



Appraisal of Individual Understanding of Social and Ethical Circumstances; Information Technology Utilization

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Abstract— During the growth of information technology (IT), we can define smart cards as an ideal device for any transaction such as e-commerce, banking, telecommunication, transportation and numerous other technologies. According to users' security and customization, smart card enhanced the quality of services. Identify aspects that affect the use of smart cards is very significant for complex consumer, of course with respect to ethical interaction, where the main part in any decision-making process should be knowing the clients ethical and behavioral intention to employ smart cards. A short evaluation on ethical settings are introduced in this study to recognize individual understanding of ethical settings by utilizing smart cards and moreover, a model has been adopted to developed from the ethical and social perspective based on previous acceptance models, ethical frameworks and ethical circumstances.

Keywords— Computer Ethics, Technology Acceptance, Ethical Circumstances, Intention to Use, Attitude toward Usage, Customer Satisfaction

I. INTRODUCTION

Smart card is called 'smart' since it contains a computer chip. Actually, smart card is referred to as 'chip card' or 'integrated circuit card' [34]. Smart card is a simple plastic card just same as a size of credit cards that provides maximum safety and suitability, and also data transportability. It makes possible complex and transportable data processing applications, and has proven to be more consistent than attractive strip cards. Security against identity robbery, web fraud, efficiency of service delivery and user convenience are factors which driven interest in smart card technologies worldwide [35].

Smartcards are multi-functional and secure gadgets that enable positive user identification and they are, affordable gadgets that can be easily tailored for both sensible and real accessibility. Logical accessibility management concerns such

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familiar principles as password checking or the more sophisticated cryptographic gadgets for verification such as windows logon, virtual private program (VPN) accessibility, program verification, fingerprint storage and others. Physical accessibility management pertains to ID badges and building accessibility management. Considerably, smartcards consists of many applications and have lots of advantages compare to plastic cards [34].

During the past century, it is irrefutable that social constructivist and information technology has achieved a bright technological development for us. It has simplified the universally dependent technology in which we use, has altered our sense of our place in the universe [28]. Using smart card is developing day by day throughout daily advertisement, posters and social programs.

To make sure flourishing influence of IT, several controls and actions are used, current strategies, smarcard application and guidelines between information technology developer are the most helpful and practical examples of IT growth [36]. In accordance to these topics the interesting point is the effect of ethical issues effect on smartcard technology acceptance which is the main goal of this research by proposing new model.

For original technology development in any educated society, adoption assessment is more significant rather than relevant advantages and usefulness. In brief, user adoption is significant and ongoing progress that likely be made in improving the human-computer interface where public utilization of smartcards may origin from educational basis to ethical behavior of end user under the certain circumstances of ICT [36].

For instance with so many other subjects, ethics is best understood when its principles are applicable in real life circumstances, and linking the gap between theory and practice would be one of the biggest challenges of scholars. Accordingly, while developing a social model based on our research we have developed a learning approach to addition the suggested model and relevant social models. The setting themes are based on experiences and observations during our previous research on computer ethics and smart card technology acceptance. However, lack of appropriate awareness and planning in immature courtiers would be the current difficulty of many researchers and scholars [38], [39]. From ethical point of view [28] and smart card adoption model [24], people prefer to use smart card due to following reasons stated as follows: ease of use, usefulness, transaction speed, mobility and security. On the other hand, the concerns which

force end user indifferent to be away from this technology innovation may focus on fraud, misuse, duplication and unethical behavior of consumers. The main goal of this reasearch is to propose a model to assess smartcard adoption by respect to ethical issues.

II. SOCIAL MODELS PERSPECTIVE

In this part, some of the previous acceptance and ethics models such as PAPA, Moral Model, Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) are studied, in order to clarify aspect of smartcard technology adoption framework from ethical perspective detail.

A. PAPA

According to [19] decision makers place such a high value on information that they will often enter someone's privacy to get it. It contains four elements which are: privacy, accuracy, property and accessibility. Manson stated, these four elements are general human weaknesses that cannot be a part of their ethical behavior. Furthermore, he mentioned that the ethical issues involved personal behavior and professional practice.

