The Driving Internal Beliefs of Household Internet Adoption among Jordanians and the Role of Cultural Values

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ABSTRACT

The purpose of this study is to develop and validate a comprehensive model for the determinants of household Internet adoption through identifying the driving internal beliefs of individuals and the effect of cultural values on behavioral intention to adopt the household Internet among Jordanians. Given the widely recognized effect of cultural values on adoption of Information and Communication Technology (ICT), this study, applying Hofstede's multidimensional framework, investigated the effect of cultural values on the behavioral intention to household Internet adoption in micro level. The empirical examination of the research model indicated that the behavioral intention to household Internet adoption is determined directly by five internal beliefs, including perceived needs, perceived risks, perceived ease of use, perceived resources, and perceived image. The results provide supporting empirical evidence linking most of Hofstede's cultural dimensions to behavioral intention to household Internet adoption. With the exception of power distance, the results showed that collectivism (low individualism), masculinity, long-term orientation, and uncertainty avoidance had significant effects on the behavioral intention to household Internet adoption. The results demonstrated differences in the driving forces and cultural impact on Internet adoption between households and organizations settings.

Keywords: *Hofstede's Cultural Dimensions, Household Internet Adoption, Internal Beliefs, Micro Cultural Level, Perceived Risks, Technology Acceptance Model*

INTRODUCTION

The development of the home ICT has a deep impact on the development of information and knowledge societies (Shan et al., 2008). On the other hand, the family is the natural and fundamental group unit of society and the natural environment to provide the members of the information society. Therefore, the starting point of the information society and dissemination of electronic applications begins from the consolidation of acceptance, access, and usage

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of the ICT by the families and individuals in their households.

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 and knowledge society. The Internet has truly transformed global communication. It is more than just information. The Internet represents a set of services for various subsystems of society, and can be used for very diverse purposes. As a worldwide communications technology, the Internet has a great influence on people's connections to friends, family, and their communities, which provides exchange of the text, graphics, audio and video information and access to the on-line services without boundaries.

The scope of Internet applications is therefore broad, and forces to deliver the Internet resource to households. Thus, the core indicators on acceptance and usage of Internet by households and individuals should be used in parallel with e-business activities and other applications blossom as a starting point of countries that are planning to establish the information and Knowledge society.

In many countries, societies and organizations experience difficulty and even failure in transferring IT into practice. Despite receiving billions of dollars in IT infrastructure, this problem seems to be more severe in Arab countries (Hill et al., 1998; Straub et al., 2001; Loch 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 many other countries.

The Jordanian Telecommunications Regulatory Commission (TRC) has announced plan to increase Internet penetration to 50% by 2011. According to official numbers released by the TRC, only 18% of Jordanian households have internet access at the end of 2009 which assures that, things don't go according to plan. Current Jordanian stakeholders such as the government and 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, the driving internal beliefs of the adopters, and the influence of cultural dimensions on behavioral intention toward entering the Internet to their homes.

On the other hand, the individual adoption of technology has been studied extensively in the workplace or in organizations settings. Recently, some researchers have started to develop models of ICT adaption and usage specifically looking at the household, building on the research of technology adoption in organizations (Oh et al., 2003(. The previous studies on adoption of household technology have offered limited information on the voluntary behavior of individuals, especially in adoption of Internet.

Many studies suggested that the culture of a country or region greatly affects the adoption of a technology through its beliefs and values on modernization and technological development (Straub et al., 1997; Kovacic, 2005; Sundqvist et al., 2005; Erumban & de Jong, 2006; Anandarajan et al., 2003; Gong et al., 2007; Calantone et al., 2006; Park et al., 2007; Srite & Karahanna, 2006; Myers & Tan, 2002; Veiga et al., 2001; Robichaux & Cooper 1998; Schepers & Wetzels, 2007). In a broader context, and as the initiatives results in failure, cultural barriers to technology transfer between western and other cultures have been well documented (Scheraga et al., 2000; Jensen & Scheraga, 1998; Straub et al., 2001; Hill et al., 1998).

Loch et al. (2003) suggested that if cultural beliefs and attitudes toward Internet were better understood, then the Internet itself might be better adapted to the behavioral patterns of the adopting country, rather than the traditional approach of force-fitting the culture to the tech-

nology. Despite their indisputable importance, cultural values have not been sufficiently studied in the diffusion of household Internet. According to Albirini (2006), this may be related to the difficulty involved in capturing the constructs of this field.

Therefore, given this gap in the literature, the present study aims to develop and validate a comprehensive model to discuss the driving internal beliefs and the influence of culture values on household Internet adoption. The results of the present study will be helpful to various stakeholders that pursue the penetration and diffusion of household Internet and home ICTs in general. This research will help regulators, strategies and policies makers in governments and the ISPs to understand the broader issues of household Internet adoption, such as the driving internal beliefs affecting the acceptance and adoption of household Internet technology, and how to employ the cultural dimensions to enhance and facilitate the diffusion of this technology, and minimize the possible barriers, which will be helpful in understanding, stimulating, and facilitating the adoption and usage of household Internet.

THEORETICAL BACKGROUND

In response to the growing importance of IT in the life of societies, organizations, families, and individuals, 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 IT acceptance, adoption and usage. As pursued in aforementioned studies, there exists a need for a deeper understanding of key determinants which address the direct impact of perceived beliefs and cultural dimensions on behavioral intention to households Internet adoption. Therefore, constructing and validating a comprehensive conceptual model specific to the driving internal beliefs of household Internet adoption and the effect of cultural values necessitates the review, identification and integration of the relevant determinants examined in previous behavioral intention-based models, including the TAM, TPB, U&G Theory, Hofstede's cultural dimensions, and other related works.

