

An Empirical Study of Household Internet Continuance Adoption among Jordanian Users

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Summary

The purpose of this study is to develop and validate a theoretical model of household Internet behavioral adoption, its actual usage by Jordanians, and the intentions on continuous subscription in the future. In deriving the conceptual model for this study three existing research frameworks are concerned with behavioral adoption and usage of ICT: the theory of planned behavior (TPB); the technology acceptance model (TAM); and uses and gratifications (U&G) theory. Since this study is concerned with acceptance and actual usage of household Internet which has already taken place, the model give more attention to usage behavior and the intention to continued usage of the household Internet in the future based on the past Jordanian experience and subscription. The empirical examination of study model indicates that the Jordanian household Internet usage behavior is determined directly by three internal beliefs, including individual perceived needs, perceived ease of use, and perceived behavioral control. Furthermore, the results revealed that the adopter satisfaction, family, subjective norms, and perceived resources are directly influence on the Jordanian users' intention to continued use of the Internet in household.

Key words:

TAM2, Household Internet, Intention to continuance use

Introduction

The family is the basic and most fundamental unit of society and the natural environment for all its members. Information and Communication Technology (ICT) is the foundation for the development of the information society. The development of the home Information Technology (IT) has a deep impact on the development of social information (Shan et al., 2008). Therefore, the starting point of the information society and dissemination of electronic applications begins from the consolidation of acceptance, access, and continuous usage of the ICTs by households and individuals. As the Internet gains wider acceptance, information society has begun to emerge and take form. Thus, the vast technological possibilities of the Internet cause the fast progress of the information society. The Internet can be used for very diverse purposes. It has become one of the most important means of new forms of cooperation and competition in the various subsystems of society. Anderson (2008) concluded that Internet has a great influence on people's connections to friends, family,

and their communities, on the social system of formal and informal support, and on the working of groups and teams. Flanagan and Metzger (2001) stated that the Internet can be seen now as the worldwide device for communications, which provides exchange of the text, graphics, audio and video information and access to the on-line services without boundaries. Furthermore, it is the valuable instrument of scientific, social, marketing researches, and business development. The Internet as an information and entertainment technology has affect education, government, publishing, the retail industry, banking, broadcast services, and health care delivery. The scope of Internet applications is therefore broad, and forces to deliver the Internet resource to households. Thus, the core indicators on accept and usage of Internet by households and individuals should be used in parallel with e-business activities blossom as a starting point of countries that are planning to implement the information society. Although many countries are attempting to build an information infrastructure and accelerate the adoption of Internet access technology, the results are not always satisfactory (Oh et al., 2003). In Jordan the ICT sector has grown rapidly during the last years and enormous investments have recently been made. Apart from Jordanian governments, ICT companies are also making efforts to involve more people in the adoption of their products and services. Although the number of adopters of new ICT products and services is growing, Internet are becoming more accessible, and Internet cafes have sprung up in even small Jordanian cities, there is a considerable ICT adoption gap especially in household Internet connectivity between Jordan and the desired level, compared to other regional and developed countries.

According to official numbers released by the Jordanian Telecommunications Regulatory Commission, only 16% of Jordanian households have internet access at the end of the first half of 2008. Current Jordanian stakeholders such as the government, Internet Service Providers (ISPs), are making a lot of efforts and resources to speed up the adoption of household Internet technology. It seems that these efforts are not being driven sufficiently by an adequate knowledge of the adoption behavior of individuals, including users' beliefs, usage behavior, adopter satisfaction, intention to continued usage and what

the factors affecting the adoption of household Internet. On the other hand, various studies have examined how technologies are accepted. Individual adoption of technology has been studied extensively in the workplace or in organizations settings. Oh et al. (2000) pay attention the information systems discipline have started to develop models of ICT acceptance and usage specifically looking at the household, building on thirty years of research on technology adoption in organizations. Far less attention has been paid to adoption and actual usage behavior of Internet in the household, and the intention to continued usage in the future based on the prior or current adoption and subscription. Furthermore, most studies have reviewed the factors involved in adoption from a theoretical perspective, and fewer studies addressed the adoption factors from both an academic and a practical perspective. In addition, previous studies on the acceptance and adoption of household Internet have only offered limited information on the voluntary behavior of individuals toward this kind of technology.

Therefore, given this gap in the literature, the goal of this study is to develop and validate a theoretical model of household Internet adoption, and the intention to continued usage in the future, integrating various views on the acceptance and usage of technology. The results of the current study will be helpful to various stakeholders that pursue household Internet penetration as a national policy. This study will help regulators, governments and the telecommunications providers understand the broader issues of household Internet adoption, such as the dimensions of adopters' internal beliefs, usage behavior, the intention to continued usage, and the factors affecting the acceptance of household Internet technology, which will be helpful in understanding, stimulating, and facilitating the adoption and usage of such technology.