In PAPA Model, privacy is determined as the declare of people to determine when, to whom, and to what level independently recognized data about them is conveyed or used. In the same way, accuracy symbolizes the authenticity, perfection and credibility with which details is delivered [35]. Because of the generality of details about people and companies included in computer, additional care must be taken to secure against errors and to correct known errors. Another factor of the PAPA model is property which is one of the more questionable areas of technology and values issues the ip privileges linked with smart card possession. Lastly, accessibility means the details that a person or company has a privileges or benefit to obtain with which level of access and safety measures.

B. Moral Model

Associated research [22] stated that, the core of interest of any ethical situation and development is morality of end user. As Fig. 1 shows, Melissa [22] claimed this an important factor of ethical issues from educational point of view where different ethical guidelines have been introduced in order to evaluate and educate of beneficial ethical opportunities. In this model, researchers wanted to create educational opportunities that allow students to examine their existing beliefs regarding ethical and technical issues and in relation to existing technical, professional, legal, and cultural solutions [22].

C. Theory of Reasoned Action

Drawn from public and social mindset, TPA is one of the most essential and significant concepts of personal actions, based on past analysis that began out as the Thory of Attitude [18], which cause to the analysis of attitude, behavior and actions. It has been applied to estimate a variety of behaviors[8].

As it is proven in Fig. 2, TRA describes connections between values, intention, attitude, norms, and behaviour. Accepting to this theory, an person's actions (e.g., use or being

rejected of technology) is specified by one's objective to execute the actions, and individual's attitude toward executing the actions and very subjective standard impact the objective, specified as the person's understanding that many individuals who are important to her think she should or should not execute the actions in query [8].

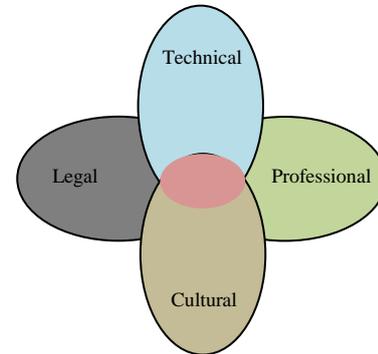


Figure 1. Moral Model [22]

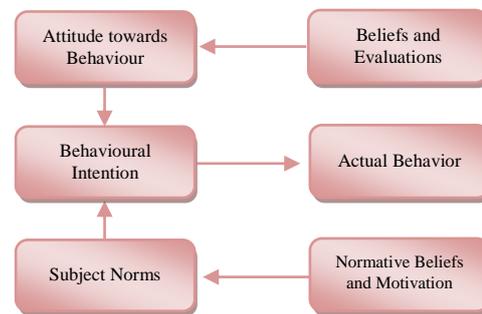


Figure 2. Theory of Reasoned Action [8]

D. Theory of Planned Behavior

While TRA has been the most commonly used theory for analyzing customer adoption, other theoretical viewpoints have also been used. The theory of planned behaviour (TPB) [2] is a inheritor of TRA and contributes a third antecedent of objective, recognized behavior management, to the TRA design. Obvious behavior management is identified by the accessibility to abilities, sources, and possibilities, as well as the recognized significance of those abilities, sources, and possibilities to accomplish results. Obvious behavior management has been considered to be near to self-efficacy perception concept [2].

TPB represents three components of intention: 1) attitude towards behavior, 2) the public and social ellements, 3) the last component is the problems of executing the behaviour based upon before encounter and expected action [1], [35], [37].

These are symptoms of how difficult individuals are willing to try and how much attempt is applied to be able to execute the behavior [31]. Fig. 3 illustrates TPB model. This theory assumes three dimensions of intention:

- Attitude towards behavior which is defined as an individual's positive or negative feelings (evaluative affect) about performing the target behavior.
- The social factor or subjective norm is an individual's perception of whether people important to the individual think the behavior should be performed..
- The last determinant is the difficulty of performing the behavior based upon prior experience and anticipated action [1]. In other words, it was defined as perceptions of internal and external constraints on behavior.

This concept provides a structure to study behaviour toward actions. As said by the theory, the most significant element of a person's actions is behavior purpose. The person's objective to perform an action is a mixture of attitude toward performing the action and subjective standard. The person's attitude toward the actions includes; behavior perception, assessments of behavioral result, subjective norm, normative beliefs and the inspiration to comply [37], [40].

Theory of Planned Behavior has been successfully applied to the understanding of individual acceptance and usage of many different technologies [20], [29] and also other situations in predicting the performance of behavior and intentions, such as predicting user intentions to use new software [20].