THE DRIVING INTERNAL BELIEFS OF HOUSEHOLD INTERNET ADOPTION

IT acceptance and adoption research has postulated many competing models with different constructs terms of adoption determinants to describe almost the same thing. In order to understand of behavioral intention toward IT applications as well as the factors affecting the adoption of such technologies, several models and theories with roots in IT, cultures, psychology, and sociology have been proposed. Furthermore, the authors of these studies have described a variety of constructs or variables may be identified in the other studies as a subset of one or more model.

As whole, the adoption and usage of ICT in the home is different from it in the organizations settings. In the situation where acceptance is voluntary, the most significant question is what causes people to accept or reject IT? (Davis, 1989). IT adoption comprised at one end by voluntary adoption and at the other by mandatory adoption (Venkatesh & Davis, 2000; Venkatesh et al., 2003; Melone, 1990). Voluntary adoption means that the user of specific IT has the freedom to decide whether or not he adopts and uses the technology, such as household Internet. The adoption of household Internet 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. On the other hand, mandatory adoption means the user does not have this freedom, because he is forced to adopt and use 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 IT usage since there are no alternatives, and may choose not to use it voluntarily.

In the last years, researchers have started to develop models using various driving forces of technology adoption specifically looking at the household, building on a large body of research conducted to study workplace adoption in organizational context. The driving forces of IT adoption in traditional acceptance models, such as Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Technology Acceptance Models (TAM) tailored to examine IT adoption on the job within organizational settings (Venkatesh et al., 2003; López-Nicolás et al., 2008; Choudrie & Dwivedi, 2004; Choudrie & Dwivedi, 2006). Furthermore, many of the supporting research have been conducted in environments where the adoption was mandatory. Thus, this limits the ability of previous theories to be applied in the voluntary choice and behavioral intention of household Internet adoption. 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 and needs that explain why people select and use a certain communication technologies (Ruggiero, 2000; Sun et al., 2006; Guo et al., 2009).

Additionally, 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 & Dwivedi, 2004; Brown & Venkatesh, 2005; Shan et al., 2008). Far less attention has been paid to families and individuals adoption of the household Internet. The majority of studies conducted to understand Internet related issues were macro and exploratory in nature, without employing the validity measures (Oh et al., 2003; Choudrie & Dwivedi, 2004, 2006; Brown & Venkatesh, 2005; Brown et al., 2009). In addition, most of the previous studies avoided a number of behavioral and social factors that play a critical role in facilitating or impeding the adoption of household Internet subscription, such as perceived risks, perceived resources, and perceived image.

On the other hand, although PC is different to network technologies in terms of alternative choices, periodical cost, durability, and usage, a number of studies (Choudrie and Dwivedi, 2004, 2006; Brown et al., 2009; Dwivedi, et al., 2007) 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 (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 PCs within organizational settings (Choudrie & Dwivedi, 2006; Brown et al., 2009).

The term "Internal beliefs" actually derived from Davis's (1989) Technology Acceptance Model (TAM), which represents one of the explanatory models having most influenced the theories of human behaviors (Venkatesh et al., 2003). The core concept of TAM is that internal beliefs and other external variables will drive the 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 & Ajzen, 1975), and is thus dealing with future behavior. In the context of household Internet adoption, this study refers to the internal beliefs as a household Internet adopter's perception of the needs for Internet in household, potential risks, ease of use, availability of resources, and image that are felt to be true.

THE CULTURAL DIMENSIONS OF HOUSEHOLD INTERNET ADOPTION

Research frequently mention national culture as a profound influential factor on the acceptance, adoption, and behavior of IT usage in each society as a restraining or driving force. There are specific ideas, beliefs, and values of Arab culture and society has an influence on the

adoption and transfer of technology from non-Arab cultures to Arab ones. Straub et al. (2001) investigated how cultural impact on the adoption of new technology in the Arab world (Jordan, Egypt, Lebanon, Sudan and Saudi Arabia). He revealed that Arab cultural beliefs are a very strong predictor of resistance to information technology transfer. Loch et al. (2003) investigated the diffusion of the Internet in the Arab world focusing on the role of social norms and technological culturation. Results showed that a strong majority of respondents indicated that Internet acceptance was not without significant reservation. 58 percent disagreed that computers were well-accepted in Arab society and 40 percent disagreed that that the Internet would have a positive impact on the Arab family and community ties. Akour et al. (2006) agreed that the Jordanians had a negative attitude about the social impacts of the Internet and did not want it to replace their traditions, values, and customs of interactions and caring.

Researchers have developed a number of frameworks to classify the cultures of the world in order to understand its impact on the life and behaviors of nations, organizations, and individuals. One of the most well known researchers in the field of culture is Geert Hofstede. IT scholars have frequently referenced the cultural dimensions developed by Geert Hofstede, the most influential researcher on cultural values (Straub et al., 1997; Kovacic, 2005; Sundqvist et al., 2005; Erumban & de Jong, 2006; Anandarajan et al., 2003; Gong et al., 2007; Calantone et al., 2006; Park et al., 2007; Srite & Karahanna, 2006; Myers & Tan, 2002; Veiga et al., 2001; Robichaux & Cooper 1998; Schepers & Wetzels, 2007).