Background

In response to the growing of IT importance, a considerable body of literature with divested theoretical models has developed in the past few decades to study and provide an explanation of the determinants of acceptance, adoption and usage. IT acceptance research has postulated many competing models with different constructs of acceptance determinants with different terms to describe almost the same thing. Furthermore, the authors studies described a variety of constructs and variables which may be identified in the other studies as a subset of one or more model. In order to measure users' acceptance of IT applications as well as factors affecting adoption of similar technologies, several models and theories with roots in IS, psychology, and sociology have been proposed. Shan et al. (2008) discussed within this broad area of inquiry two streams of research, one important stream has focused on individual acceptance of technology, and employed

intention-based models which use behavioral intention to predict usage and, in turn, focus on the identification of the determinants of intention, such as internal beliefs of adopter, social influences, and facilitating conditions. This study is grounded in models from social psychology, such as the theory of reasoned action (TRA), the technology acceptance model (TAM), the theory of planned behavior (TPB), and uses and gratifications (U&G) theory. A second stream of research has examined the adoption and usage of IT from a diffusion of innovations perspective. Diffusion researchers focus primarily on finding out how innovations diffuse among the members of a social system, why some innovations are diffused more rapidly than others, and how various factors interact to facilitate or impede the adoption of a specific new IT.

However, this study focuses on discussing, understanding, and addressing the adopter internal beliefs, actual usage, the behavioral intention to continued usage of the household internet, and the affected external variables. Hence, the intention-based approach will be employed to develop the proposed model of research. As whole, the adoption and usage of ICT in the home is different from it in the organizations settings. Davis (1989) explained in the context where acceptance is voluntary, the most pertinent question is: What causes people to accept or reject IT?. IT adoption comprised at one end by voluntary adoption and at the other by mandatory adoption (Venkatesh and Davis, 2000; Venkatesh et al 2003; Melone, 1990; Adamson and Shine 2003). Voluntary adoption means that the user of specific IT has the freedom to decide whether or not he utilizes the technology, such as household Internet adoption and usage. On the other hand, mandatory adoption means the user does not have this freedom, because he is forced to utilize the IT in a way that replaces one or more of his work practices. For example, Brown et al. (2002) and Melone (1990) suggested that employees do not have a decision in regarding use since there are no alternatives, and may choose not to use the system when use would have been voluntary.

In most situations the IT must be used to complete one's own tasks that are also tightly integrated with the tasks of multiple other job performers. Therefore, measuring perceived usefulness of IT is a main determinant of behavioral intention and adoption success in a mandatory environment results in a value that will be highly correlated with the job function (Dwivedi et al., 2007). In contrast, the personal acceptance and usage of household Internet mostly is not to achieve formal tasks to improve the performance. It is an active choice made to fulfill diversified informational, social, and psychological needs or wants, and may compete with other media to satisfy users' needs. TPB and TAM stems from the Theory of Reasoned Action (TRA), which is based on the assumption that reasoned action is the motive behind

behavioral intention (Venkatesh et al., 2003). TAM and TPB tailored to examine IT adoption on the job within organizational settings (Venkatesh et al., 2003; López-Nicolás et al., 2008; Choudrie and Dwivedi, 2004; Choudrie and Dwivedi, 2006). Thus, voluntariness dimension are not well addressed in TAM and TPB. Furthermore, many of the supporting research have been conducted in environments where the adoption was mandatory. Thus, this limits the ability of both theories to be applied in the voluntary choice and behavioral intention of household Internet adoption and usage. However, this problem can be solved by involving Uses and gratifications (U&G) Theory. U&G inquires into the reasons why people use the media and the gratifications derived from media usage and access. It focuses on the social and psychological motives that explain why people select and use a certain communication technologies (Ruggiero, 2000; Sun et al, 2006; Guo et al., 2009).

The Technology Acceptance Model (TAM)

TAM (Davis, 1989) is considered to be the most influential research models in studying, predicting, and explaining the determinants of IT acceptance and usage at the individual level (Venkatesh and Davis 2000; Chau, 2001; Harris et al., 2001). It was tailored to IS context (Venkatesh et al, 2003). The TAM provides a foundation to outline the impact of situational and dispositional factors on internal beliefs, and behavioral intentions (Harris et al., 2001). According to TAM, actual system use is determined by the users' behavioral intention to use, which is influenced by their internal beliefs (the perceived usefulness and perceived ease of use) towards using IT. Furthermore, the TAM theorized a number of external variables that are mediated by the two main internal factors. TAM has been tested empirically in a wide variety of applications and in various contexts, and successfully applied for internet adoption and usage. Recently, Venkatesh and Davis (2000) extended the original TAM model. TAM2 included additional determinants of the perceived usefulness and behavioral intention to use constructs, including social influence processes (subjective norm, image and voluntariness), cognitive instrumental processes (job relevance, output quality, result demonstrability), and experience as a moderating variable.

The Theory of Planned Behavior (TPB)

Although the TPB roots within organizational research, it is widely used by IS researchers to study IT adoption, implementation, and usage (Choudrie and Dwivedi, 2004). TPB extended the TRA, to account for conditions where individuals do not have absolute control over their behavior. The model of TPB asserted that attitude, subjective norm and perceived behavioral control are direct determinants of behavioral intention, which in turn

affects behavior. Ajzen (1991) argued perceived behavioral control included in TPB is defined as people's perceptions of the ease or difficulty of performing the behavior of interest which reflects the availability of resources needed to engage in a behavior, such as time, money or other specialized resources, and self-efficacy. TAM provided a more parsimonious set of constructs for predicting the adoption behavior of IT than the TPB while ignored some of the constructs that may be important in some other situations (Oh et al., 2003). Therefore, many research efforts have been made to combine the TAM and TPB (e.g. Taylor and Todd ,1995; Venkatesh and Morris, 2000; Chau and Hu,2001; OH et al., 2003).

