THE EFFECT OF SELF-EFFICACY ON INTERNET USAGE IN THE ORGANIZATION

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ABSTRACT

The rapid growth of Internet usage in organizations has become a common phenomenon in today's business world. The boom of Internet usage in organizations as a new means of performing common tasks such as communicating, finding information, disseminating information and doing marketing research, can be attributed to the benefits brought about by the Internet technology and its wide usage. In order to understand what drives an individual to use the Internet in the organizations, this study examines the impact of self-efficacy of an individual on Internet use. Self-efficacy is the belief in one's capabilities of using Internet in accomplishing specific tasks such as sending emails, searching product information and checking stock quotes. This study uses the extended technology acceptance model (TAM) proposed by Venkatesh (1999) that explicitly incorporates self-efficacy and its determinants (experience and organizational support) as factors that affect perceived ease of use, perceived usefulness and the use of Internet. A total of 104 usable responses were received from the questionnaires distributed to those who work in the organizations that provide employees with Internet access. The findings indicate that perceived usefulness has direct effect on Internet usage. Computer experience and organizational support have direct impact on self-efficacy and Internet usage. Organizational support has direct impact on perceived usefulness. Self-efficacy has direct impact on perceived usefulness and perceived ease of use of Internet usage, demonstrating its importance in the decision to use Internet and it has indirect effect on Internet usage. Perceived usefulness was found to partially mediate the relationship between computer experience and organizational support with Internet usage. It is also interesting to note that ease of use was not significant in determining Internet usage whereas perceived usefulness was, thus indicating the utility is much more important

than ease of use. The implications of these findings and the limitations of this study are further discussed for the benefit of researchers and practitioners.

ABSTRAK

Perkembangan pesat penggunaan Internet di kalangan organisasi sudah menjadi satu fenomena biasa dalam dunia perniagaan. Perkembangan penggunaan Internet sebagai kaedah baru dalam tugas-tugas seperti komunikasi, pencarian maklumat, penyebaran maklumat, kajian perlakuan pasaran dan sebagainya adalah disebabkan oleh pelbagai faedah yang dibawa oleh teknologi Internet and kegunaannya yang pelbagai. Untuk memahami apa yang mendorong seseorang individu menggunakan Internet di sesebuah organisasi, kajian ini menyelidiki kesan kekesanan-diri (self-efficacy) seseorang individu berkaitan dengan penggunaan Internet. Kekesanan-diri bermaksud kepercayaan seseorang tentang keupayaan dirinya dalam penggunaan Internet untuk melakukan sesuatu tugas tertentu seperti menghantar e-mel, mencari maklumat produk dan menyemak harga saham. Ia menggunakan model "penerimaan teknologi" (TAM) yang dibentuk oleh Venkatesh (1999). Model ini meliputi kekesanan-diri dan penentunya iaitu pengalaman dan sokongan organisasi sebagai faktor yang menyebabkan tanggapan kebergunaan dan kesenangan penggunaan Internet. Kajian ini telah menggunakan kaedah tinjauan menggunakan soal selidik yang diperoleh daripada 113 pengguna Internet di organisasi yang membekalkan kemudahan Internet kepada pekerja. Kajian ini mendapati tanggapan kebergunaan mempunyai pengaruh langsung terhadap penggunaan Internet. Pengalaman mengenai komputer dan sokongan organisasi mempunyai pengaruh langsung terhadap kekesanan-diri dan penggunaan Internet. Sokongan organisasi juga didapati mempunyai pengaruh langsung terhadap tanggapan kebergunaan. Manakala kekesanan-diri mempunyai kesan langsung ke atas anggapan kebergunaan dan kesenangan penggunaan Internet, ia juga mempunyai pengaruh tidak langsung ke atas penggunaan Internet, ini membuktikan kepentingan kekesanan-diri dalam penentuan penggunaan Internet. Implikasi dan batasan kajian ini juga dibincangkan untuk pengkaji dan pelaksana masa depan.

INTRODUCTION

More than US $ 2 trillion was spent world-wide on information and communications technology in 1999, and the market is expected to boom – topping $3 trillion by the year 2004, according to a study released by the World Information Technology and Services Alliance (WITSA). Information Technology (IT) with its capacity to process, store

and transmit information has a significant potential impact on organizational effectiveness and productivity (Curley, 1984; Maglitta, 1991; Sullivan, 1991). Despite the realization that IT is the key to the success and survival of companies in a highly competitive environment, the potential benefits of computers as aids to managerial decision-making may not be fully realized due to poor acceptance by users (Swanson, 1988).

The same scenario happens to Internet adoption in organizations as well (Tracey, 1995). The Internet is a giant worldwide network of computers. Popular uses include communicating, shopping, researching and entertainment (Timothy & Linda, 1998). All networks are interconnected using a common protocol – Transmission Control Protocol/Internet Protocol (TCP/IP) – via more than 9,300 public and private Internet Service Provider (ISP) (Connolly, 2000). Indeed, the Internet has experienced explosive growth. Internet traffic has grown exponentially, and the number of Internet hosts and web sites have increased by leaps and bounds. For example, the Internet has seen an increase in the number of web sites from 130 in 1993 to well over 17 million in 2000 (Connolly, 2000). It is expected, the Asia Pacific Internet users will grow to 374 million in the year 2005 as reported by "The Yankee Group", in their 2000 annual report and most of these users are corporate Internet users.

The global economy is transforming into an Internet economy. Large brick-and-mortar companies are trying to become "click and mortars" and dot-com start-ups proliferated wildly from 1998 to 1999, before most of them closed down in late 2000 due to the economic downturn. At the same time, governments around the world were grappling with the steep challenges and enticing opportunities posed by the Internet. The Internet's prospects include a new platform for commerce, a flood of information newly accessible to the public and a shift in the economic order from old to new industries.

In Malaysia, Singapore, and Thailand, rapid progress is being made to develop the infrastructure to support the Internet. China and India are working hard in this regard too, but these countries are still Third World in every aspect of the Internet, especially when compared to the United States (Jack, 1997).

Malaysia, like most Asian countries, is working overtime to catch up with the developed economies, and the Net presents especially urgent issues. The Internet to-do list for the country is lengthy, and includes building communications networks, putting Internet access devices

in the hands of citizens, setting up a legal framework for the use of the Internet, and the most important one is to promote the use of Internet among the citizens to increase Asia's competitiveness. Without doubt, Malaysia, in some instances, is ahead of other nations in the world when it comes to addressing these issues. For example, the governmenthas undertaken initiatives to boost the country's standing in the Internet world. These include being the first country in the world to design laws related to Internet activities (Computer Crimes Bill 1997; Digital Signature Bill 1997; Copyright Bill 1997; Communications & Multimedia Bill, 1998) and the Multimedia Super Corridor mega project, which was launched in 1997.

This study is an attempt to modify the extended Technology Acceptance Model (Davis *et al.*, 1989) by incorporating self-efficacy factors and its determinant from the social cognitive theory (SCT) as the external element to the original model.