Furthermore, the cultural dimensions of Hofstede are usable in a non-organizational context (Hofstede, 1991). As a consequence, it seems to be the most useful one in the case of studying the cultural effect on household Internet adoption. Hofstede (1980) suggested a couple of four dimensions to measure culture in the areas of uncertainty avoidance, power distance, individualism, and masculinity based on over 116,000 survey responses in IBM units in approximately 60 countries between 1967 and 1971. The fifth dimension was identified by Michael Bond and was initially called Confucian dynamism. Hofstede added this dimension to his framework, and labeled this dimension long term orientation, which focuses on the degree the society embraces, long-term devotion to traditional, forward-thinking values (Hofsted & Bond, 1988). According to Hofstede's (1980) typology, the Arab countries, including Jordan were classified as having high power distance, high uncertainty avoidance, low individualism, and high masculinity. Such a society may not be ideal for ICT including household Internet adoption and usage (Bagchi et al., 2004; Kovacic, 2005; Erumban & de Jong, 2006; Gong et al., 2007; Straub et al., 1997).

MACRO VS. MICRO CULTURAL LEVEL ANALYSIS

The authors identified different cultural levels or layers with different cultural dimensions. Based on Social Identity Theory, (Straub et al., 2001) has proposed that different layers of culture can influence an individual's behavior, and that each individual is influenced more by certain layers and less by other layers, depending on the situation and their own personal values. Culture has been studied within IS discipline at various levels, including national or macro level, which used in cross-cultural studies, and individual or micro level (Hofstede, 1983; Dorfman & Howell, 1988; Myers & Tan, 2002; Leidner & Kayworth, 2006).

Macro cultural level refers to a set of core values, norms, and practices that a society shares, and shapes the behavior of individuals as well as the whole society (Bagchi et al., 2004; Myers & Tan, 2002). The micro level is referred to as the subjective culture of an individual, which investigates the effects of national culture on individual behavior, and how much an individual takes from the different cultures; even towards opposite direction of his society culture (Dorfman & Howell, 1988; Karahanna et al., 2005).

According to Hill et al. (1998), the cultural beliefs and values of different groups in the hierarchal social structure of Arab society differ markedly in terms of how they construct a meaning for technology in their everyday work and personal lives. Hill et al. (1998) stated that because people from the same country can score differently on the cultural dimensions of Hofstede, researchers need to use individual level measures of culture and not only the country of origin. Straub et al. (2001) and Loch et al. (2003) demonstrated that successful transfer of IT in culturally and socially diverse countries requires an understanding of the micro level beliefs, norms, and actions within the framework of national and international macrostructures. Therefore, this study will examine the effect of cultural values on behavioral intention to household Internet adoption at the micro cultural level of analysis.

FOUNDATIONS OF PROPOSED MODEL AND HYPOTHESES

Since the introduction of technology acceptance models, many researches have been conducted by extending the models, combining it with other models, and moderating external factors that might affect the constructs in these models. An adapted version of the TAM2 model (Venkatesh & Davis 2000), which integrates social factors, will be used as a guiding theory of our model. TAM2 deals more effectively with the driving forces and adoption decision-making process of individual users when social influence factors may outweigh functional concerns commonly seen in many business decision-making situations (Yang, 2007). Furthermore, the research model postulates several modifications through incorporating additional constructs and variables from TPB, U&G theory, Hofstede's cultural framework, and other related literature.

As "intention" was used to predict actual behavior; including measures of actual usage in the model in practice is relatively unusual (Taylor & Todd, 1995; Horton, et al., 2001; Venkatesh et al., 2003; Straub et al., 1995; Yang & Yoo, 2003). Since this research is concerned with behavioral intention of future adoption, the model gives more attention to the driving internal beliefs, and the expected effect of cultural values on behavioral intention and the future trends toward household Internet subscription, and excludes the behavioral usage construct. Thus, the research model (Figure 1) posits that the behavioral intention to household Internet is influenced directly by five driving internal beliefs, including individual perceived needs, perceived risks, perceived ease of use, perceived resources, and perceived image.

Furthermore, based on the previous studies, the model includes the role of culture, which also theorized to impact directly through five dimensions developed by Geert Hofstede on the behavioral intention to subscribe to the household Internet. The cultural dimensions made up of the degrees of individualism/collectivism, Masculinity, power distance, short/long-time orientation, and uncertainty avoidance.

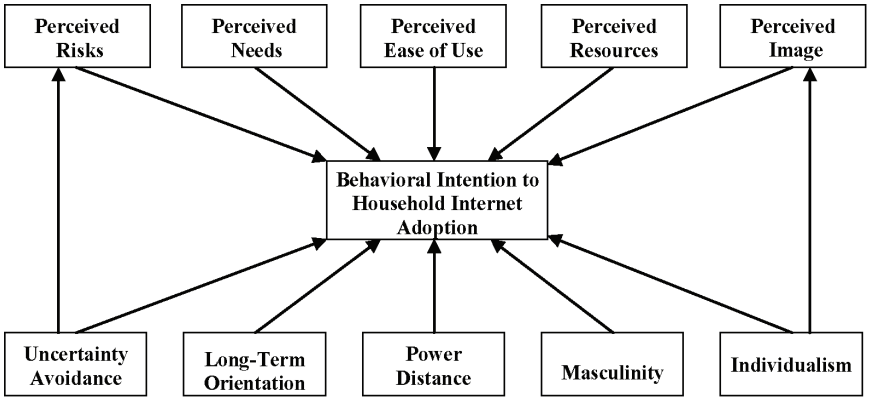
Below each dimension will be summarized, followed by the related hypotheses.