Uses and Gratifications (U&G) Theory

The U&G focuses on users' motives and their self-perceived needs (Mondi et al., 2008). Luo et al. (2006) defined the motivations, usage behavior, and gratifications are three major U&G constructs which were extensively examined by communication researchers. Furthermore, U&G presupposes prior adoption of an innovation and concerns itself with the individual user's motivations to continued usage of that technology (Ruggiero, 2000, Stafford et al., 2004; Mondy et al., 2008). One basic assumption of this approach is that media users are goal-directed in their behavior, and the personal use of media is an active choice made to satisfy/ gratify their felt needs or wants (Guo et al., 2009). U&G approach also assumes that information resources may compete with other resources for satisfaction of users' needs (Mondi et al., 2008). The U&G approach has found to be a useful approach to explore people's motivation for engaging one specific mediated technology over another (Ruggiero 2000, Mondy et al., 2008). U&G has been used to assess a number of technologies such as, TV, radio, VCR, telephone, and cable TV media (Ruggiero, 2000; Stafford et al., 2004). The U&G perspective has also been suggested as a framework to study the motivations of individuals using the Internet in different areas (e.g. Papacharissi and Rubin, 2000; Mondy et al., 2008; Luo et al., 2006; Sun et al., 2006; Guo et al, 2009).

Literature review

In the last years, some researchers in the IS discipline have started to develop models of technology adoption specifically looking at the household, building on a large body of research conducted to study workplace adoption in organizational context. The previous studies have offered limited information on the voluntary behavior of individuals, especially in adoption of some kinds of home technology (Oh et al., 2003). Most of earlier researches on home IT were about hardware, software, and technology standards, which includes all kinds of home information equipments or electronic equipments, such as computers,

TV, and cell phones, and home security devices (Choudrie and Dwivedi; 2004, Brown and Venkatesh's, 2005; Shan et al., 2008). On the other hand, various studies in the IS discipline have started to develop models regarding on-line applications specifically looking at the Internet adoption and usage in various contexts. The focus of research on the adoption and usage of Internet has been primarily on the construction of a national level infrastructure or on macro level factors such as government policies, market competition and the density of population, (López-Nicolás et al., 2008; Choudrie and Dwivedi, 2006; Oh et al., 2003; Shan et al., 2008).

Far less attention has been paid to individual adoption of the household Internet. Furthermore, most of the work studying household Internet were around demographic characteristics of those who adopt (e.g. Choudrie and Dwivedi, 2005; Dwivedi et al., 2006; Kim and Jee, 2006; Chaudhuri et al., 2006), characteristics of technology (e.g. Brown et al., 2009; Hausman et al., 2001, Kayany and Yelsma, 2000), Internet usage (e.g. Choudrie and Dwivedi's 2007, Anderson et al., 2002; Dwivedi et al., 2007; Kraut et al. 1999), and socio-economic attributes (e.g. Choudrie and Dwivedi's, 2004; Hsieh et al., 2008; Firth and Mellor 2005; Bauer et al., 2003). Few studies have been conducted until now which investigate the intention to adopt a household Internet. The majority of studies conducted to understand Internet related issues are macro and exploratory in nature, without employing the validity measures (Oh et al., 2003; Choudrie and Dwivedi, 2006; Choudrie and Dwivedi, 2004; Brown and Venkatesh, 2005; Brown et al., 2009). On the other hand, although PC is different to network technologies in terms of alternative choices, periodical cost, durability, observability and use, a number of studies (Choudrie and Dwivedi, 2004; Choudrie and Dwivedi, 2006; Brown et al., 2009; Dwivedi, et al., 2007; Dwivedi and Iani, 2009) have developed a new models to discuss the adoption and usage of household Internet based on the Model of Adoption of Technology in the Home (MATH).

Brown and Venkatesh's (2005) derived MATH from the constructs of the decomposed TPB, the diffusion of innovation theory and other studies which is developed to examine users' adoption and usage of PC within organizational settings (Choudrie and Dwivedi, 2006; Brown et al., 2009). However, the model identifies three major categories as influences on technology adoption, including attitudinal beliefs, normative beliefs, and control beliefs. Furthermore, there is no previous studies addressed the attention directly to the actual usage behavior and the intention to continued usage of the household Internet in the future based on the adopter prior experience and subscription. As pursued in aforementioned adoption studies, there exists a need for a deeper understanding of key determinants which address,

the direct impact of internal beliefs on actual usage behavior, and the behavioral intention to continued usage of Internet in households. Therefore, constructing and validating a conceptual model specific to household Internet adoption necessitates the review, identification and integration of the relevant determinants examined in previous behavioral intention-based models, including the TAM, TPB, U&G Theory, and other related works.