LITERATURE REVIEW

Information Research (IS) research has tried to identify numerous factors affecting computer usage (Davis, 1989; Franz & Robey, 1986; Fuerst & Cheney, 1982; Igbaria, 1993; Lucas, 1978; Zmud, 1979). An individual's perceived ability to adopt computer technology successfully has been shown to be a major reason affecting his or her willingness to accept new technology for example Internet technology (Ellen, Bearden & Sharma, 1991; Hill, Smith & Mann, 1987; Leonard-Barton & Kraus, 1985). There are many theoretical models developed to examine individual reactions to computing technology, but the Technology Acceptance Model (TAM) by Davis *et al.* (1989) has emerged as especially important (Adams *et al.*, 1992; Mathieson, 1991). TAM focused on perceived ease of use and perceived usefulness of technology as the determinants of usage rather than on the external factors affecting these determinants.

Furthermore, TAM suggests that individuals will use computer technology if they believe it will end in positive outcomes. It does not explicitly consider how individuals' expectations of their capabilities influence their behavior. On the other hand, Social Cognitive Theory (SCT) believes that if an individual doubts his or her capabilities to successfully adopt a behavior, the beliefs about the outcomes may be insufficient to influence behavior in certain situations (Bandura, 1977, 1982, 1986). Bandura (1977) indicated that self-efficacy, in addition to

outcome expectations, must be considered in terms of a new technology adoption. He states, "Individuals can believe that a particular course of action will produce certain outcomes, but if individuals entertain serious doubts about whether they can perform the necessary activities such information does not influence their behavior" (Bandura, 1977, p. 193). The TAM model proposed by Davis *et al.* (1989) reflects beliefs (or expectations) about outcomes but self-efficacy, the belief that one has the ability to perform certain actions, which is an important element of SCT, is not explained in the model.

Social Cognitive Theory and Self-efficacy

Social Cognitive Theory (SCT) is a widely recognized and empirically validated theory of individual behavior based on the work of Bandura (1977, 1978, 1982, 1986). It is based on the premise that environment influences such as social pressures, unique situational characteristics and cognition; and other personal factors including demographics characteristics, personality and behavior are reciprocally determined. Thus, individuals choose the environments in which they exist while being influenced by those environments. At the same time, behavior in a given situation is affected by environmental or situational factors, which are in turn affected by behavior. Lastly, behavior is affected by personal factors and cognition, and in turn, affects those same factors. Bandura (1978) refers to these relationships as "triadic reciprocality" which help to explain the behavior of an individual.

While SCT has many dimensions, this study is particularly concerned with the role of cognitive factors in individual behavior. Bandura (1978) advances two sets of expectations as the major cognitive forces guiding behavior, they are: (1) outcome expectations; and (2) expectations that are related to self-efficacy. Outcome expectations can be explained by the perceived usefulness construct developed by Davis (1989) where individuals tend to undertake behaviors which they believe will help them to perform better in their jobs. Wood and Bandura (1989, p. 408) state that "self-efficacy refers to beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands". SCT claims that both expectations are basic determinants of a user's behavior. Bandura (1977, 1982, 1986) suggests that perceived self-efficacy plays an important role in affecting motivation and behavior. Self-efficacy affects choices about which behaviors to undertake, the effort and persistence that are exerted in the face of obstacles and the mastery of the behaviors (Compeau & Higgins, 1995a). The individuals' perceived abilities to attain the stand-

ards they have been pursuing have an impact on individual cognition and behavioral reaction (i.e. motivation and performance) (Igbaria & Iivari, 1995).

Individuals who do not believe their capabilities are easily discouraged by failure, whereas those who are high in their efficacy for goal attainment will intensify their efforts when their performances fall short and persevere until they succeed. Bandura (1982) also identified several sources of information about self-efficacy expectations; among them are enactive mastery (personal experience) and verbal persuasion (e.g. perceived encouragement and support from others).

Self-efficacy Theory (Bandura, 1977) suggests that there are four major sources of information used by individuals when forming self-efficacy judgments (see Figure 1).

Figure 1
Self-Efficacy Theory (Bandura, 1977)
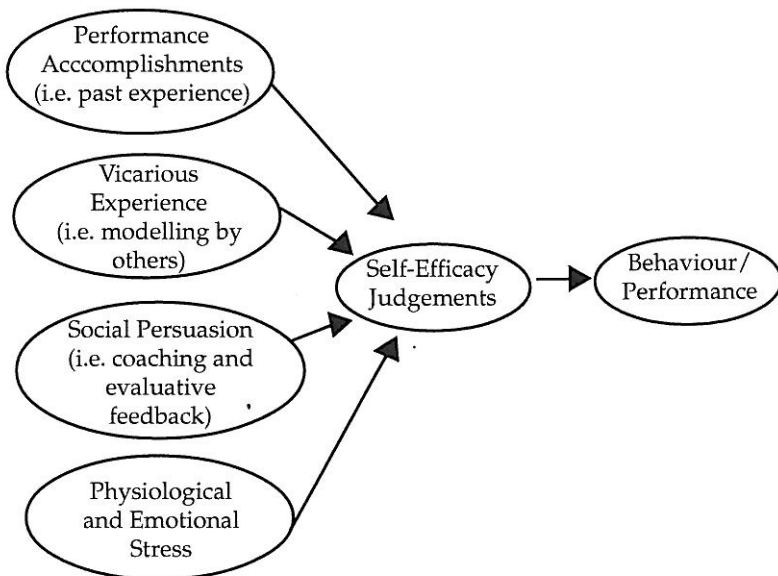
In order of strength, the first is performance accomplishments, which refers to the individuals' past experiences. The second is vicarious experience, which is gained by observing others performing their activities successfully. This is often referred to as modelling, and it can help the observers to improve their own performance by learning from what they have observed (Bandura, 1978; Gist & Mitchell, 1992). Social

persuasion is the third dimension, and it refers to activities where people are led, through suggestions, into the belief that they can cope successfully with specific tasks such as driving a car or drawing a picture. Coaching and giving feedback on individuals' performance are common types of social persuasion (Bandura, 1977; Bandura & Cervone, 1986). The last source of information is physiological and emotional states. The individual's physiological or emotional states influence self-efficacy judgments with respect to a task that is performed by the individual. From previous Information System (IS) research within the context of Self-efficacy Theory, the sources of information that have major influence on computer technology usage are personal experience and verbal persuasion (Compeau & Higgins, 1995a).

Due to the importance of SCT and Self-efficacy Theory within the psychological and organizational behavior literature, and the ability of these theories to predict and improve job performance and behavior (Bandura, 1982, 1986; Compeau & Higgins, 1991, 1995b; Gist & Mitchell, 1992), a number of studies have been done within the Information System (IS) context. Among these are the roles and effects of self-efficacy on computer behavior (Burkhardt & Brass, 1990; Gist et al., 1989; Hill et al., 1987; Webster & Martocchio, 1992; Igbaria & Iivari, 1995), the role of self-efficacy to foster the Internet and World Wide Web (WWW) usage in institutions of higher education (Sherry, 1999), and the role of computer self-efficacy in predicting the user acceptance and the use of Information Technology (Mun & Venkatesh, 1999). While outcome expectations have been researched by IS researchers (Adams, Nelson & Todd, 1992; Davis, 1989; Davis, Bagozzi & Warshaw, 1989; Igbaria, 1993; Thompson, Higgins & Howell, 1991), more researches are needed to explore fully the role of self-efficacy in computing behavior especially in Internet technology acceptance.