PERCEIVED NEEDS

Adoption theory seeks to explain the process of developing solutions to fulfill a need that begins with an awareness of a need, and ending with adopting and using of the solutions. Furthermore, Motivation theories also posit that an individuals behavior is driven by their needs, and the goal-directed action is to fulfill these needs (Papacharissi & Rubin 2000; Luo et al., 2006; Ruggiero, 2000). 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 types of technology that give a certain advantage above other already known alternatives.

The study of how and why individuals use media, may offer indications to our understanding about exactly what needs are, where they

Figure 1. The driving internal beliefs and cultural dimensions model of household internet adoption



originate, and how they are satisfied (Ruggiero, 2000). Studies that have focused on this area have found a range of motivations and needs to Internet usage. For example, Korgaonkar and Wolin (1999) established five motivation factors for the Internet users: escapism, information control, interactive control, socialization, and economic motivations. 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. Flanagin and Metzger (2001) also identified five dimensions including problem solving, persuading others, relationship maintenance, status seeking, and personal insight. For the purpose of this study, we refer to motivations of household Internet adoption as perceive needs, using the Papacharissi and Rubin (2000) scale of Internet usage motives. Therefore, we hypothesize:

H1. Perceived needs have a positive influence on the behavioral intention to household Internet adoption.

PERCEIVED RISKS

Perceived risk is an important barrier for technology adoption. Kim and Prabhakar (2000) grasped the effect of perceived risk on accepting technology including household Internet by demonstrating that the more perceived risk one has, the less likely he will accept new technology. Since risk is difficult to measure objectively, the literature focuses on users' risk perceptions (Pavlou, 2003; Belanger & Carter, 2008). In this context, perceived risk can be defined as adopter's belief about the potential uncertain negative outcomes from the household Internet (Warkentin et al., 2002; Lee et al., 2007; Kim & Prabhakar, 2000).

Loch et al. (2003) investigated the diffusion of the Internet in the Arab world. Results showed that 46 percent expressed concern that family and community life might be threatened by the internet. As the pervasive appeal of the Internet grows in popularity with youth, parents are beginning to face new concerns and challenges.

Recent research results indicated that people are concerned about unwanted disclosure of private information, or misuse of their information hence invading a user's privacy (Kesh et al., 2002; Brown et al., 2009; Lee et al., 2007). Furthermore, many disturbing, harmful and objectionable materials are freely available to any Internet user. For example, the parents are not sure that the Internet is a safe environment for children from intentionally and accidentally exposure to pornography and violent websites (Isaacs & Fisher, 2008; Chou et al., 2005; Lin et al., 2009).

On the other hand, the Internet offers terrorist groups a powerful instrument, which is increasingly employed by terrorists to continue spreading their propaganda and recruiting new adherents (Anderson, 2003; Conway, 2006; Gray & Head, 2009). A large majority of families in the Arab world would never allow the terrorist groups to affect their children and young people's beliefs and attitudes.

Furthermore, parents are concerned about their children becoming addicted to online activities. Excessive internet usage and spending excessive amounts of time online often associated with a loss of sense of time, and the negative affects on individual's home work and social life, normal function and other aspects of their lives. According to many psychologists, the excessive usage of Internet is now a serious psychological health issue that should be officially recognized as a mental illness, clinical disorder, and constitute behavioral addiction (Chou et al., 2005; Huang & Leung, 2009; Lin et al., 2009; Ni et al., 2009; Lo et al., 2005; Nichols & Nicki, 2004). Internet addiction, like any other kind of addiction is characterized by the compulsive behaviors of the addict in uncontrollable use of the internet for variety of activities ranging from gaming, chatting, shopping, gambling, sexual materials, and excessive use of email. Therefore, we hypothesize:

H2. Perceived risks have a negative effect on the behavioral intention to household Internet adoption.

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 follows:

H3. Perceived ease of use has a positive effect on the behavioral intention to household Internet adoption.

PERCEIVED RESOURCES

Perceived resources refer to an individual's belief that he has the resources needed for adopting and using an information technology (Mathieson et al., 2001). The technology acceptance model 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, which includes the individual's beliefs regarding the availability of resources, needed as predictor of behavioral intention, and put forward the TPB framework. Taylor and Todd (1995) and 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.

In order to extend the TAM, (Oh et al., 2003; Luarn & Lin 2005; Zhang & Gutierrez, 2007; Dwivedi et al., 2007; Mathieson et al., 2001) has incorporated the construct of perceived resources to predict and explain behavioral intention to use an ICT. Therefore, it is expected that the absence of resources represents barriers may inhibit the formation of behavioral intention to adopt and use household Internet. Thus, this study tests the following hypothesis:

H4. Perceived resources have a positive effect on the on the behavioral intention to household Internet adoption.

PERCEIVED IMAGE

From the perspective of Venkatesh and Davis (2000), image represents the degree to which use of IT is perceived to enhance one's status is one's social system. In the Innovation Diffusion Theory, image is included as an important aspect of relative advantage. For some innovations, the desire to gain social status may be the one of the most important motivations (Lee et al., 2003). Individual household Internet users are likely to be cognizant of the image that they project in their social networks. Many adopt such technology because they believe that these services may help them create, alter or preserve a positive image and social status for themselves within their social setting rather than for addressing a necessity (Teo & Pok, 2003; Yi et al., 2006). Therefore, we hypothesize:

H5. Perceived image has a positive effect on the behavioral intention on the behavioral intention to household Internet adoption.