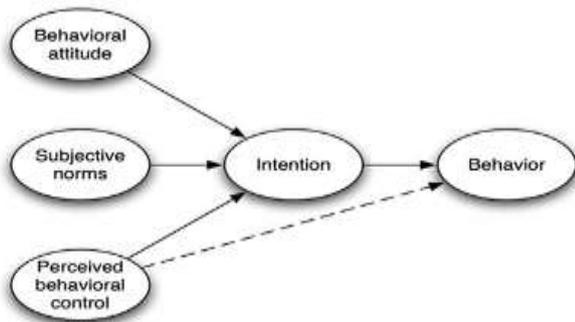


Figure 3. Theory of Planned Behavior [1]

TRA and TPB have many similarities. Both theories adopt that human beings are basically rational and make systematic use of information available to them when making decisions. But the point is that, by in view of control-related factors, TRA assumes that the behavior being studied is under total volitional control of the performer. However, TPB expands the boundary conditions of TRA to more goal-directed actions [2]. PBC is included as an external variable that has both a direct effect on actual behavior and an indirect effect on actual behavior through intentions.

III. SCENARIO METHOD

Applying scenarios allows members to study about the importance and difficulties of moral making decisions by solving of problems that occur in 'real life' circumstances. Contributors can sense into personal knowing and have to be able to consider others' viewpoints through conversation and part play. In doing so, they can create an knowing of the need and the capability to take a position in another's footwear - a crucial part of creating understanding to moral problems on intelligent card technology.

The circumstances present issues to be identified among several, often competitive, concerns and passions, and raise the kinds of issues and inner and exterior demands with which many members could identify. The factor of the exercise is not to reach at any one 'right' quality to the issues, but instead to:

- Appoint in complicated their own and knowing others' perspectives
- Recognize that reality is usually a better way to take care of a situation legally, based on the different aspects with intelligent cards technological innovation and actions considered.

At this factor, three real circumstances are analyzed as illustrations.

Scenario 1: Believe individual X receive physical accessibility cards to be able to use for internal creating features. Prior to using the accessibility cards, a buddy of individual X who is individual Y (Consider as an illegal person), needs to use the accessibility cards too, so individual X stocks his/her intelligent cards. As past mentioned, legally this actions is an intrusion to experienced residence concept and control where the only accountable individual is individual X to hold protection of entire creating [35].

Scenario 2: Imagine a mature protection official who has recently reconciled from his/her past company. Nevertheless, still he/she understands of intelligent cards verification process which has not been change yet and he/she would accessibility the personal information [35]. On the other hand, his/her buddy, indicating him/her to post the lying among the workers and management to be able to conscious stockholder and community to avoid from further corruptions.

Scenario 3: Believe an excellent student, who is technological associate of his /her manager, has already obtained a intelligent cards as an accessibility and bank cards, which might be useful for other school student. Also, as a designer he/she was allocated the task of creating software to control the number of create out pages to be able to charge learners for the service costs. While, he/she is performing in both the personality (Student and instructor assistant) will it be an moral actions if he/she can share the free details for his/her buddy [35].