Technology Acceptance Model (TAM)

In addition to the SCT, the theoretical grounding for this research comes from the TAM (Davis et al., 1989). TAM provides a theoretical basis for describing behavioral and affective reactions to Internet technology. Specifically, it states that environmental and personal factors such as verbal (i.e. social) persuasion and experience influence expectations that subsequently affect individual outcomes.

TAM used the generic Fishbein and Ajzen's Theory of Reasoned Action (TRA) model (Fishbein & Ajzen, 1975) to the particular domain of

user acceptance of computer technology, replacing the TRA's attitudinal determinants with two specific behavioral beliefs: perceived ease of use and perceived usefulness that are employed in the computer usage context. Perceived ease of use has been defined as "the degree to which a person believes that using a particular system would be free of effort" and perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her productivity" (Davis, 1989, p. 320).

These independent constructs influence the individual's behavioral intention to use a technology, where attitudes towards use directly influence intentions to use and actual use. Adams *et al.* (1992) also reported that perceived ease of use has a direct effect on both perceived usefulness and technology usage. In addition to this, Davis (1989) discovered a relationship between users' belief about a technology's usefulness and the attitude to use the technology; this indicates the possibility of a direct relationship between beliefs and technology usage. Individuals may use a technology if they think it is beneficial, convenient and socially important although they do not enjoy using the technology (Saga & Zmud, 1994).

Figure 2
Davis's (1989) Technology Acceptance Model
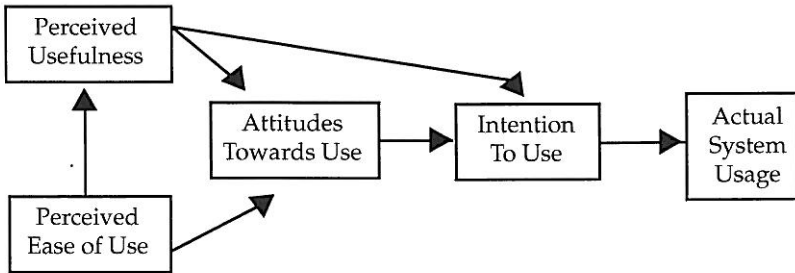
Furthermore, it is suggested that there are external variables that affect both perceived ease of use and perceived usefulness (Davis *et al.*, 1989). However, Venkatesh (1999) indicated that the mediation effect of attitude (Figure 2) as proposed by Davis could be excluded because it did not fully mediate the effect of perceived usefulness on the use of a technology. People perform a behavior even if they do not have a positive attitude (affect) toward the behavior (Venkatesh, 1999). Davis and Venkatesh (1996) have adopted this modified conceptualization of TAM, which is shown in Figure 3 in their recent IT research.

Figure 3
Modified Technology Acceptance Model
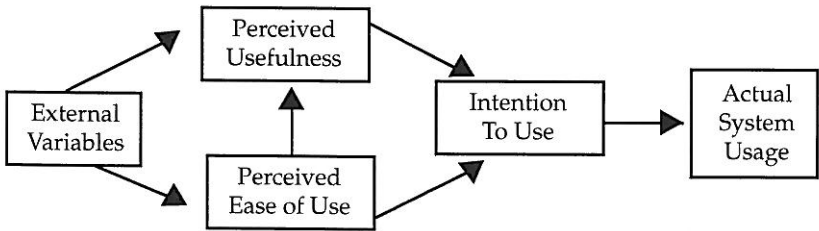
In Malaysia, the modified version of TAM was used by Alwin (2000) to study the individual differences such as prior Web experience, shopping orientation and demographic factors that will influence the individuals' intention to shop on the Web. Because the Internet is one form of technology, it is appropriate to use TAM to predict factors associated with the use of Internet particularly self-efficacy, which can be incorporated as an external factor to TAM.

The Importance of Self-efficacy

Self-efficacy is linked with beliefs and behaviors (Bandura, 1977, 1982, 1986; Gist, 1987; Gist & Mitchell 1992). It also has significant impact on decisions involving computer usage and adoption (Compeau & Higgins, 1991; Davis *et al.*, 1989; Ellen *et al.*, 1991; Hill *et al.*, 1987; Leonard-Barton & Kraus, 1985). Individuals who consider the Internet to be complex and believe that they will never be able to master the Internet technology will prefer to avoid it and are less likely to use it. Gist (1989) also suggests that self-efficacy is an important motivational variable, which influences individual affect, effort persistence and motivation. The relationship between self-efficacy and perceived usefulness is meant to present the effect of self-efficacy on motivation as well as on outcome expectations. In addition, individuals who feel less capable of handling a situation may resist it because of feelings of inadequacy or discomfort, which may result from expected changes. On the other hand, individuals with high self-efficacy will perceive the use of the system to be easy and useful due to the effect of self-efficacy on the degree of effort, the persistence and the level of learning and will be less resistant to changes (Bandura, 1977). Hence, self-efficacy will affect beliefs and behaviors, specifically; it will affect system usage indirectly through perceived ease of use and perceived usefulness, which are the two behavior beliefs in TAM (Igbaria & Iivari, 1995).

The Determinants of Self-efficacy

Bandura (1977, 1982, 1986) identifies several determinants of self-efficacy, including enactive mastery skills and verbal persuasion. According to Igbaria and Iivari (1995), these two variables are operationalized as prior experience and support respectively.

Computer Experience

Since Internet usage is one form of computer usage, computer experience is hypothesized to affect self-efficacy expectation positively. If individuals perceive successes in performing a task, this will raise their mastery expectations but if they encounter failures then this will lower their mastery expectations. Bandura (1982) asserts that experience is particularly influential because of its direct and personal nature. He states that verbal persuasion positively affects self-efficacy, where perceived encouragement and support from others raises efficacy expectations. Bandura (1982) also mentions that self-efficacy expectations induced through verbal persuasion are likely to be weaker than those derived from personal experience.

Prior experience may also be directly related to behavior and motivation. Prior experience is believed to affect behavior and motivation to the extent that the individual is able to assess the skill level exhibited in executing the task. This is consistent with TAM and TRA (Fishbein & Ajzen, 1975) models, where these two factors (prior experience and self efficacy) are classified as external variables that affect both perceived ease of use and perceived usefulness in the use of a system.

The TAM proposes that external factors (Davis & Venkatesh, 1996), such as experience, will affect behavior through their effect on beliefs. Computer experience has been found to be associated with self-efficacy, perceived ease of use and perceived usefulness (Igbaria, 1993; Lee, 1986; Webster & Martocchio, 1992). In addition, experience, which is an external factor, is likely to have only an indirect effect on Internet usage.