INDIVIDUALISM/COLLECTIVISM

Hofstede's Individualism dimension refers to the strength of the ties people have to others within the society, and focuses on whether a society is based on loose cooperation of individuals or integrated into groups. On the individualist side, individuals have more loose relationships; everybody has the right of his own opinion, the culture stress on personal achievements and individual rights, and little sharing of responsibility beyond family. On the collectivist side (low individualism), people from birth are integrated into strong, cohesive in groups, often extended families which continue protecting them in exchange for unquestioning loyalty.

Collectivism represents the extent to which people in a society prefer to live as a member of a tight-knit social group rather than live and work independently. Therefore, families in the high collectivism societies are more likely to be motivated to adopt a household Internet as a means of enhancing their status and prestige, or to attract positive attention. Hence, we propose the following hypothesis:

H6. Collectivism (low individualism) has a negative effect on the behavioral intention to household Internet adoption.

H7. There is a positive relationship between collectivism (low individualism) and perceived image of household Internet adoption.

MASCULINITY (MAS)

Masculinity refers to the distribution of roles between the genders, and to how much a society values the traditional man and woman roles. High Masculinity society scores are found in countries where men are expected to be tough, provider, assertive and strong. If women work outside the home, they have separate professions from men. Individuals who perceive economic benefits as a sign of personal success or achievement tend to be more masculine. On the other hand, low Masculinity scores do not reverse the gender roles, and the women's roles are simply blurred. Women and men work together equally across many professions. Furthermore, Femininity stands for a society in which emotional gender roles overlap, where both men and women are supposed to be modest, tender, and concerned with the quality of life. Therefore, we hypothesize:

H8. Masculinity has a negative effect on the behavioral intention to household Internet adoption.

POWER DISTANCE INDEX (PDI)

Power Distance dimension measures the extent to which an unequal distribution of power, wealth, and political authority is accepted, and to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. It suggests that a society's level of inequality

is endorsed by the followers as much as by the leaders. Power and inequality are extremely fundamental facts of any society, but some are more unequal than others. Therefore, we propose the following hypothesis:

H9. Power distance has a negative effect on the behavioral intention to household Internet adoption.

LONG-TERM ORIENTATION (LTO)

The fifth dimension is found in the teachings of Confucius, to distinguish the difference in thinking between the East and West. Long-term orientation refers to what extent society adheres to their traditions and values. According to Hofstede's analysis, long-term orientation society is thrift, perseverance, and oriented towards future rewards. In contrast, short-term orientation society fosters virtues related to the past and present, in particular respect for tradition, protecting one's face, and fulfilling social obligations. Hence, we hypothesize the following:

H10. Long-term orientation has a positive effect on the behavioral intention to household Internet adoption.

UNCERTAINTY AVOIDANCE

Uncertainty Avoidance indicates to the degree to which the members of society feel threatened by uncertain, unknown, ambiguous, or unstructured situations. Uncertainty avoiding cultures try to minimize the possibility of such situations by strict laws and rules, safety and security measures, and on the philosophical and religious level by a belief in absolute truth. People in uncertainty avoiding societies are also more emotional, and motivated by inner nervous energy. The opposite type, uncertainty accepting cultures, are more tolerant of opinions different from what they are used to; they try to have as few rules as possible, and on the philosophical and religious level they are relativist and allow many currents to flow side by side. People within these cultures are more phlegmatic and contemplative, and not expected by their environment to express emotions.

Furthermore, due to the nature of household Internet as a new social and individual world-wide device for communications, exchange formal and informal relations and personal sensitive information in family framework, and the reliability and accuracy of information on Internet, adopters will always experience some level of risk. In essence, they decide to deal with various degrees of uncertainty of the future and the free actions of others. In these uncertain situations, when adopters have to act, risk becomes an important barrier for household Internet adoption (Kim et al., 2008; Lee et al., 2007; Bélanger & Carter, 2008; Garrido & Marina, 2008). Therefore, this study tests the following hypotheses:

H11. Uncertainty avoidance has a negative effect on the behavioral intention to household Internet adoption.

H12. There is a positive relationship between uncertainty avoidance and perceived risks of the household Internet adoption.

RESEARCH METHODOLOGY

The Measurement

The measurement instruments of the driving internal beliefs constructs 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 driving internal beliefs constructs in the model were adopted from previous related research (Taylor & Todd, 1995, Pavlou & Fygenson, 2006, Davis, 1989; Papacharissi & Rubin, 2000; Venkatesh & Davis, 2000; Oh et al., 2003; Venkatesh et al., 2003; Belanger & Carter, 2008). Furthermore, consistent with research literature, the measure-

ments of the cultural values constructs were derived from (Srite & Karahanna, 2006; Vitell et al., 2003; Dorfman & Howell, 1988; House et al., 2004; Furrer et al., 2000). Each construct is described in Table 1.

Instrument Development

Survey instrument was developed to examine the driving internal beliefs, behavioral intention, and the effect of cultural values on the household Internet adoption. In order to collect representative data of the target population with limited time and resources, a self-administered questionnaire was considered to be the most appropriate survey instrument in this research. The questionnaire included a total of 41 questions items representing the eleven constructs identified in Table 1. All questions used a five point Likert-type scale.