Foundations of Proposed Model and Hypotheses

Since the introduction of TAM, many researches have been conducted by extending the model, combining it with other models, and moderating external factors that might affect the constructs in the model. However, the basic structure of the model has been supported in earlier research. An adapted version of the TAM2 model, which integrates social influences, will be used as a guiding theory of our adoption model. Yang (2007) concluded TAM2 deals more effectively with the adoption decision-making process of individual users when social influence factors may outweigh functional concerns commonly seen in many business decision-making situations. Furthermore, the research model postulates several modifications through replacing and incorporating additional constructs and variables from TPB, U&G theory, and other related literature. The core concept of TAM is that perceptions of usefulness, ease of use and other external variables will influence an individual's intention to use IT, which will ultimately influence actual usage behavior (Davis, 1989). Behavioral intention is defined as the person's subjective probability that he will perform the behavior in question (Fishbein and Ajzen, 1975), and is thus dealing with future behavior.

As intention was used to predict actual behavior; including measures of actual usage in the model in practice is relatively unusual (Taylor and Todd, 1995; Horton, et al., 2001; Venkatesh et al., 2003; Straub et al., 1995; Yang and Yoo, 2003). Furthermore, behavioral intention to adopt a certain IT for the first time may lack practical value in predicting long-term future IS adopting (Bergeron et al., 1995; Horton, et al., 2001). Since this study is concerned with adoption and usage of household Internet which has already taken place, the model give more attention to usage behavior and the future intention to continued usage of the household Internet based on the prior or current experience and subscription. In such case, Thompson et al. (1991) and Shan et al., (2008) argued that behavioral intention should be excluded because we are interested in actual usage behavior. Therefore, it was considered appropriate to follow Thompson (1991) and Shan et al., (2008), through excluding the behavioral intention construct, and incorporating anew construct called the behavioral intention to continued usage/subscription, after the actual usage of household

Internet. Thus, the research model (Figure 1) posits that household Internet usage behavior is influenced directly by three internal beliefs. These are; individual perceived needs, perceived ease of use, and perceived behavioral control, which also influence directly through perceived resources on the behavioral intention to continuance usage /subscription of household Internet.

On the other hand, researchers expect that integrating satisfaction/gratifications to the model is logically and theoretically reasonable. Satisfaction is a common measure of IS adoption success (Lin, 2008; Zviran and Erlich, 2003). Satisfaction/gratifications refer to the outcome of actual usage, the fulfillment of needs, confirmation of expectations, and an important predictor of the intention to renewing the household Internet subscription in the future. Therefore, it will be a strong indicator of users' evaluation to their voluntary choice, the possibility to influence others, and encourage them to adopt and use household Internet.

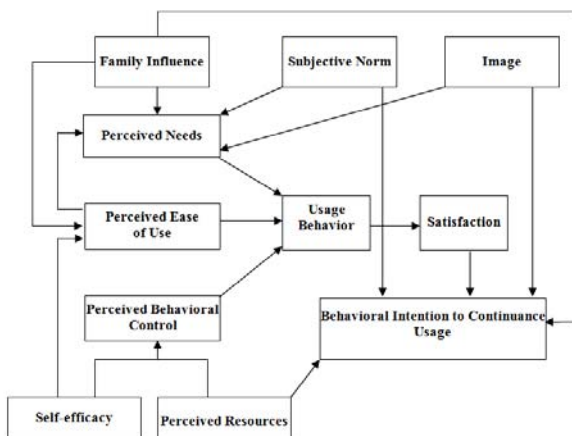


Figure 1. The Household Internet Adoption Model

Additionally, on the basis of the TAM and revised TAM2, the internal beliefs toward adoption and usage, and intention to continued usage and subscription of household Internet are theorized to be influenced by a number of external variables. Based on the previous studies, the external variable made up of subjective norms, image, and family influences. This model also suggests that the three external variables are also influence directly on behavioral intention to continuance usage/subscription of household Internet. A brief description of the aforementioned factors is described below.

Perceived Needs (Motivations)

Adoption theory seeks to explain the organizational and individuals developing solutions to fulfill needs. Motivation theories also posit that an individual's behavior is driven by their needs; ultimately, the goal-directed action is to fulfill that individual's needs

(Papacharissi and Rubin 2000; Luo et al., 2006). Ruggiero (2000) stated that a chief tenet of household Internet adoption is that Internet adoption and usage is mostly selective and motivated by self-awareness of the individual's own needs and an expectation that those needs will be satisfied by particular type of technology that give a certain advantage above other already known alternatives to fulfill needs. Therefore, the degree in which someone wants to adopt an ICT is determined by the extent to which the technology helps to fulfill that person's needs.

The study of how and why individuals use media, may offer indications to our understanding about exactly what needs are, where they originate, and how they are satisfied (Ruggiero, 2000). Studies that have focused on this area have found a range of motivations and needs to use Internet (e.g. Korgaonkar and Wolin, 1999; Flanagan and Metzger, 2001). Papacharissi and Rubin (2000) also developed a scale of Internet usage motives that consisted of five primary dimensions, including interpersonal utility, pass time, information seeking, convenience, and entertainment. For the purpose of this study, we refer to motivations of household Internet adoption as perceive needs, using the "Papacharissi and Rubin" scale of Internet usage motives. Therefore, researchers hypothesize:

H1: perceived needs have a positive influence on usage behavior of household Internet.