Organizational Support

Verbal persuasion, i.e. support and encouragement, is also believed to affect beliefs, attitudes and behavior. As individuals need more resources to help them become more proficient, it is expected that higher

organizational support would result in higher judgment of self-efficacy on the part of individuals (Igbaria & Iivari, 1995). The availability of assistance to individuals, who need it, is likely to increase their ability to perform a task, which in this study is the use of Internet. Furthermore, support is one form of organizational norms; as this would certainly influence outcome expectations (i.e. perceived usefulness) and beliefs besides self-efficacy.

Davis *et al.* (1989) also emphasized that perceived usefulness and perceived ease of use were affected by management support. Trevino and Webster (1992) also suggested that management support is positively related to perceived ease of use. According to TAM, the effect of organizational support, which is an external factor, is supposed to have an indirect effect on Internet usage.

Research Model

The objective of this research is to study the self-efficacy factor that influences individuals to use Internet technology. A research model based on the TAM model (Venkatesh, 1999) was developed. This model integrates self-efficacy and its determinants as factors to the model.

As described above, TAM (Venkatesh, 1999) is used to explain the factors that influence individual behaviors in the use technology. It is reported that perceived ease of use has direct effect on both perceived usefulness and technology usage (Adam *et al.*, 1992). Individuals may intend to use a technology if they believe it is useful, convenient and socially important although they do not enjoy using the technology (Saga & Zmud, 1994).

Furthermore, self-efficacy plays an important role as an external factor to influence the beliefs of an individual (Bandura, 1977, 1982, 1986; Gist, 1987; Gist & Mitchell, 1992). The determinants of self-efficacy such as computer experience and organizational support as mentioned above have an indirect impact on behavior through their effect on beliefs, which are perceived usefulness and perceived ease of use. Perceived usefulness and perceived ease of use will be the intervening variables of the self-efficacy and its determinants towards the Internet usage. The resulting model is depicted in Figure 4. The arrows represent the direct effects between the involved variables. An indirect effect represents those effects through the intervening variables.

Figure 4
The Impact of Self-Efficacy and its Determinants on Internet Usage
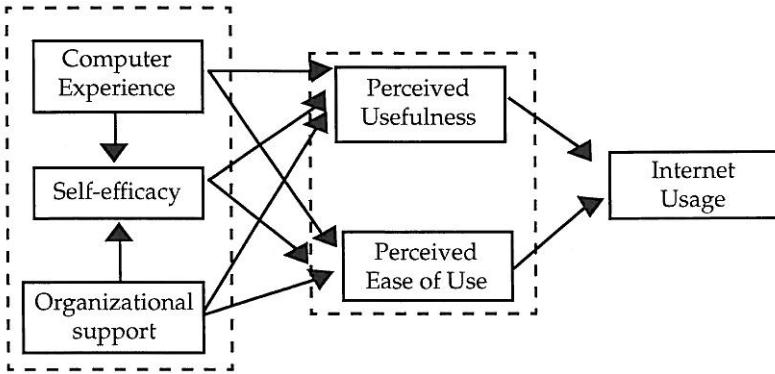
From the literature review discussed above, due to the fact that personal experience, which is one of the self-efficacy determinants, provides a direct and experiential base with perceived successes in task execution, computer experience is hypothesized to affect self-efficacy expectation positively (Bandura, 1977, 1982, 1986). The hypothesis that will be tested based on this argument is:

H_1:   The greater the users' computer experience, the higher will be their self-efficacy towards Internet usage.

Verbal persuasion is hypothesized to have a positive effect on self-efficacy, where perceived encouragement and support from others raise efficacy expectations. Individuals rely on opinions and support from others in forming the judgments about their own abilities. It is expected that higher organizational support from management would result in higher self-efficacy in terms of task performance, which in this study will be the higher usage of Internet. With this in mind, the following hypothesis is proposed:

H_2:   The more organizational support given by the management, the higher will be the individuals' self-efficacy towards Internet usage.

Computer experience is believed to improve a person's perceptions and beliefs about using the technology by increasing their beliefs in their ability to master the challenge and to reduce any fears they may have (Gist et al., 1989). TAM (Venkatesh, 1999) suggests that external factors, such as computer experience, are associated with perceived usefulness and perceived ease of use (Lee, 1986; Webster & Martocchio, 1992; Gist, 1987, 1989; Gist & Mitchell, 1992) towards technology us-

age. Thus, it is assumed that computer experience has a positive impact on perceived usefulness and perceived ease of use in Internet usage.

H_3:   *There is a significant positive relationship between computer experience and perceived usefulness of the Internet.*

H_4:   *There is a significant positive relationship between computer experience and perceived ease of Internet use.*

It is also suggested that organizational support is positively related to perceived ease of use (Trevino & Webster, 1992). Organizational support is believed to be an indication of the organizational norms, and this would positively influence outcome expectations and beliefs in addition to self-efficacy. Thus, organizational support, which is an external factor to TAM (Venkatesh, 1999) is believed to have a direct impact on individuals' perception of the usefulness and ease of use of Internet usage in an organization.

H_5:   *The greater the organizational support, the higher the effect on perceived usefulness of the Internet.*

H_6:   *The greater the organizational support, the higher the effect on perceived ease of Internet use.*

It is argued that self-efficacy behaves as proximal determinants of behavior (in this case, the Internet usage) and motivation (perceived ease of use and perceived usefulness) (Bandura 1982, 1986). According to Gist and Mitchell (1992), self-efficacy is linked to expectancy, where expectations affect actions. They propose that the behavior-outcome relationships, such as effort to performance, should be considered equivalent to self-efficacy. This is because "expected performance outcomes depend heavily on the type of behaviors an individual chooses to execute" (Gist & Mitchell, 1992, p. 185). Bandura (1982) also differentiates between self-efficacy and 'outcome judgment', that is similar to perceived usefulness. In contrast, Gist and Mitchell (1992) insist that the difficulty of the task involved will affect the strength of relationship between self-efficacy and performance. This suggests that perceived difficulty of executing a task (low perceived ease of use) may mediate the relationship between self-efficacy and performance.

It is hypothesized that self-efficacy will affect perceived ease of use and perceived usefulness towards the Internet usage. Therefore,

H_7:   *Self-efficacy has a positive direct effect on perceived usefulness of the Internet.*

H_8:   *Self-efficacy has a positive direct effect on perceived ease of Internet use.*

According to TAM (Davis *et al.*, 1989), perceived usefulness and perceived ease of use are two important determinants of system usage. It is found that perceived ease of use has a strong effect on perceived usefulness (Davis *et al.*, 1989). A similar idea is supported by Adam *et al.* (1992) where both are significant factors to affect individuals' decision to use the system and that perceived ease of use strongly affects perceived usefulness. Mathieson (1991) also discovered that perceived ease of use carries significant amount of the variance of perceived usefulness and that perceived ease of use and perceived usefulness contribute towards the behavior.

