Factors Driving Computer Referrals and Usage: An Empirical Study in Banking Sector

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Abstract— Computer usage has become an integral part of 21st century business activities, acting as the driving force for efficiency, cost reduction and improved employee performance. Computers also tend to have positive physiological and psychological effect on employees. This paper delves deep in to understanding the benefits, drawbacks, and common referral means for computer utilization and its influence on employees of the banking industry, from marketing and brand perspective. Generally, the benefits are found to outweigh the negative impact of computers on banking businesses, employees and executives. Overall, financial benefits serve as the driving force for the adoption of computers in most financial institutions, while employee skill and knowledge development together with other hedonic benefits are indirect contributing factors.

In this study, the benefits and drawbacks of computer usage on the various aspects of bank employees' lives have been assessed to be generally positive. In addition, the functionality of the product, including productivity enhancement and learning possibilities have shown to be the right movers. While, from a brand perspective, the hedonic benefits of relaxation and value expressive through self-concept of computer usage is found to be the other key driving forces.

Keywords- Computer Referral, Computer Usage, Word-of-Mouth, ICT in Banking

I. INTRODUCTION

The World Wide Web (WWW or the web) is widely thought to have brought a major change in the retail and financial sectors by enabling consumers to make purchases and carry out financial transactions over the Internet. Here, the web provides a channel linking consumers and businesses [1]. Although the number of users of the Internet has increased significantly over the past decade, a major proportion of these users have not used the Internet for making purchases in Thailand.

Modern businesses have resorted heavily to the use of Information and Communication Technology (ICT) to acquire, process, and deliver information to all relevant users. For example, bankers find that they have to continuously innovate and update their ICT to satisfy their demanding and discerning customers and to provide convenient, reliable, and expedient services. In the same way, other organizations implement ICT solutions in order to be more productive [2]. ICT equipment for processing, storing, and transmitting information contribute to overall productivity in a number of ways. First, the advancement and rapid innovation in producing information technology equipment both improve its performance and lower its prices, further stimulating its use throughout the economy. Second, the new technology generally allows businesses to make deeper and more extensive improvements in the way they operate. For example, in the banking sector were ICT adoption is well received, the use of image-processing technology to record images of deposited checks and optical-recognition software to analyze the information on the checks enable the bank to eliminate manual check processing. This new technology also yields a reduction of 30 percent skilled workforce in the "exceptions processing" department which turns roughly sixty-five thousand non-routine checks, although this downsizing is accompanied by a broadening of responsibilities, expanded training, and higher wages for the remaining employees. Productivity gain in exceptions processing that is attributed to this new technology is around 10 percent [3].

The significant increase in the use of computers has drastically changed the lives of many people. Computers, as Sherry Turkle [4] in "Who Am We" discussed, initially were used as simple calculators, but, through the years they have come to be valued as more than simple machines. Turkle further said, "The computer has gained new qualities, it is not only used as a calculator, but now it entails simulation, navigation, and interaction". Turkle also observes that with the increase in computer usage and the consequent increase in the

innovative software accompanying it people are attracted even more to use ICT.

II. LITERATURE REVIEW

The factors affecting computer utilization has been studied in various ways. One of the ways is dealing with its acceptance and resistance of its usage. Many researchers have attributed the adoption of ICT to its usefulness and ease of use. However, functionality of computers is found to be a more significant factor than the ease of use factor which tends to be the feature of the resistance reduction for adoption [5]. Buying computers cannot be the end in itself, its usage consequences should also be taken into account. Usefulness in terms of productivity improvement is often a prime mover of usage.

There have been many variations and modifications to the technology adoption and technology acceptance models (TAM) in the recent studies [6]. Many research studies have also used theory of reasoned action (TRA) to identify and study the behaviour and use of technology [7]. However, this study takes slightly different approach and focuses primarily on marketing-based referral or the word-of-mouth (WOM) view from a brand perspective and its influence on behaviour and intention to use the technology. Thus, we have specifically focused on the relevant articles relating to such discussion. [8] [9]

A. *Word-of-Mouth Referrals*

According to social network theory, the WOM referral network consists of two components: relational content and relational form [10]. Relational content is a communication relation by which messages are transmitted from one consumer to another as in "who told- whom-about-the-service" [10]. The contents of WOM communication are "instrumental cues" in contrast to "affective cues", and are more related to the technical or performance-oriented aspects of the product or service [11]. Relational content from the WOM source was measured with items including whether Internet banking was useful, risky, easy to use, reliable, and worth the effort. Relational form refers to properties of linkage between pairs of actors that exist in the WOM referral network. One of the fundamental aspect of relational form is 'tie strength', which is indicated by variables such as social relation, trust, likeability, and perceived expertise [12]. Based on their study, Brown & Reingen [10] say that WOM referrals about Internet banking are positively associated with the level of initial trust in the e-channel as a banking medium.