Perceived Ease of Use

Perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort. This follows from the definition of ease, which refers to freedom from difficulty or great effort. (Davis, 1989) claimed that, an application perceived to be easier to use than another is more likely to be accepted by users. Consumers in the home are less likely to choose an Internet access technology if they perceive it to be complex or not easy to use. This is no less true in developing countries, where perceived ease of use has often been found as a predominant influence on user behavior (Ifinedo, 2006), (Brown et al., 2009). Thus, the proposition is as following:

H2: Perceived ease of use has a positive influence on usage behavior of household Internet.

H3: perceived ease of use has a positive effect on perceived needs.

Perceived Behavioral Control

TAM has a limitation in assuming that behavioral intention to use IT is volitional, and there are no barriers may prevent an individual from adopting and using an information system if he or she chose to do so (Oh et al., 2003). Ajzen (1991) has added the construct of perceived behavioral control as predictor of behavioral intention, and

put forward the theory of planned behavior. According to Ajzen and Madden (1986) Perceived behavioral control reflects beliefs regarding access to the resources and opportunities needed to perform a behavior. Taylor and Todd (1995); Luarn and Lin (2005) decomposed them into facilitating conditions which reflects the availability of resources needed to engage in a behavior, such as time, money or other specialized resources, and self-efficacy; that is an individual's self-confidence in his capabilities and competencies to perform a behavior.

This study the availability of resources needed as perceived resources. Perceived resources refer to an individual's belief that he or she has the resources needed for adoption and using an information system or technology (Mathieson et al. 2001). In order to extend the TAM to include perceived behavioral control, (Oh et al., 2003; Luarn and Lin 2005; Zhang and Gutierrez, 2007; Dwivedi et al., 2007; Mathieson et al., 2001) incorporated the construct of perceived resources to predict and explain behavioral intention to use an ICT. At the same time, there also exists empirical evidence of a positive causal relationship between ICT self-efficacy and perceived ease of use (e.g. Venkatesh, 2000; Mathieson et al., 2001; Wang et al., 2006; Liang et al., 2008). This indicates that self-efficacy can be a significant antecedent of the adopting and using household Internet with the presence of perceived ease of use in the model. Therefore, this study tests the following hypotheses:

H4: perceived behavioral control has a positive effect on usage behavior of household Internet.

H5: perceived resources have a positive effect on behavioral intention to continued usage of household Internet.

H6: self-efficacy has a positive effect on perceived ease of use.

Satisfaction/Gratifications

Ruggiero (2000) Suggested using a certain ICT product or service, people derive gratification as their needs or wants are fulfilled. The terms satisfaction and gratifications both mean affective outcome derived from a specific behaviour; as a result, they were sometimes used interchangeably in U&G studies (Ruggiero, 2000; Luo et al., 2006). Wong and Hsu (2008) summarized satisfaction is a post-adoption phenomenon reflecting how much the user is satisfied or dissatisfied with the service after experiencing it. It is a function of the judgment between the user's expectations and the perceived performance of IT. Thus, system usage is identified as one of the major indicators for IS success and is often correlated with satisfaction (Wu and Wu, 2005). In other word, it is conceptualized as the effective reactions of individuals toward the usage of ICT applications (Al-Gahtani and King, 1999; Luo et al., 2006). Venkatesh et al. (2003); Wixom and Todd (2005); Luo et

al.(2006) suggested that future technology adoption researches should study the degree to which systems perceived as successful. A number of technology adoption studies using TAM have employed user satisfaction as a measure of acceptance and adoption success (Wixom and Todd, 2005; Lin, 2008; Luo et al., 2006; Adamson and Shine, 2003). Therefore, this study hypothesize that:

H7: There is a positive relationship between usage behavior and satisfaction.

H8: satisfaction has a positive effect on behavioral intention to continued usage of household Internet.

External Variables

TAM examined the external variables that may determine or influence users' perceptions of technology and hence their internal beliefs towards specific IT use. Several external variables were incorporated in the model since Davis et al. (1989) recommended some external factors to be tested in future research. Venkatesh and Davis (2000) extended the original TAM by incorporating three interrelated social influence variables: subjective norm, voluntariness, and image. Yang (2007) extended the addition of these three variables to the original TAM accounts for technology adoption decisions that are not made by managers in an organizational setting for functional considerations. Although TAM has been empirically tested quite considerably, very few studies have looked into the external variables of the model. For the purposes of this research, the external variables are modified for investigating the Internet technology acceptance in household context. The external variables are divided into three factors, including subjective norms, image, and family influence.

Subjective Norm

Fishbein and Ajzen (1975) defined subjective norm as person perception that most people who are important to him think he should or not should perform that behavior in question. Ajzen (1991); Taylor and Todd (1995); Venkatesh and Davis (2000) founded a significant direct effect of subjective norm on intention. According to Venkatesh and Davis (2000) the rationale for a direct effect of subjective norm on intention is that people may choose to perform a behavior, even if they are not themselves favorable toward the behavior or its consequences, if they believe one or more important referents think they should, and they are sufficiently motivated to comply with the referents. Taylor and Todd, (1995) suggested that in a setting where actual behavior with real consequences is studied, subjective norm would be expected to be an important determinant of intention and usage. Therefore, this study tests the following hypotheses:

H9: Subjective norm have a positive effect on perceived needs.

H10: Subjective norm have a positive effect on intention to continued usage of the household Internet.