The hypotheses that will be tested based on these arguments are:

H_9:   *Perceived ease of use has a positive direct effect on perceived usefulness of the Internet.*

H_{10}:   *There is a significant positive relationship between perceived ease of use and Internet usage.*

According to motivation theory, if an individual perceives an activity to be instrumental for achieving valued outcomes, he or she will be more likely to accept the new technology. This is supported by the findings that the use of computer systems is driven to a large extent by perceived usefulness (Adam *et al.*, 1992; Davis *et al.*, 1989). In addition, the Information System literature generally agrees that perceived usefulness is positively associated with system usage (Hill *et al.*, 1987; Igbaria, 1990; Robey, 1979; Robey & Zeller, 1978). Davis *et al.* (1989, p. 994) stated that attitude "was generally not found to intervene between beliefs and intentions". With the above findings in mind, the following hypothesis is thus proposed:

H_{11}:   *There is a significant positive relationship between perceived usefulness and Internet usage.*

In summary, a number of hypotheses related to extended technology acceptance model incorporating self-efficacy and its determinants are suggested. According to TAM, perceived usefulness was considered

as a major determinant of Internet usage followed by perceived ease of use. Self-efficacy and its two determinants (computer experience and organizational support) are proposed to be the antecedents of perceived ease of use and perceived usefulness that have mainly indirect effects on Internet usage in an organization through the two intervening variables.

RESEARCH METHODOLOGY

Variables and Measurement

Computer experience is assessed by asking respondents to indicate the extent of their experiences in using the application software (e.g. email, chat program, Microsoft Word, Microsoft Excel and etc.), participation in the early stage of system development cycle such as feasibility studies and requirement analysis, and basic computer and Internet troubleshooting skills. The overall computer experience is the sum of these experiences. The measure of organizational support, developed by Igbaria (1990), incorporated the general support, which includes top management encouragement and allocation of resources. Individuals are asked to indicate the extent of agreement or disagreement with statements concerning organizational support.

Self-efficacy is measured by using a four-item scale which was modified based on the Hill *et al.* (1987) research on the role of efficacy expectation in predicting the decision to use a computer. The scale was modified to better suit this research context, which emphasizes on the use of Internet technology.

Perceived ease of use attempts to measure the degree to which Internet technology is perceived as relatively easy to understand and use. Whereas perceived usefulness is defined as "the prospective users' subjective probability that using a specific application system will increase his or her job performance within an organizational context" (Davis *et al.*, 1989, p. 985). The items to measure perceived ease of use and perceived usefulness scale are adapted from prior research (Davis *et al.*, 1989; Igbaria, 1990), with appropriate modifications to make them specifically relevant to Internet usage.

Based on previous studies on the indicators of microcomputer usage (Cheney & Dickson, 1982; Delone, 1988; Igbaria, Pavri & Huff, 1989), three indicators are identified and are modified to suit the Internet

usage. The indicators that are included in this study are: (1) perceived daily use of the Internet, (2) perceived frequency of use of the Internet, and (3) perceived length of use of the Internet. Individuals were asked to indicate the amount of time they spent on the Internet per day in the organizations. Frequency of use has been suggested by Raymond (1985) and it was used by Igbaria *et al.* (1989) and provides a slightly different perspective of use than time, and it was adapted to suit this research context. Individuals are also asked to indicate how long they have been using Internet. According to Igbaria *et al.* (1989), these indicators are considered as a type of self-report measures, which are often used to operationalize system usage, and this is true in the case where objective usage metrics are not available. Self-reported usage in this study should not be treated as accurate measures of actual usage, although previous research suggests that they are appropriate as relative measures (Blair & Burton, 1987).

Population and Sample

Data was collected using a questionnaire consisting of 37 items which consisted close-ended questions divided into seven sections. Section A examines the pattern of Internet usage among the respondents. The scale used is a 6 point-scale. Section B, Section C, Section D, Section E measured self-efficacy, perceived usefulness, perceived ease of use, organizational support and computer experience respectively. A 5-point Likert scale anchored by 1 ("Strongly disagree") to 5 ("Strongly agree") was used. The last section, section G consists of general questions about the respondents' profile.

The population for this study consists of individuals who work in organizations, which operate mainly in Penang, Malaysia. The unit of analysis is an individual who has Internet access in his or her organization. The sample frame in this study encompasses only those who have access to the Internet in the organization. Two stages of sampling techniques were used here. First, those companies that provide employees with Internet access were identified through purposive judgmental sampling method (non-probability sampling) in order to get more companies who have Internet access in their organizations. In the purposive judgmental sampling method, companies which provide employees with Internet access were identified from a number of IT suppliers and IT executives in Penang. In the second stage, convenient sampling technique (non-probability sampling) was used where questionnaires were distributed to those individuals from the identified companies. A total of 320 individuals were selected from 63 iden-

tified companies to answer the questionnaires. Data collection was done by mailing out the questionnaires either through normal mail or emails. In addition to that, questionnaires were also handed personally to some respondents. For questionnaires that were delivered by hand and normal mail, a self-addressed stamped envelope was included to encourage the return of the questionnaires.

RESEARCH FINDINGS

A total of 320 questionnaires were distributed and 113 responses were collected, yielding a return rate of 35.3%. Out of these, 9 questionnaires were discarded due to missing data for important questions. Thus, only 104 (32.5%) questionnaires were usable for data analysis.

The profile of the respondents is shown in Table 1. Majority of the respondents were Chinese (58.7%) followed by Malays (24%) and Indians (10.6%). There were more males (53.8%) than females (46.2). Majority of the respondents' age were between 21 to 30 years old (55.8%) followed by 31 to 40 years old (33.7%), this shows that majority of the workers are middle aged. Seventy-four per cent of the respondents held bachelor degrees and 12.5% of them held masters degrees. This comes as no surprise as in today's knowledge economy society; most of the workers need a good educational background. The respondents were largely employed in two major industries: manufacturing (61.5%) and service (29.8%). They held executive/professional (33.7%) and middle management (26.9%) positions across a wide range of major functional areas including IT (25%), human resource (18.3%) and manufacturing (15.4 %).

A reliability test using Cronbach's Alpha was conducted on most variables to measure the inter-item reliability. In this test, any item that was not significant will be deleted in order to achieve the highest reliability of the measurement. According to Srinivasan (1985) and Magal, Carr & Watson (1988), a reliability coefficient of 0.5 or higher is acceptable. The variables that were tested consist of computer experience (0.75), perceived usefulness (0.94), perceived ease of use (0.87), organizational support (0.95), self-efficacy (0.85) and Internet usage (0.90). Since all the items have alpha values greater than 0.5, no item from the measurement was dropped. Nevertheless, the composite reliabilities obtained for perceived ease of use and perceived usefulness were slightly lower than Igbaria and Iivari's (1995) study of the impact of self-efficacy on computer usage, which were 0.94 and 0.96 respectively.