Sampling and Questionnaire Distribution

Student sampling has become very common in behavioral intention to IT Adoption and the impact of cultural values research (Devaraj et al., 2002; Srite & Karahanna, 2006; DeLorenzo et al., 2009; Albirini, 2006; ElSaid & Hone, 2005; Moghadam & Assar, 2008). Hofstede and Bond (1988) developed the fifth cultural dimension, based on a study among students in 23 countries around the world. The students are generally younger and more educated; are most affected by other cultures, and represent the most users of Internet in the families and societies. Furthermore, the authors attempted to obtain samples covering various geographic in order to reduce sampling bias caused by user characteristics. Based on that, the questionnaire was distributed in four Jordanians' universities to represent the population at large. Four hundreds and thirty seven printed paper questionnaires were distributed, and a total of 347 questionnaires were returned, representing a response rate of 80%. 19 questionnaires with missing data and incompatible answers were excluded. The remaining 328 questionnaires were used in the statistical analysis.

Data Analysis and Results

Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) technique was used to validate the measures and test the research model and hypotheses. (SEM) permits a simultaneous assessment of the structural component (path model) and measurement component (factor model) in the one model. According to Fornell and Larcker (1981), the PLS method is also more robust since its does not require either a large sample or normally distributed data. In addition, PLS have ability to account for measurement errors for unobserved constructs and to examine the significance of structural paths simultaneously (Chin et al., 2003). PLS analysis involves tow steps:

- Assessment of the measurement model, including the reliability and discriminant validity of the measures.
- Assessment of the structural model and hypotheses by examining the path coefficients.

Assessing the Measurement Model

The measurement model was examined for internal consistency, convergent and discriminant validity. Table 2 shows Cronbach's alpha of the research constructs and Rho coefficient. Reliability of constructs is assessed by using the Cronbach's alpha, which reflects the consistency of the measure and the homogeneity of the items in the scale. As shown in Cronbach's Alpha column in the Table 2, all constructs exhibited loading of greater than 0.70. To measure internal consistency, Rho coefficient was used. Unlike Cronbach's alpha, the number of items in the scale does not influence the Rho coefficient. It is influenced by the relative loadings of the items. The Rho coefficient is based on the ratio of construct variance to the sum of construct and error variance. A value greater than 0.50 indicating that the construct variance accounts for at least 50% of the measurement variance (Rivard & Huff, 1988). The Rho coefficients

Table 1. Constructs and measurements of driving internal beliefs and cultural dimensions of household internet adoption 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 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.
Perceived Risk (PRI)	- People in my society are concerned about the children accessibility of pornography and violent material on the Internet. - People in my society are concerned about unwanted disclosure of private information, and its subsequent misuse. - The Internet allows the terrorist groups to affect the children and young people's beliefs and attitudes. - The Internet impact on individual's home work, social life, normal function and other aspects of their lives. - The decision of whether to adopt household Internet is risky.
Perceived Ease of Use (PEU)	- I clearly understand how to use the Internet. - Interacting with the Internet does not require a lot of my mental efforts. - Overall, I find the Internet easy to use.
Perceived Resources (PRE)	- It would be within my budget to subscribe to household Internet. - I have the necessary knowledge to use the household Internet. - I have the time needed for using the household Internet
Perceived Image (PI)	- People in my society who adopt the household Internet have more prestige than those who do not. - Having the household Internet is a status symbol in my society.
Behavioral Intention to Household Internet Adoption (BIHIA)	- I predict that I would subscribe and use (or continue use) household Internet in the future. - I intend to subscribe to (or continue my current subscription) household Internet in the future. - I plan to subscribe (or continue my current subscription) to household Internet in the future.
Individualism (IDV)	- Being accepted as a member of a group is more important than being independent. - One has to be loyal to his/her community if one seeks their support and protection. - When one is born, the success or failure one is going to have is already in one's destiny, so one might as well accept. - You should worry more about how your disability would affect your family and relatives than how it would affect you personally.
Masculinity (MAS)	- It is preferable to have a man in high level position rather than a woman. - There are some jobs in which a man can always do better than a woman. - Women are more concerned with social aspects of their job than they are with getting ahead. - It is important for me to have a job which has an opportunity for high earnings.
Power Distance (PD)	- There should be established ranks in society with everyone occupying their rightful place regard less of whether that place is high or low in the ranking. - People having authority should be respected because of their position. - One should always obey the person in authority. - I always conform to my superior's wishes.
Long-term orientation (LTO)	- It is easier to succeed if one knows how to take short-cuts. - Social obligations should be respected regardless of cost. - I believe that the accepted norm in my society is to emphasis on status quo and solving current problems rather than plan for the future. - I believe that people who are successful should take life events as they occur.
Uncertainty Avoidance (UA)	- People should avoid making changes because things could get worse. - It is better to have a bad situation that you know about, than to have an uncertain. - I like to work in a well-defined job where the requirements are clear. - In a situation in which other people evaluate me, I feel that clear and explicit guidelines should be used.

Table 2. The Cronbach's alpha and rho coefficient of research constructs

Construct	No. of Items	Cronbach's alpha	Rho
PN	3	0.83	0.85
PRI	4	0.91	0.93
PEU	3	0.89	0.91
PRE	3	0.84	0.89
PI	3	0.90	0.88
BIHIA	3	0.85	0.87
IDV	4	0.88	0.92
MAS	4	0.81	0.87
PD	4	0.78	0.82
LTO	4	0.84	0.87
UA	4	0.79	0.83

(Table 2) indicate that the construct variances account for 83 to 93% of measurement variances.