B. *Word-of-Mouth Referrals and Initial Trust in e-Channel*

Transference of trust is a means by which initial trust in an unknown object (e.g. Internet) may be established [13]. Informal channels (e.g. WOM) of communication are the primary means of disseminating market information when the services are particularly complex and difficult to evaluate [10]. The service quality of Internet banking is difficult to evaluate without first-hand experience. The consumer's uncertain perceptions about Internet banking may be influenced by the information s/he gathers through WOM referrals. If one gets positive WOM referrals on the Internet as a banking medium from a person with strong personal ties, s/he may establish higher levels of initial trust in the *e*-channel as a banking medium.

In the professional service context, it is found to create positive influence on the purchasing decision than other sources of influence [14] meaning that it is likely to increase sales volume and generate corporate growth. Hence, this study will focus on investigating the factors affecting the WOM of the users.

C. *Functionality Benefits and Acceptance of Computers*

Presumably, a functionality benefit may be necessary but not sufficiently explain the user acceptance of computer technology. Other benefits are likely to play a critical role as well. To fully assess the acceptance of computers, the impacts on each individual user's life should be taken. The aspects which warrant investigation are the ones of personal relevance. That is, basically inferred by its direct bearing on and significant consequences or implications for the users' lives. These include how the computer impacts on the functionality of people in the workplace, user physiques, worker enjoyment and anxiety, socialization, spiritual make-up of the user as well as his/her activities and the Self-Concept.

D. *Implications of Computers in User' Lives*

D. 1 *Perceived Behavioural Control*

Perceived behavioural control refers to the factors that may impede the performance of a user. This definition encompasses two components. The first component is self-efficacy and is defined as an individual's self-confidence in his or her ability to perform an action or behave certain way [15]. The second component is "facilitating conditions" and it reflects the availability of resources needed to engage in the behaviour [16][17].

D. 2 *Compatibility*

In [18] Tornatzky and Klein's meta-analysis of innovation adoption, they find that an innovation is more likely to be adopted when it is compatible with individuals' job responsibilities and value system. Internet banking has been viewed as a delivery channel that is compatible with the profile of the modern day banking customer, who is likely to be computer-literate and familiar with the Internet [19]. Therefore, it is expected that the more the individual uses the

Internet, and the more he or she perceives the Internet as compatible with his or her lifestyle, the more likely that the individual will adopt Internet banking [2].

D. 3 Product Benefits

While some studies have shown that benefits sought from the products tend to be a key motivational factor for buying and implementing the technology; others have indicated that the after purchase consequences (or support) are more likely to be driving forces of the repeat purchase. It should be noted that the use of computer in an organization is likely to take place with human fear and the risk they have to take in using the computer. Risk according to Bauer [20], Webster [21], and Ostlund [22] is an additional dimension in diffusion and adoption. A common and widely recognized obstacle to electronic commerce adoption has been the lack of security and privacy over the Internet [23] [24][25][26]. This has led many to view Internet commerce as a risky undertaking [27]. Thus, it is expected that only individuals who perceive using Internet banking as a low risk undertaking would be inclined to adopt it.

In general, computers allow users to perform more tasks than what people were used to do, especially the routine and computational tasks, leading to a diminishing role of blue collar workers. Many white collar workers, on the other hand, have to face computer bugs and barriers. Regardless, all these obstacles are likely to be clouded by the product benefits which are in line with the practical needs of people as it can help them to be more productive. Additionally, computer usage enables an organization to tackle the complicated tasks that usually are not done manually. Moreover, the enhancement of knowledge can be made possible through networking or Internet. In short, the functionality benefit of computers in the working environment seems to far outweigh human anxiety.

D. 4 Hedonic Benefit of Computers

Generally, information technology is designed to facilitate people to work more efficiently which in turn enables people to fulfil their cognitive need for a utilitarian benefit instead of hedonic benefit [28]. However, from a psychological perspective, people do need relaxation, recreation, enjoyment and fun in order to ease their mind, especially from daily stressful situations in their lives. These needs can also be satisfied by online entertainments and computer games. It follows that the additional psychological benefit of computer is likely to influence WOM positively. Apart from that, an object can be taken as more relevant to each individual if that particular person can identify himself or herself with that object. The expression of oneself through the use of computer can be in the form of actual and social self-concepts meaning that computer can be a reflection of whom a person is or who that particular person wants to be seen as. According to Steele, this self-affirmation function of self-concept [29] is a way to maintain positive self-feelings, which are assumed to be a basic human endeavour [30]. Besides, using computers tend to have the expressive value of self-concept as well. Due to its newness, computers are perceived to be used by modern people who in turn are likely to create the acceptance by others and providing the value of social assimilation [31]. It is noteworthy that both relaxation and value expression through self-concepts are psychological in nature. Therefore, they tend to generate hedonic benefits which in turn lead to the positive word-of-mouth.