Table 1
Profile of the Respondents

Demographic		Frequency	Percentage
Gender	Male	56	53.8
	Female	48	46.2
Ethnicity	Malay	25	24
	Chinese	61	58.7
	Indian	11	10.6
	Others	7	6.7
Age	< 20 years	1	1
	21 years – 30 years	58	55.8
	31 years – 40 years	35	33.7
	41 years – 50 years	6	5.8
	> 50 years	4	3.8
Educational level	Masters Degree	13	12.5
	Bachelor Degree	77	74
	Diploma	11	10.6
	High School	3	2.9
Industry	Manufacturing	64	61.5
	Service	31	29.8
	Others	9	8.7
Position Held in Organisation	Executive/professional staff	35	33.7
	First level supervisor	22	21.2
	Middle management	28	26.9
	Top management	15	14.4
	Others	4	3.8
Division/ Functional Area	Accounting/Finance	10	9.6
	Engineering	9	8.7
	Manufacturing/Production	16	15.4
	Information Technology	26	25
	R&D	3	2.9
	Human Resource	19	18.3
	Others	21	20.2

From the mean values that are shown in Table 2, generally, respondents have a high degree of self-efficacy with the mean value of 4.11. This shows they have a strong self-efficacy towards Internet usage. This is supported by the moderate high mean values of its two deter-

minants; computer experiences and organizational support, which have the mean value of 3.37 and 3.53 respectively. Generally, individuals with high computer experience and organizational support will trigger a greater self-efficacy attitude in their personality. Whereas for perceived usefulness and perceived ease of use towards Internet usage in an organization, they have a moderate high value of mean, which are 3.92 and 3.97 respectively. This shows that users generally perceive the use of Internet in the organizations can bring them benefits and at the same time, it is easy to use. For hypotheses testing, the mean values for the above constructs are used.

Table 2
Description of Composite Variables

Variables	Mean	Standard Deviation
Computer experiences	3.3731	0.7230
Organizational support	3.5337	0.8442
Self-efficacy	4.1154	0.6600
Perceived usefulness	3.9207	0.8045
Perceived ease of use	3.9639	0.6098

For the Internet usage variable, Table 3 shows the frequency and percentages values. From the frequency table, most of the respondents have been using Internet in their offices for two to three years (48.1 %), followed by 34.6% who have been using it for three to four years. It is interesting to note that majority of the respondents (32.7%) use the Internet to perform certain tasks once a day such as sending emails, searching product information and conducting online training. The amount of time that is spent per day on Internet usage varies among respondents but the majority of them (35.6%) spend 30 minutes to one hour using Internet and 26% of the respondents spend one hour to two hours per day.

In addition to the above information, the top three reasons why users use Internet in their work are: (1) communication purposes (40.1%), (2) gather information for business use (23.7%), and (3) obtain online training and courses (16.7%). Three different questions were used to measure the Internet usage in this study. The proposed value for the hypotheses testing was the total of z-values (standardized value) of those three variables. This gives a more complete and reliable measure of the respondents' Internet usage pattern.

Table 3
Frequency Distribution for Internet Usage

Variable		Frequency	Percentages
Length of use in years	< 1 year	8	7.7
	1 – 2 years	5	4.8
	2 – 3 years	50	48.1
	3 – 4 years	36	34.6
	4 – 5 years	3	2.9
	> 5 years	2	1.9
Frequency of use	Once a month	3	2.9
	Few times a month	7	6.7
	Once a week	2	1.9
	Few times a week	31	29.8
	Once a day	34	32.7
	Few times a day	27	26.0
Time spent per day	Almost Never	1	1
	< 30 minutes	13	12.5
	30 minutes – 1 hour	37	35.6
	1 hour – 2 hours	27	26.0
	2 hours – 3 hours	9	8.7
	> 3 hours	17	16.3

Table 4
Intercorrelation between the Main Variables

Major Variables	1	2	3	4	5
1. Computer experience	1.000				
2. Organizational support	0.440**	1.000			
3. Self-efficacy	0.385**	0.417**	1.000		
4. Perceived usefulness	0.335**	0.529**	0.591**	1.000	
5. Perceived ease of use	0.361**	0.342**	0.731**	0.510**	1.000
6. Internet usage	0.372**	0.487**	0.339**	0.481**	0.301**

** $p<0.01$

From the matrix, there is statistical evidence to show that significant correlations exist between the Internet usage and other variables. All

the variables are positively correlated with Internet usage. That is, Internet usage in an organization is high when computer experience, organizational support, self-efficacy, perceived usefulness and perceived ease of use are high.

Self-efficacy and Its Determinants (Computer Experience and Organizational Support)

The first regression was carried out to determine the relationship between computer experience, organizational support and self-efficacy.

Table 5
Regression Analysis of Determinants of Self-efficacy

	Self-efficacy
Variable	
Computer Experience	0.250***
Organizational Support	0.307***
F Value	14.59***
R^2	0.224
Adjusted R^2	0.209

*** p<0.01, ** p<0.05 and * p<0.1

The R^2 value implies that 22.4% of the variances of self-efficacy can be explained by computer experience and organizational support. The result shows that both computer experience (β=0.307, p<0.01) and organizational support (β=0.250, p<0.01) have direct positive impact on self-efficacy. Hence, the findings support H_1 and H_2 of the study. It can be observed that organizational support has a greater impact on self-efficacy as compared to computer experience.

Computer Experience, Organizational Support, Self-efficacy and Perceived Ease of Use

The second multiple regression was carried out to examine the relationship between computer experience, organizational support, self-efficacy and perceived ease of use.

The R^2 shows that 54.2 % of the variance in the perceived ease of use can be explained by the three predictor variables. From the finding, only self-efficacy significantly influences the perceived ease of use

(β=0.691, p<0.01). This result shows that only self-efficacy has a direct positive impact on perceived ease of Internet use. Thus, H_4 is supported whereas H_6 and H_8 is not supported.

Table 6
Regression Analysis between Computer Experience, Organizational Support, Self-efficacy and Perceived Ease of Use

Variable	Perceived Ease of Use
Computer Experience	0.1089
Organizational Support	0.015
Self-efficacy	0.691***
F Value	39.467***
R^2	0.542
Adjusted R^2	0.528

*** p<0.01, ** p<0.05 and * p<0.1

Computer Experience, Organizational Support, Self-efficacy, Perceived Ease of Use and Perceived Usefulness

The third multiple regression was run to examine the relationship between computer experience, organizational support, self-efficacy, perceived ease of use and perceived usefulness.

Table 7
Regression Analysis between Computer Experience, Organizational Support, Self-efficacy, Perceived Ease of Use and Perceived Usefulness

Variable	Perceived Usefulness
Computer Experience	0.003
Organizational Support	0.335***
Self Efficacy	0.348***
Perceived Ease of Use	0.140
F Value	20.697***
R^2	0.455
Adjusted R^2	0.433

*** p<0.01, ** p<0.05 and * p<0.1

The R^2 of 0.455 implies that 45.5% of the variance in the perceived usefulness can be explained by the combination of the independent variables. Based on the result, only organizational support (β=0.335,

$p<0.01$) and self-efficacy ($\beta=0.348$, $p<0.01$) have direct and positive impact on perceived usefulness. It can be concluded that only H_5 and H_7 are supported whereas H_3 and H_{10} is not supported.

Perceived Ease of Use, Perceived Usefulness and Internet Usage

The fourth multiple regression was run to examine the relationship between perceived ease of use, perceived usefulness and Internet usage.