Convergent and discriminate 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 (Table 3). 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 path coefficients (standardized betas). 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. According to significant path coefficients, the majority of the hypotheses to the relationships between the model constructs were supported.

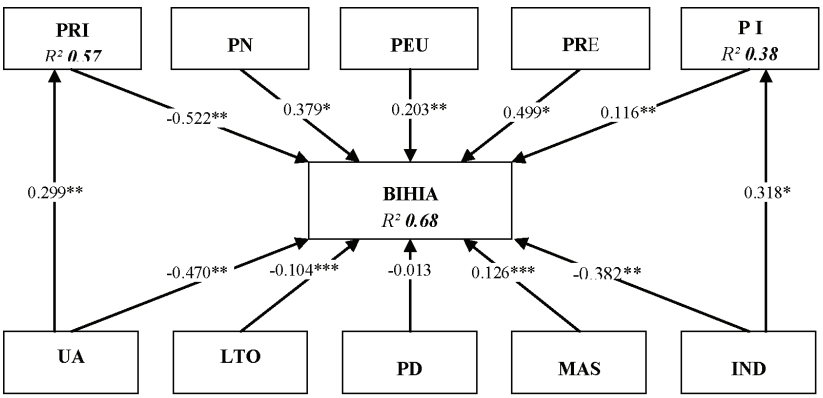
Table 4 provides the *t* values of path coefficients and summarizes hypothesis testing. Overall, the whole model was able to account for 68% of variance in the construct of Behavioral Intention to Household Internet Adoption (BIHIA). It concluded that all driving internal beliefs have strong positive, direct and significant effect on Behavioral Intention to Household Internet Adoption.

The results indicate that perceived needs (*H1*) has a positive effect on behavioral intention to household Internet adoption with path coefficient of (0.379, $p<0.05$). This finding is consistent with U&G perspective which posits that the reasons of selecting, adopting, and using 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 their felt needs or wants easily (Ruggiero, 2000; Papacharissi & Rubin, 2000; Luo et al., 2006; Guo et al., 2009). The results also indicate that perceived risks (H2) are a very powerful factor (-0.522, $p<0.01$), that negatively affect the behavioral intention to household Internet adoption. The results show that people are concerned about unwanted disclosure of private information, intentionally and accidentally exposure to pornography and

Table 3. Variance shared between constructs

Construct	PN	PRI	PEU	PRE	PI	BI-HIA	IDV	MAS	PD	LTO	UA
PN	**0.84**										
PRI	0.49	**0.85**									
PEU	0.35	0.14	**0.72**								
PRE	0.42	0.14	0.46	**0.82**							
PI	0.47	0.25	0.13	0.51	**0.74**						
BIHIA	0.37	0.12	0.31	0.57	0.44	**0.96**					
IDV	0.62	0.34	0.42	0.47	0.10	0.78	**0.81**				
MAS	0.56	0.37	0.12	0.55	0.22	0.64	0.26	**0.86**			
PD	0.26	0.10	0.51	0.53	0.32	0.62	0.29	0.49	**0.86**		
LTO	0.12	0.58	0.26	0.56	0.15	0.60	0.18	0.43	0.48	**0.95**	
UA	0.31	0.54	0.54	0.62	0.14	0.89	0.19	0.42	0.41	0.54	**0.91**

Figure 2. The PLS model results



violent, the effect of terrorists' propaganda on children and young people's beliefs and attitudes, and the excessive internet usage with a loss of sense of time. Besides of perceived ease of use (*H3*), perceived resources (*H4*) and perceived image (*H5*) contributed significantly to the observed explanatory power of the behavioral intention to household Internet adoption. The path coefficients are 0.203, $p<0.01$; 0.499, $p<0.05$; 0.116, $p<0.01$ respectively. Similar to other related studies (Ajzen, 1991; Oh et al., 2003; Taylor & Todd, 1995; Luarn & Lin, 2005), we found the individual's beliefs concerning the availability of resources (H4) to have a significant positive effect 0.299, $p<0.05$ on the behavioral intention to household Internet adoption. The results also support the expected positive effect of perceived image (*H5*) with path coefficient of (0.116, $p<0.01$).

Testing the effect of cultural dimensions on the behavioral intention to household Internet adoption depicted in Figure 2, as suggested by the *t* statistics and path coefficient in Table 4, four of five cultural dimensions paths were

Table 4. Test of hypotheses

Hypothesis	Path			Standardized Path Coefficient	t-Value	The Result
H1	PN		BIHIA	0.379*	6.824	Supported
H2	PRI		BIHIA	-0.522**	-11. 659	Supported
H3	PEU		BIHIA	0.203**	3. 901	Supported
H4	PRE		BIHIA	0.499*	5.201	Supported
H5	PI		BIHIA	0.116**	2.024	Supported
H6	IDV		BIHIA	-0.382**	-7.834	Supported
H7	IDV		PI	0.318*	4.453	Supported
H8	MAS		BIHIA	-0.126***	-0.311	Supported
H9	PD		BIHIA	-0.013	-1.200	Not Supported
H10	LTO		BIHIA	-0.104***	-3.583	Supported
H11	UA		BIHIA	-0.470**	-8.659	Supported
H12	UA		PRI	0.299**	5.202	Supported

Note: *** p<0.001; ** p<0.01; * p<0.05.

significant. The coefficients for collectivism (low individualism) (*H6*), masculinity (*H8*), and uncertainty avoidance (*H11*) dimensions are negative and significant with values of (-0.382, p<0.01) (-0.026, p<0.01), and (-0.470, p<0.01) respectively. The results also support the direct positive effect of long-term orientation on the behavioral intention to household Internet adoption (*H10*), with path coefficient (-0.104, p<0.001).