D. 5 *Personal Impacts of Computers*

Computer usage has impacted people in several different ways. In addition to doing their regular work people use computers for several other tasks. For example, it is used for online shopping or information search anywhere and anytime. Besides saving time for shopping, consumers can also compare the price of the products they are looking for, conveniently. It is likely that they will be at least more confident in deciding on or getting a better price for products or services through the Internet. This feature of the web tends to make computers more acceptable.

E. Negative Impact of Computer Usage

Although computers may have numerous positive impacts on users, they also have negative impacts. These include the adverse effects on individual's health and socialization. Exposure to the computer screens for long periods of time can affect user's eyesight. Other potential health and safety hazards are Carpal Tunnel Syndrome, and repetitive strain injuries such as backaches and muscle tension in the wrists and fingers. Moreover, the tension and anxiety of struggling with computers is expected to cause stress.

Human-beings are supposed to be social animals. Therefore, the need for the presence of others in one's everyday life will be an essential ingredient of human existence. That is to say, interaction with other people in the form of social groups and institutions are vital to human nature. It is usually commented that time spent on one activity cannot be replaced with another activity. For example, it is usually believed that time spent in online interacting with others may somehow limit or harm the social relationship that one could have had with a friend, a family member or a relative. This, as a result, affects the quality of social contact that people used to have with one another.

Computers in the workplaces tend to first draw the users online functionally. As a consequence of multiple benefits through the web and net, using computers turns out to be a habit of convenience. Computers might create new human traits such as quick and dirty, intolerant and taking it easy. This may be one of the undesirable drawbacks among others.

F. The study focus

This study adopts a broad perspective of the loyalty to use computer as indicated by computer referral by looking at the benefits or value to the *life of the users* in the banking sector (bank employees) in particular. The study does not limit itself to focus on the ease of use and usefulness which is meant to be for productivity of work. The *concept of life* used here is broken down into seven aspects of life including work life (productivity, learning, and anxiety), self or self-concept, socialization, personal health, recreational life or relaxation, spirit, and consumption.

III. METHODOLOGY OF STUDY

In this study, five big banks from Bangkok, Thailand, were included because of their wide use of computers. The questionnaire included items representing activities related to particular domains of life. After pretesting with 26 bank employees for its clarity and correct interpretability, the original questionnaire was modified and reworded. The bank headquarters and branches in Bangkok metropolitan area were then randomly selected. Approximately equal number of employees from each bank was selected to be interviewed. Eventually, four hundred twenty employees were interviewed and others filled out the final questionnaires. Generally, the respondents were asked to voice out their opinions about the impact of computers on them and their daily activities using a five-point Likert scale. The final usable response rate was 89 percent.

Since the measurements of this study were mainly multi-item scaled, especially the independent variables, inter-item correlations and the factor loadings from factor analysis with varimax rotation were used in order to come up with the purified one-dimensional variables. These constructs are called Productivity, Learning, Anxiety, Relaxation, Self-Concept, Consumption, Health, Socialization and Spirit. The dependent variable is the positive WOM which will be called *Suggest*, hereafter, is measured by asking for the extent to which the respondents are willing to recommend the computer use to one's friends and/or colleagues. The impact of computer usage on the bank employees is assessed by regression analysis of *Suggest* on Productivity, Learning, Anxiety, Relaxation, Self-Concept, Consumption, Health, Socialization and Spirit. Results are shown in Table 1.

A. Results

The results from the multiple regression analysis as illustrated in Table 1 revealed that the nine factors model can explain 22.8% of variance in computer referral. Moreover, the significant factors affecting the positive word-of-mouth are Productivity, Relaxation and Self-Concept whereas the remaining factors are not found to be significant. The standardized beta coefficients show that Relaxation is the most important followed by Self-Concept and Work speed/Productivity with standardized betas 0.251, 0.177, and 0.153 respectively. This means that based on the brand value concept, emotional value of Relaxation and self-expressive value (Self-Concept) are more important than functional value of Productivity. It tends to suggest that Productivity (i.e., functional value) may play an important role during computer adoption process, whereas, in creating (brand) loyalty to computer usage through WOM or Referral Relaxation (emotional value) and self-expressive value (Self-Concept) will play a larger or more significant role in the growth of computer usage in the long run.