Image

Venkatesh ET AL. (2003) described social influence as a direct determinant of behavioral intention was represented as image in Innovation Diffusion Theory (IDT). Image represents the degree to which use of IT is perceived to enhance one's status in one's social system (Moore and Benbasat, 1991). Venkatesh and Davis (2000) noted that an individual would decide to adopt a technology because of the perceived importance of group membership and social status. In other words, an individual will adopt technology as a means of identification with a group to obtain social status. Carter and Bélanger (2005) concluded that perceived image do not directly affect citizens' intentions to use government services online. While this is consistent with previous work, where image was not a good predictor of e-commerce use intentions (Van Slyke et al., 2004), this study expect that it may not be the case in household Internet adoption. Therefore, researchers hypothesize that:

H11: Image has a positive effect on perceived needs.

H12: Image has a positive effect on behavioral intention to continued usage of the household Internet.

Family Influence

Through household Internet, family members can attain various needed services and applications. On the other hand, the influence of family members play a key role in the adoption of ICT because they were likely to act as information intermediaries for those without access, experience, skill, and desire to use ICT (Warren, 2004). Since older people may be relatively unfamiliar and unsure of household Internet, support by other family members can be a helpful condition that increases perceived needs by informing them about the benefits and conveniences offered by the Internet, and how to use it effectively (Brown et al., 2009). Family was frequently mentioned by adopters as having an influence on the ICT home adoption (Brown et al., 2009; Dwivedi and Irani, 2009; Brown and Venkatesh, 2005; Shan et al., 2008; Venkatesh and Brown, 2001; Warren, 2004). Thus, the hypotheses are as following:

H13: Family has a positive effect on perceived needs.

H14: Family has a positive effect on perceived ease to use.

H15: Family has a positive effect on intention to continued usage of the household Internet.

Research Methodology

The measurement

The measurement instruments of the constructs in the TAM, TPB and U&G theory have long been used in

previous research and shown high reliability and validity therefore, it was reasonable to employ these instruments in this study. Thus, the scales to measure each of the constructs in the model were adopted from previous related research (Taylor and Todd, 1995; Pavlou and Fygenson, 2006; Davis, 1989; Papacharissi and Rubin 2000; Venkatesh and Davis, 2000; Oh et al., 2003; Venkatesh et al., 2003; Leuo et al., 2006). Each construct is described in Table 1.

Instrument Development

Survey instrument was developed to examine the internal beliefs, usage behavior, satisfaction, intention to continued usage, and the external factors influencing adoption of the household Internet. The questionnaire included 45 questions items representing the eleven constructs identified in Table 1. In order to collect representative data of the target population with limited time and resources, a self-administered questionnaire was considered the most appropriate primary survey instrument in this study.

Sampling and Questionnaire Distribution

In the light of the difficulty in obtaining any formal lists or information about the population, the selection of the target population was made according to the availability of those people who have been adopted and currently use the Internet in their homes. The sample was randomly chosen from universities teachers, household Internet adopters, living in the local vicinity, friends' networks. The researchers attempted to obtain samples covering various demographic backgrounds in order to reduce sampling bias caused by user characteristics. After three month of work, three hundred questionnaires in paper format were distributed and a total of 223 questionnaires were collected (response rate 74%).

Data Analysis and Results

Given the prediction-oriented nature of this research and the relatively small sample size compared with the number of variables, the Partial Least Squares (PLS) was used to validate the measures and test our research model. PLS have special abilities that make it more appropriate than other techniques, such as multiple regression and LISREL, to handle relatively small sample sizes. Furthermore, PLS have ability to account for measurement errors for unobserved constructs and to examine the significance of structural paths simultaneously (Chin et al., 2003).

Assessing the Measurement Model

The measurement model was examined for internal consistency, and convergent and discriminant validity. Table 2 shows cronbach's alpha of the research constructs and the average variance extracted (AVE).

Table 1 Constructs and Measurements of Household Internet Model

Constructs	Variables
Perceived Needs (PN)	Household Internet provides an easy and cheap access to information or others. I use the Internet as an information tool to learn about people, places, products and services, news, and search scientific materials. I use the Internet to fulfill needs of affection, inclusion, expression, social interaction, and surveillance. I use the Internet when there is nothing to do, to occupy idle time, and to relieve boredom. I use the Internet for amusement and enjoyment.
Perceived Ease of Use (PEU)	I clearly understand how to use Internet. Learning to operate household Internet is easy for me Interacting with the Internet does not require a lot of my mental efforts. Overall, I find the Internet easy to use.
Perceived Behavioral Control (PBC)	
Self-efficacy (S-E)	I am able to use the Internet even if there was no one around to show me how to use it. I could use the Internet if I could call someone for help if I got stuck. I would feel comfortable using the CRC on my own. I am confident I could operate the Internet on my own.
Perceived Resources (PR)	It would be within my budget to subscribe household Internet. I have the knowledge necessary to use the system. It would be within my budget to subscribe household Internet I have the time needed for using household Internet
Usage Behavior (UB)	How frequently do you believe you use the household Internet? Extremely frequent Slightly frequent Neither frequent or Extremely Slightly infrequent Extremely infrequent What is your degree of current usage of the Internet? Less than once each week About once each week Several times a week About once each day Several times each day Approximately how many hours do you believe you spend on the Internet every week: More than 20 hour Between 10-15 hour Between 15-10 hour Less than 5 hour Between 5-10 hour
Satisfaction (S)	Using the household Internet is a good idea. Using the household Internet is a wise idea. I like the idea of using the household Internet. Using the household Internet is pleasant. I find using the household Internet to be enjoyable I find that the information content of internet is adequacy for my needs. I am satisfied with my usage of household Internet. You encourage the others to adopt and use the household Internet.
Behavioral Intention to Continued Usage (BICU)	I intend to renew my subscription to household Internet in the future. I predict that I would to continued usage of the household Internet. The household Internet in the future. I plan to renew my subscription to household Internet in the future.
External Variables	
Subjective Norms (SN)	People who are important to me think that I should adopt the household Internet People who influence my behavior think that I should adopt the household Internet.
Image (I)	People in my society who use the system have more prestige than those who do not. People in my society who use the system have a high profile. Having the system is a status symbol in my society.
Family Influence (FI)	My family members think that I should continue the current subscription to Internet. Internet is very useful for other members in my family. My family members are available for assistance with internet difficulties. My family members use the Internet heavily