Table 8
Regression Analysis between Perceived Ease of Use and Perceived Usefulness and Internet Usage

Variable	Internet Usage
Perceived Ease of Use	0.075
Perceived Usefulness	0.442***
F Value	15.530***
R^2	0.235
Adjusted R^2	0.220

*** $p<0.01$, ** $p<0.05$ and * $p<0.1$

The R^2 shows that 23.5 % of the variance in the Internet usage can be explained by perceived ease of use and perceived usefulness. From the findings, only perceived usefulness significantly influences Internet usage in the organizations ($\beta=0.348$, $p<0.01$). These results show that only perceived usefulness has positive and direct impact on Internet usage whereas perceived ease of use does not have any significant direct impact on Internet usage. Thus, H_{11} is supported whereas H_{10} is not supported.

The Intervening Effect of Perceived Ease of Use on Computer Experience, Organizational Support and Self-efficacy Towards Internet Usage

This fifth regression model provides a comprehensive explanation of the theoretical framework. It is conducted by using two blocks of independent variables. In this fifth regression, the intervening effect of perceived ease of use is tested. The first block of the variables that are entered are all the independent variables (computer experience, organizational support and self-efficacy). The second block of the variables comprise of perceived ease of use, which are the intervening variables and other independent variables (computer experience, organizational support and self-efficacy).

The regression output is presented in Table 9. Perceived ease of use is not significant in the second model whereas the coefficients of computer experience and organizational support have not reduced thus implying that perceived ease of use does not mediate the relationship.

Table 9
Regression Analysis for Intervening Effect of Perceived Ease of Use on Computer Experience, Organizational Support and Self-efficacy Towards Internet Usage

Variable	Internet Usage	
	Model 1	Model 2
Self-efficacy	0.124	0.085
Computer Experience	0.362***	0.361**
Organizational Support	0.165*	0.160*
Perceived Ease of Use		0.455
F Value	12.961***	9.696**
R^2	0.280	0.281
Adjusted R^2	0.258	0.252

*** p<0.01, ** p<0.05 and * p<0.1

Organizational support (β=0.361, p<0.01) and computer experience (β=160, p<0.1) are significant. This implies that organizational support and computer experience have a positive direct impact on Internet usage in the organizations.

The Intervening Effect of Perceived Usefulness On Computer Experience, Organizational Support and Self-efficacy Towards Internet usage

This last regression model investigates the intervening effect of perceived usefulness between the three independent variables (self-efficacy, computer experience and organizational support) and Internet usage. It is conducted by using the same procedure described earlier.

The regression output is presented in Table 10. It can be seen that there is a significant change of R-Square from 28% to 32.6%, and the significance of the F change value is 0.011, which is significant at α=0.05. With the addition of the intervening variable, the model explanatory power is increased and manages to explain 32.6% of the variance in Internet usage. With the inclusion of perceived usefulness, the coefficients of computer experience and organizational support are reduced, thus implying that perceived usefulness partially mediates the rela-

tionship of computer experience and organizational support on internet usage.

Table 10

Regression Analysis for Intervening Effect of Perceived Usefulness on Computer Experience, Organizational Support and Self-efficacy Towards Internet Usage

Variable	Internet Usage	
	Model 1	Model 2
Self-efficacy	0.124	-0.004
Computer Experience	0.362***	0.265**
Organizational Support	0.165*	0.160*
Perceived Usefulness		0.289**
F Value	12.961***	11.984***
R^2	0.280	0.326
Adjusted R^2	0.258	00.299

*** $p<0.01$, ** $p<0.05$ and * $p<0.1$

DISCUSSION AND CONCLUSION

The Impact of Self-efficacy on Internet Usage

In general, the results of this study provide support for the Social Cognitive Theory (SCT) perspective on Internet usage pattern based on the work of Bandura (1977, 1978, 1982, 1986). Self-efficacy is found to play an important role in shaping an individual's beliefs and behaviors. Through the correlation analysis, it shows that the respondents in this study with high self-efficacy use the Internet more, strengthen their beliefs about the usefulness of the Internet and the ease of Internet use. They also derive more from their use of the Internet and leverage the management support better.

Self-efficacy has positive and direct impacts on perceived usefulness and perceived ease of use but it only has an indirect impact on Internet usage through the beliefs concerning perceived usefulness of the Internet, which serves as the intervening variable. This shows that if individuals have strong beliefs in their ability to use the Internet then

they will perceive the Internet as beneficial and useful to them and easy to master. The fact that self-efficacy does not have a significant direct impact on Internet usage can be explained by the importance of TAM that was proposed by David and Venkatesh (1996), which emphasizes that the external variable can only influence the usage of a technology through perceived usefulness and perceived ease of use.

The Impact of Computer Experience and Organizational Support on Internet Usage

Information System (IS) research suggests that individuals will use computing technology (in this case, Internet technology) if they believe it will have positive outcomes (perceived usefulness) according to TAM. However, since this study is also based on the social cognitive theory (SCT) that was proposed by Bandura (1977, 1982, 1986), it is important for us to know the individuals' expectations of their capabilities and beliefs about the outcomes in examining the use of Internet. Beliefs about outcomes may not be sufficient to affect behaviors if the individuals doubt their capabilities to successfully use computer technology (Compeau & Higgins, 1995b). Consistent with SCT, the findings show that computer experience and organization support have significant direct impact on self-efficacy. Users with sufficient computer experience generally increase their confidence level in terms of using the Internet because most of the popular Internet applications today such as email programs and the World Wide Web are designed to have a similar "look and feel" like other computer applications such as Microsoft Word and Windows Explorer. For example, as long as users know how to use Microsoft Word, they would not have much problems mastering email programs such as Microsoft Outlook. Furthermore, higher organizational support results in higher judgments of self-efficacy on the part of individuals because they will have more resources to help them become more proficient.

Both self-efficacy determinants (computer experience and organizational support), which are the external variables, were found to have significant direct impact on Internet usage. This emphasizes the importance of external variables more than the original TAM, which assumes that the influence of external factors have to be channeled through the perceived ease of use and perceived usefulness variables. This is only true for external variables such as computer experience and organizational support.

This study also confirms that computer experience does not have any direct impact on perceived usefulness and perceived ease of Internet

use. This can be explained by the fact that if an individual who is does not have much computer experience will still believe the use of Internet will benefit them and is easy to master. This might be due to the increased user-friendliness and benefits brought by some of the Internet applications such as the World Web Web; even an individual who does not have any computer knowledge can master it and gain from it.

However, organizational support has only significant impact on perceived usefulness of the Internet, but not on perceived ease of Internet use. This shows that organizational support will only make employees believe that the benefits gained from Internet use but it does not help make the employees believe it is easy to use. This can be explained by the fact that the management normally gives the employees support in the form of verbal encouragement without giving them proper Internet usage trainings.