Although Job-related benefit in the name of Work efficiency or Productivity plays a very critical role in computer acceptance, the value-added benefits tend to lean towards the factors affecting user's cognition, Relaxation and Self-Concept. Specifically, computer that can make the bank employees' lives more fun is more welcome and deserve the suggestion of computer usage for friends or colleagues. Besides cars and clothing which have been a way of expressing oneself, computers can be an expression of self as modern in this contemporary world. Productivity or efficiency which is what the computers are for, in general, was also a significant driver of computer referral too.

IV. CONCLUSIONS AND DISCUSSION

Taking a life perspective, positive WOM is influenced by Relaxation, Self-Concept, and Work efficiency. The presumably negative impacts of computer usage on people's mind and physique are not evidenced in this study. Online purchase experience also did not show as a significant contributor to initiate positive WOM although it contributes towards work efficiency and convenience. This may be due to the insignificant role of consumption in people's lives and/or low level of adoption of electronic commerce. On the contrary, the hedonic benefits of Relaxation, Self-Concept, and the utilitarian benefits including Work efficiency play a significant role on people's lives and thus positive influence on WOM. In short, the product value of computer lies in its psychological benefits and functionality indicating that people are searching for utility and pleasure.

To optimize the utility of computer usage, a tri-polar strategy is recommended. (see Figure 1) Since the study shows that Work-efficiency, Relaxation and Self-Concept positively influence WOM to enhance the computer referral and usage, effort should be made to support these factors. That is, easy to use technology to gain efficiency, training to upgrade and update computer skills for avoiding computer anxiety, and consulting and trouble-shooting support to enhance Self-concept can become the three poles in the tri-polar strategy. In order to enhance individual capability, learning through computer usage is likely to enable people to actualize their own potentials. "I actualize, therefore I am", tends to be a vitally intrinsic pulling strategy for users. Besides, "I am modern", as perceived by others, is considered to be an extrinsic driving force for positive WOM and referral.

Thus, these functional and hedonic product benefits can be valuable for computer referral and enhanced usage.

V. FUTURE RESEARCH

The major limitation of this study is that the data is collected from bank employees in Bangkok, Thailand, and thus one may not be able to truly generalize it to all employees or to all bank employees across the world. The study is conducted in Thailand which may be more similar to other Asian collectivist cultures and may be different from the western individualistic culture countries. Therefore, similar studies in countries or regions with different cultures may give one further insights into the drivers of computer referral. The study needs to be extended beyond banking service sector to other service sectors or to other industrial sectors.

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Table 1 - The Result of Multiple Regression Indicating the Factors Affecting Computer Referral

Model	Unstandardized Coefficients B	Standardized Coefficients Std. Error	T	Beta	Sig
(Constant)	1.289	.591		2.180	.030
Work_field/ *Anxiety*	.013	.076	.008	.172	.863
Work_scope/ *Learning*	.151	.099	.078	1.527	.127
Work_speed/ *Productivity*	**.321**	.109	.153	2.944	**.003**
Self-Concept	**.254**	.075	.177	3.379	**.001**
Socialization	-.067	.063	-.056	-1.063	.288
Health	-.061	.070	-.042	-.866	.387
Relaxation	**.480**	.089	.251	5.413	**.000**
Spirit	-.031	.055	-.030	-.562	.575
Consumption	.013	.089	.007	.143	.886

R^2 = .228, $F_{9, 409}$= 13.44, p = .000

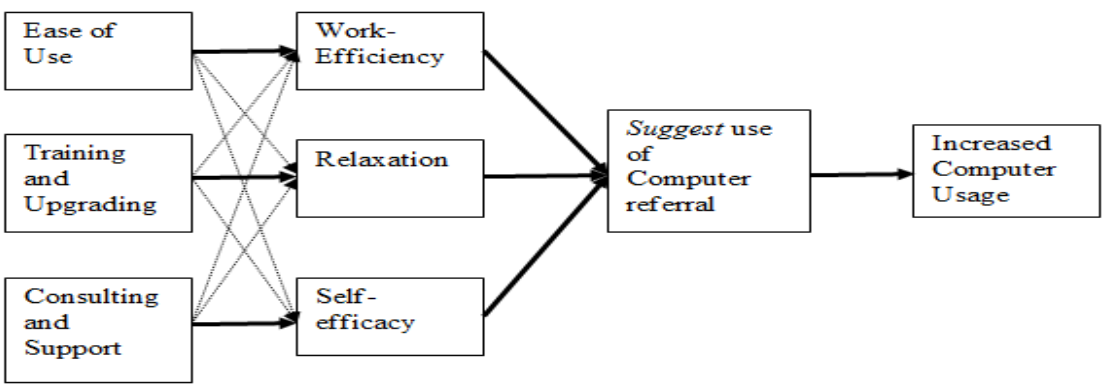

Figure 1 – Referral Model