The Internet has useful applications for my family.

Table 2: Cronbach's Alpha and the Average Variance Extracted (AVE) of the Study Constructs

Construct	Cronbach's Alpha	PN	PEU	S-E	PR	S	SN	I	BICU	UB	FI
PN	0.807	0.896									
PEU	0.905	0.517	0.743								
S-E	0.788	0.124	0.407	0.815							
PR	0.927	0.389	0.509	0.509	0.811						
S	0.885	0.204	0.089	0.574	0.402	0.905					
SN	0.845	0.143	0.513	0.466	0.468	0.434	0.930				
I	0.925	0.032	0.172	0.553	0.427	0.646	0.406	0.896			
BICU	0.909	0.278	0.030	0.526	0.392	0.690	0.452	0.665	0.909		
UB	0.798	0.202	0.032	0.563	0.503	0.365	0.283	0.451	0.370	0.897	
FI	0.869	0.026	0.427	0.620	0.475	0.402	0.637	0.485	0.461	0.321	0.886

Reliability of items was assessed by examining each item's loading on its corresponding construct. A common rule of thumb suggests that the item loading should exceed 0.70. As shown in Cronbach's Alpha column in the Table 2. All constructs exhibited loading of greater than 0.70, indicating adequate reliability analyses. Convergent and discriminant validity verifies that items should load higher on their own construct than on the others in the model, and the average variance shared between the constructs and their measures should be greater than the variances shared between the constructs themselves. The factor structure matrix showed that all items load high on their respective constructs (0.70 or more) and lower on other constructs.

The square root of the AVE (diagonal elements) was found to be larger than the correlations (off-diagonal elements) between the constructs (see Tables 2). Thus, the results exhibit sufficiently strong psychometric properties to support valid testing of the proposed structural model.

Assessing the Structural Model

The structural model in PLS is assessed by examining the standardized path coefficients (direct effect). The path coefficients indicate the strengths of relationships between constructs. The significance of the path coefficients is assessed by the bootstrap t-values which should be higher than 2 (Chin, 1998). The PLS path coefficients are shown in Figure 2.

Table 2 Test of Hypotheses

Hypothesis	Path	Standardized Path Coefficient	t-Value	The Result
H1	PN → UB	0.273	3.087**	Supported
H2	PEU → UB	0.141	1.721*	Supported
H3	PEU → PN	0.026	0.311	Not supported
H4	PBC → UB	0.332	6.385***	Supported
H5	PR → BICU	0.197	2.956**	Supported
H6	S-E → PEU	-0.102	-1.214	Not supported
H7	UB → S	0.363	3.639**	Supported
H8	S → BICU	0.274	2.959**	Supported
H9	SN → PN	0.289	3.345**	Supported
H10	SN → BICU	0.568	7.583***	Supported
H11	I → PN	0.156	9.532***	Supported
H12	I → BICU	0.697	8.613***	Supported
H13	FI → PN	0.336	4.594**	Supported
H14	FI → PEU	0.383	5.208***	Supported
H15	FI → BICU	0.664	8.995***	Supported

Figure 2 depicts the results of the research. According to significant path coefficients shown in Figure 2, the majority of the hypotheses to the relationships between the model constructs were supported. Overall, the whole model was able to account for 71% of variance in the construct of continuance intention to Usage /Subscription (BICU). Besides, Perceived Needs (PN), Perceived Ease of Use (PEU) and Perceived Behavioral Control (PBC) contributed significantly to the observed explanatory power of Usage Behavior (UB), and indirect positive effect through its positive effect on an adopter Gratifications/ Satisfaction (S). The path coefficients are 0.273, 0.141, and 0.332 respectively. This finding is consistent with U&G perspective which posits that the reasons of selecting, adopting continuously specific ICT in the voluntary choice are determined by the awareness of needs and the extent to which the technology helps to fulfill and satisfy/ gratify their felt needs or wants (Ruggiero, 2000; Papacharissi and Rubin 2000; Luo et al., 2006; Guo et al., 2009). Under the constraints of Perceived Behavioral Control (PBC) including Perceived Resources (PR) and Self-efficacy (S-E) which has been investigated in a number of previous related researches (Ajzen, 1991; Oh et al., 2003; Taylor and Todd, 1995; Luarn and Lin 2005). However, together these three constructs account for 67% in the variation of Usage Behavior (UB).

