" and "instant." As with Factor 1, the motivations for use and gratifications rising from motivated use center on usage processes and not mediated content accessed through use.

Only in the third factor retained in the analysis does any aspect of motivation other than usage processes appear to surface. Factor three, termed "In Touch" due to the loadings on variables related to access and contact, might be construed implicitly as a social dimension to the extent that mobile devices are used for maintaining communication and interchange with personal contacts (perhaps as regards the "balance" variable loading?) and business contacts. Even so, this factor is characterized explicitly in terms that do not directly reference mediated informational content; usage processes seem important to users, and, to an extent, the beneficial accessibility that arises from using the devices also is prized, but little is said by the respondents about the actual information they receive across the mobile channel.

## DISCUSSION AND IMPLICATIONS

This is an exploratory study that seeks to determine the basic motivational profiles for mobile device usage. The convenience and efficiency that arises from the processes of mobile device usage, in particular the immediacy and direct access to communications that such devices provide their users, seems to be the thematic profile arising in this analysis. The most notable distinction in this exploratory analysis of Internet-enabled mobile device Uses and Gratifications as compared to recent U&G studies of wireline Internet use (e.g., Stafford et al, 2004) is the lack of any specific content-based motivation for device use. Regular Internet users are clear about their appreciation of informational content variables such as information, knowledge, learning and research (Stafford et al., 2004, p.

272); users in this study expressed nothing of this sort, contrasting strongly to regular Internet users in the strictly usage-oriented gratifications they appear to derive from their Internet-enabled mobile devices. Indeed, regular Internet users seem even more motivated by searching and Web surfing than they do by informational content, but there is little of the sense of business process enhancement among wireline Internet users that is found in this sample of mobile users. Part of this is due to the sample frame; the wireline study being compared to used some working professionals in the qualitative phase, but the measure validation processes were performed on a sample of ISP customers, and the exploratory study of mobile device users reported here focuses on a group of business managers enrolled in an Executive MBA program.

Among this particular and limited sample of business executives, the primary motivation that appears to surface with regard to the use of mobile devices is in regard to the speed, ease and convenience of the usage process, itself. Perhaps the content provided by mobile devices is taken as a "given" quantity, in as much as the information these mobile devices provides is duplicated on most executive desktops – hence, the mobile device simply provides another process for gaining access to information already mediated by communications networks accessed by this particular group of users.

However, it might also be the case that mobile devices are simply not as "rich" as wireline access devices, given the low bandwidth, limited battery life, and small visual displays characteristic of many types of mobile devices. It may be that mobile commerce is a highly limited subset of e-business in the larger perspective, with the wider and richer range of business activities, transactions and benefits being delivered by larger, more permanently sited devices, as opposed to the limited connectivity and information services that it appears that this sample of mobile device users find useful.

## Limitations

Generality, here, is limited to business users of Internet mobile devices. In fact, this is an exploratory study designed to assess the domain of the constructs underlying motivations for mobile Internet use; sampling was by convenience and results are instructive mainly for the purposes of informing further work designed on more generalizable sampling schemes.

As with any domain sampling task, the subsequent dimensions that are distilled in empirical analysis are a function of the input variables. The word association task used here is a long-standing technique employed by social psychologists interested in attitude and judgment formation, but the exploratory methods utilized by the laboratory psychologists might not translate as well to the less controlled environments in which MIS researchers typically find their business subjects.

## Future Research

The next step to be taken in this stream of research is the formal measure validation process by which the domain of the constructs explored here is subjected to strict empirical confirmation. As previously demonstrated in U&G Internet research, the assessment of the potential dimensionality of a candidate scale is well suited for the structural equation modeling approach to construct validation (e.g., Stafford et al., 2004). Hence, future studies should seek to obtain statistically generalizable samples from which sufficient quantities of data can be obtained to fit measurement models of the mobile device uses and gratifications identified here.

## CONCLUSION

This was an exploratory study designed to assess the domain of motivational constructs related to the use of Internet-enabled mobile devices, using the Uses and Gratifications approach to profiling user motivations. Results suggest that mobile device users are highly motivated by the processes of mobile device usage, and the gratifications that arise from these usage processes – all of which seem to be related to gains in efficiency and accessibility that derive from the use of networked mobile devices in a busy information environment.

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