At the same time, the results show a positive relationship between collectivism and perceived image of household Internet adoption (*H7*), with the path coefficients of (0.318, p<0.05). The results also show that perceived image alone explained 38% of the variance of the behavioral intention to household Internet adoption in collectivism societies, which means that the people with collectivism culture may adopt such technology because they believe that these services may help them create, alter or preserve a positive image and social prestige or status within their society rather than for addressing a necessity, specially with the individual's belief that he has the resources needed for adoption and using household Internet regardless of other internal beliefs and cultural values. Consistent with previous research (Kim et al., 2008; Lee et al., 2007; Bélanger & Carter, 2008; Garrido & Marina, 2008) results also support the positive relationship between Uncertainty Avoidance and Perceived Risks of the household Internet adoption (*H12*) with the path coefficient (0.299, p<0.01). The results show that 57% of the variance in perceived risks is explained by uncertainty avoidance. Inconsistent with our hypothesis (*H9*), power distance does not have a significant effect on the behavioral intention to household Internet adoption. The path coefficient between the two constructs is (-0.382, p<0.01).

The results differ from those of Akour et al. (2006) who examined the impacts of cultural dimensions, perceived ease of use, and perceived usefulness of Jordanian managers' intentions to use the Internet in organization context, regarding power distance, collectivism (low individualism), masculinity, and uncertainty avoidance. The difference between these two results could be due to the difference in the environment of Internet adoption. As whole, the adoption and usage of ICT in the organizational settings is different from it in the home, where acceptance is voluntary social behavior, rather

than for addressing a necessity to survival or to achieve competitive advantage. In the case of household Internet adoption, the individuals has the freedom to decide whether or not he utilizes the technology, where the individuals' behavior and decisions are more conditioned by their internal beliefs and cultural values, than the managers in organizations. This conclusion is consistent with the findings of Akour et al. (2006) which reported that Jordanian managers hold double standards toward the Internet. On one hand, they have a negative attitude about the social impacts of the Internet and on the other hand, they perceived the Internet as an important technology to enhance competitiveness, assertiveness, and flexibility for responding fast enough to changing business environments.

CONCLUSION

The Internet represents a set of services for various subsystems of society, and can be used for very diverse purposes. The scope of Internet applications pushes toward delivering the Internet services to households. The Internet technology has some unique idiosyncrasies when it comes to households considering a subscription decision, where adoption is voluntary.

This study aimed to develop and validate a comprehensive model to identify the driving internal beliefs and the effect of cultural values on the adoption of Internet in household. Taking into consideration the specificity of household Internet adoption, and building on extensive review of the technology acceptance frameworks and ICT adoption behavior, five driving internal beliefs were identified. Furthermore, the study employed Hofstede's multidimensional framework to empirically investigate the impact of cultural dimensions, including the levels of power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation.

The findings from this study showed that behavioral intention to household Internet adoption is determined directly by perceived risks, perceived needs, perceived ease of use, perceived resources, and perceived image. The research also found that behavioral intention to household Internet is affected by the levels of individualism, masculinity, long-term orientation, and uncertainty avoidance. The results indicated that people are concerned about unwanted disclosure of private information, intentionally and accidentally exposure to pornography and violent, the effect of terrorists' propaganda on children and young people's beliefs and attitudes, and the excessive internet usage with a loss of sense of time.

This research will help regulators, governments and the telecommunications providers understand the broader issues of household Internet adoption such as the driving internal beliefs, the effect of cultural dimensions affecting the intention to household Internet adoption and usage, which will be helpful in understanding, stimulating, and facilitating the adoption and usage of such technology. On the other hand, understanding the antecedents of adopter perceived risk can provide stakeholders with insights and strategies that they can use to build trust and manage the perceived risks that are inherent in the household Internet adoption.

Despite the comprehensiveness of the proposed model and the empirical support for it, this study leaves as many open questions as it provides answers, which call for additional research. First, although the young students play an important role in forming the decision of Internet adoption in households, it is unclear whether the sample is representative of Jordanians specially the parents, who take the ultimate decision on household Internet adoption in terms of their driving internal beliefs and Hofstede's cultural dimensions. In a collectivism society, Jordanians' children generally live at home with their parents until they get married. Parents are responsible for providing their families with the necessary resources, and they are the ones who have to worry and protect children from the perceived risks on the Internet. Therefore, we recommend that future studies give more attention to the behavioral intention of parents to household Internet adoption.

Second, future research need to investigate the extent to which household Internet adop-

tion is influenced by individuals and national characteristics including educational, social, political, economic and gross national income in comparative research, elaborating a new classification framework for countries and nations. Third, future research will also need to assess the requirements and mechanisms to adapt Internet services and applications to the behavioral patterns of the adopting cultures and nations, giving great consideration to eliminate the fears and threats, rather than continues in the traditional approach of force-fitting the culture to the technology. Finally, it would be valuable to measure and validate the impact of Internet usage on individual's behavior, social interaction, and cultural values of nations in the light of spreading the universal electronic societies, such as Facebook, MySpace, and Twitter.

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