Inconsistent with hypothesis 3 ease of use (PEU) does not have a significant effect on Perceived Needs (PN) with a path coefficient of (0.026). Furthermore, hypothesis 6 shown a positive effect of self-efficacy (S-E) on perceived ease of use (PEU), is not valid. The path coefficient between the two constructs is -0.102. Interestingly, Agarwal et al. (2000) founded that relevant prior experience, mediated by general self-efficacy, affected perceived ease of use. Taylor and Todd (1995) ;Chau and Hu (2001) suggested reasonable to think about these experience-related constructs directly affect perceived ease of use. Venkatesh and Davis (2000) provided empirical evidence showing that ease of use becomes nonsignificant with increased experience. Furthermore, Venkatesh et al.(2003) concluded that several constructs were initially significant, but then became not significant over time, including perceived ease of use, and self-efficacy. This explains the low significance level of perceived ease of use (PEU) contribution to usage behavior (UB) "Path coefficient=0.141" of those who has already adopted household Internet comparing with perceived needs (PN) "Path coefficient=0.273"and perceived behavioral control (PBC)" Path coefficient=0.332".

At the same time, the combination of the external variables, including Family Influence (FI), Subjective Norm (SN) and Image (I) had significant direct positive effect both on Perceived Needs (PN) and Continuance Intention to Usage /Subscription (BICU). The results are consistent with previous researches (Taylor and Todd, 1995; Venkatesh and Davis 2000; Choudrie and Dwivedi's, 2004, Warren, 2004, Shan et al., 2008, Brown et al., 2009), which discussed the social effects on ICT acceptance and adoption. Image contributed to Perceived Needs (PN) significantly less than Family Influence (FI) and Subjective Norm (SN), with the path coefficients of 0.156, 0.336, and 0.289 respectively. As shown in Figure 2, Adopter Gratifications/ Satisfaction (S) and Perceived Resources (PS) had a significant direct positive effect on Continuance Intention to Usage /Subscription (BICU). Family Influence (FI) had a significant direct positive effect on Perceived Ease of Use (PEU).

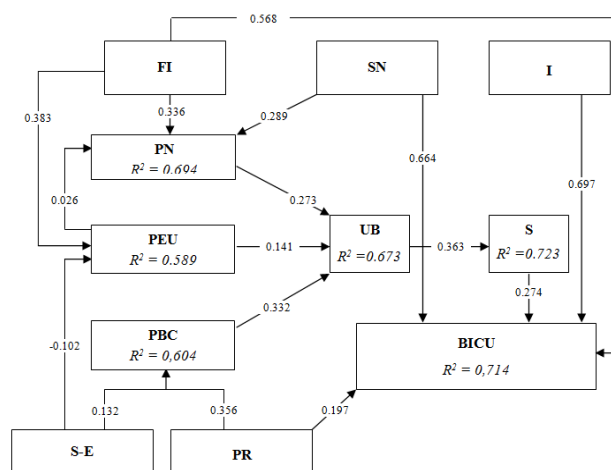


Figure 2. Results of PLS Analysis

Conclusions and Implications

Current Jordanian stakeholders such as the government, Internet Service Providers (ISPs), are making a lot of efforts and resources to speed up the adoption of household Internet technology. These efforts are not being driven sufficiently by an adequate knowledge of the adoption behavior of individuals and its determinants. The Internet technology has some unique idiosyncrasies when it comes to households considering a subscription decision. Far less attention has been paid to study the adoption and actual usage behavior of Internet in the household, and especially the intention to continued usage in the future based on the past adoption and subscription. This study aimed to develop and validate a conceptual model to explain the household Internet subscription and usage, and the determinants of intention to renew the subscription in the future. The current study provides an extensive review

of the ICT adoption behavior by incorporating different views and theories. The model give more attention to usage behavior and the intention to continued usage of the household Internet in the future based on the prior experience and subscription.

The findings from this study shown that household Internet usage behavior is determined directly by three internal beliefs, including individual perceived needs, perceived ease of use, and perceived behavioral control. The study also founded that behavioral intention to continuance adoption and usage of the household Internet is affected by adopter satisfaction, family influence, subjective norms, and perceived resources. The results also shown that perceived needs of adoption and usage household Internet is affected by image, subjective norm, and family influence. This study will help regulators, governments and the telecommunications providers understand the broader issues of household Internet adoption such as the internal beliefs, usage behavior, and the factors affecting the intention to continued usage of the household Internet technology, which will be helpful in understanding, stimulating, and facilitating the adoption and usage of such technology.

Despite the comprehensiveness of the proposed model and the empirical support for it, researchers acknowledge some theoretical and empirical limitations, which call for additional research. First, future research need to extend the investigation to a wider range of external variables, such as users' characteristics, perceived risks, security, privacy, cultural dimensions, and trust related factors. Second, data were collected from only one country in less-developed region, and the culture is high on group and family collectivism and power distance, so may not be applicable to other nations or cultures. Thus, in the future research, there is a need to take the different cultural and economic environments into consideration. Finally, it would be valuable to measure and validate the issues of intention toward the household Internet adoption in pre-post comparative research.

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