The Importance of TAM in Explaining Internet Usage

From the result of hypothesis 11, perceived usefulness (outcome expectation) has a positive direct impact on Internet usage. This result generally confirms the earlier research on TAM. If users perceive the use of Internet can increase their job performance and solve work related problems such as using the Web to obtain supplier information and customer profiling, users will have the tendency to use the Internet more often in their work place. Perceived ease of use in this study does not have significant direct impact on Internet usage as opposed to the literature findings. This may be due to the increased benefits found by the respondents in Internet usage in today's knowledge economy society such as information sharing, communication, conducting research etc. This encouraged the respondents to continue using the Internet more often in their work place without considering the degree of difficulties they may encounter in some of the Internet applications. This explanation is further confirmed by another contradiction to the literature which shows that perceived ease of use does not have any significant impact on perceived usefulness in terms of Internet usage. This is because many work place Internet users are more interested in finding out how the Internet can improve their work productivity and performance than anything else. Users may not use Internet applications that are not beneficial to them even though these Internet applications are user-friendly and easy to use.

Self-efficacy and its determinants explain 28% of the variance in the Internet usage, while the explanatory power increases to 32.6% with

the inclusion of perceived usefulness. The findings show that self-efficacy does not have direct impact on Internet usage but it does have an indirect impact on Internet usage through the intervening variable (perceived usefulness). This further confirms the importance of TAM in facilitating the external variable, such as self-efficacy and its determinants, to have an impact on Internet usage through the intervening variable. Since the R-square value is 0.326, which means all the independent variables here are accounted for only 32.6% of the Internet usage. This suggests that there may be other factors such as individual differences and government regulations that can affect the use of the Internet in organizations. Overall, an individual's abilities, experiences, and the organizational support are likely to play major roles in affecting Internet usage in the work place.

Implications of the Study

This study provides preliminary evidence that self-efficacy and its determinants; computer experiences and organization support influence Internet usage in organizations. Moreover, the intervening effect of perceived usefulness is found important in shaping the Internet usage of an individual. Due to the importance of self-efficacy in simulating the higher use of Internet in the organizations, management should pay extra attention to increase employees' belief in their capability to use Internet applications.

In order to increase an individual's self-efficacy, management should look into the computer experience of the individual and the organizational support, which are the two main factors that affect an individual's belief in his/her ability to use the Internet. The significance of computer experience has an obvious practical implication as the results show that perceived usefulness and perceived ease of use are not enough for Internet usage; users must have sufficient experience to use the system. This can be achieved by the organizations through increased training and educational programs which might foster a feeling of self-efficacy, that is, the belief that one can develop the experience necessary to effectively use the Internet and strengthen the confidence in one's ability to master and use it in one's work. These training and educational programs must stress the importance of user friendliness of the personal computer and the availability of the ease to use Internet software packages such as the Internet Explorer, Microsoft Outlook program etc., which require little or no knowledge of programming. In view of the primacy of perceived usefulness of the Internet, it is vital for the educational programs to emphasize more on the application of Internet technology into actual work situations.

The findings from this study corroborate the importance of organizational support in promoting Internet usage in the organizations. This research suggests that support influences behavior directly and indirectly through its influences on self-efficacy and beliefs such as perceived usefulness. Organizational support can be in the form of offering substantial educational programs, which can increase the sense of self-efficacy and Internet usefulness.

Management can also provide a wide range of different types of Internet applications that are potentially useful in users' jobs. These applications have to be able to support different tasks, that will encourage users to use Internet more often in their daily work. In addition, managers or supervisors who strongly influence the immediate environment are most likely to have a greater impact on the users' belief in the system's usefulness and benefits. Hence, in order to promote the effective use and the acceptance of Internet technology in the organizations for a long-term period, organizations need to positively influence user perceptions and beliefs regarding the benefits and usefulness, and eventually usage of the Internet in the workplace. Management can affect users' belief by encouraging, showing interest in, and being aware of the problems encountered by employees in Internet usage. Such efforts to strengthen organizational support should result in the form of increased self-efficacy, more favorable beliefs, and eventually increase Internet usage in the organizations.

In addition, the results of this study confirm the importance of perceived usefulness of the Internet and not the perceived ease of Internet use. Therefore, it is very important for Internet software developers to emphasize on the functionalities of the system, which facilitate the performance of the tasks throughout the development process instead of focusing on developing a fancy and simplified user interface, which is not appreciated by the users.

Limitation

It is almost impossible to conduct a study without any limitation. The first limitation of this study is the small sample size due to time and resource constraints. Due to the small sample size, the sample might not cover all categories of individuals and organizations. Thus, the findings from this study may not be truly representative in regards to the effect of self-efficacy on Internet usage in organizations. Self-efficacy of an individual towards Internet usage is not static but dynamic. A study like this may not be comprehensive enough to fully capture the complexity of the dimensions that make an individual use Internet

technology. The dimensions used in this study were derived from various literature reviews. However, as self-efficacy and other factors that affect an individual's intention to use the Internet are complex and not fully understood yet, it is possible that some of the relevant constructs that deal with the self-efficacy towards individuals' Internet usage might have been left out in this study.

Suggestion for Future Research

Since this paper only studied the effects of self-efficacy on Internet usage in the organizations, a future research can be carried out to study the effect of self-efficacy on Internet usage in other settings such as schools or homes. This study only investigates the effect of self-efficacy on Internet usage; there may be other factors that affect the use of Internet in organizations such as individual differences factors (age, gender and educational level), environment factors (role of government and financial system) and regulation factors (cyberlaws). So, it is worthwhile to conduct a research on these factors to find out the impact of these factors on Internet usage.

As the objective of this study was to study the effect of self-efficacy on overall Internet usage, which includes all Internet applications such as email, the Web, newsgroups and etc., a further research can be carried out to study the effect of self-efficacy on Internet usage that is confined to only one Internet application. For example, Web usage, which is one of the most often used Internet application tools in today's business world.

CONCLUSION

Our understanding on the determinants of Internet adoption among individuals is still very much limited, as studies on the factors that influence individuals use of the Internet are still relatively new especially in the area of individuals' beliefs and behaviors about perceptions of Internet technology. This exploratory study adds to the pool of knowledge by showing the impact of self-efficacy on Internet usage in organizations.

This study shows that the two determinants of self-efficacy; computer experience and organizational support have direct impact on self-efficacy as proposed by the framework but only organizational support has a direct impact on perceived usefulness of the Internet. On the other hand, computer experience does not have any direct impact on

perceived usefulness of the Internet. In addition, both of the determinants do not have any significant impact on perceived ease of Internet use. Self-efficacy has direct impact on perceived usefulness of the Internet and perceived ease of Internet use, but it does not have any impact on Internet usage. It only has an indirect impact on Internet usage through the intervening variable. Computer experience and organizational support are found to have total impact (direct and indirect impact) on Internet usage but for the independent variable such as self-efficacy, it only has an indirect impact on Internet usage through the perceived usefulness as the intervening variable. All the variables under this study have positive correlations with Internet usage.

In brief, this study gives us an understanding of the impact of self-efficacy on Internet usage together with its determinants and intervening factors among selected organizations in Penang. From the findings and the implications of this study, more effective and appropriate strategies can be formulated to promote Internet usage among organizations in Penang. Perhaps, with the increase of Internet usage among employees in organizations in today's Internet savvy society, organizations will be able to develop competitive advantages by having access to useful and accurate information, increasing market share and reaching out to a wider scope of customers. All these benefits that are gained from the Internet would assist organizations in Penang to compete effectively in today's competitive global market.

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