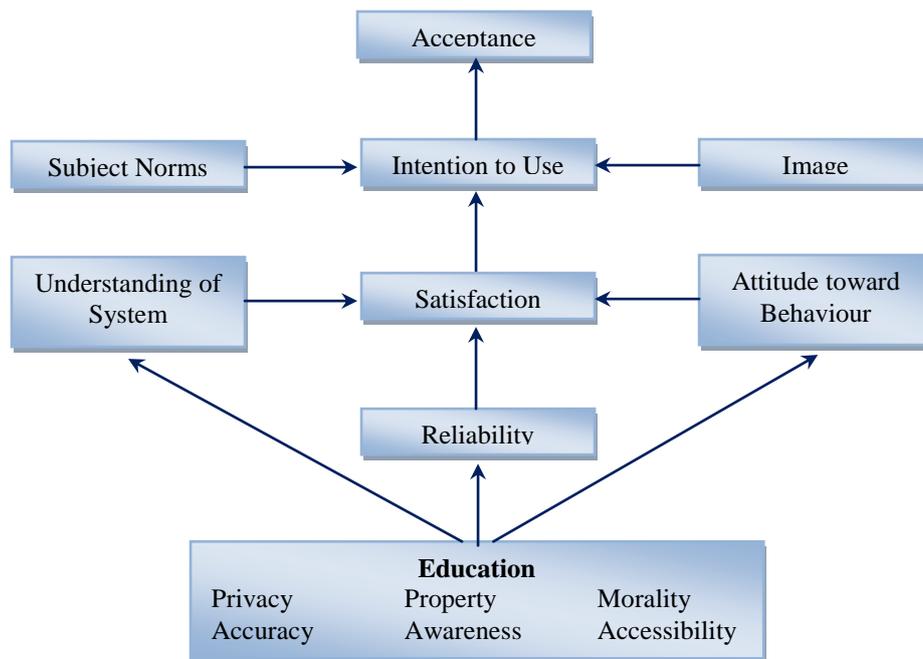


Figure 4. Smart card technology acceptance model from ethical and social perspective

Clearly, all these 3 circumstances can be protected by two essentials of PAPA model which are property and accessibility. Thus, having an academic essential such as PAPA aspects and making users conscious about the intelligent cards technological innovation might be useful to avoid neglect, scams, illegal accessibility and consequently boost the level of users' adoption.

I. RESEARCH FRAMEWORK

A social model with respect to smartcard adoption and ethical viewpoint has been developed, base on previous developed model; PAPA, TPB, TRA and Moral Model. The proposed model is presented in Figure 4. Further discussion, examine the developed model from different dimensions such as education, awareness, and PAPA.

The most crucial aspect in effective ethical attention is people's actions, behaviour, and their sense of right and wrong [16]. Whoever uses technological innovation and in any types, they should understand the risks and relevant weaknesses. The problem of values has dropped into the black area that have prevented for worry that too little information could be risky and too much could be risky [11].

Many companies and academic facilities recognize the need for cognizance, but at the same time, it may be more important, and far more effective to deal with the problem of values as an mind-set rather than a technological innovation.

On the other hand, it is about exposing useful part of technological innovation which are fairly controversial but

individuals are experiencing a listlessness of it due to deficiency of ethical attention throughout social public.

If individuals will be through awareness, education and subject to standards towards technology development, henceforth, transitions into future will touch smoother and an ongoing process [7]. In other perspective, more than a few studies have revealed that higher levels to training and learning are favorably related to positive computer attitudes [27] [17] [15].

Educational points have been evaluated on two main aspects which are attitude and morality [24]. The earlier model [22] investigates values where failing in past research [21] discovered few changes in students' opinion regarding unlawful utilization and repeating that shows deficiency of acceptable behaviour towards ethical research. Also, there was no significant connection between students behaviour and their spiritual considers or absence thereof.

According to Mason's [19] new ethical concern are created and performing unlawfully becomes easier. These ethical issues must be resolved for a unique opportunity to help and inform technological innovation customers to help make the best ethical decision under ethical or unethical situations.

According to Bailey and Pearson [5] satisfaction is defined "as the sum of users biased reaction to a set of criteria. From the list of satisfaction factors which are revealed by [5]", satisfaction is directly effect on utilization. Oliver [26] believed that user's fulfillment of a system results in continuation objective whereas discontentment results in stop following use.

There is a direct and positive link between reliability and satisfaction as mentioned by Wolfinger and Gilly [32]. They also mentioned that reliability is the one of the most important factor that explains satisfaction of end user. In addition, past studies [10] [23] argued that reliability has the direct and positive impact on user satisfaction. Kim et al. [18] stated that user satisfaction is strongly related to reliability for repeat users that Yoon [33] also discovered that technological innovation satisfaction is favorably related to objective to use.

Users' actions (e.g., use or being rejected of technology) is mentioned by one's objective to perform the actions, and individual's mind-set toward performing the actions and very subjective standard impact the objective, [8]. Furthermore, adoption may be simplified if the use of the innovation improves the image of the user, so as respect and other valued attributes to culture in relation to the use of the innovation that are directly related to the adoption rate [3].

II. CONCLUSION AND FUTURE WORK

While from technological perspective, putting into practice of smartcard technology is significant but, teaching and attention of the customers is also important factor of public and behavioural modelling.

Technological innovation should bring up to people and they need to be conscious of its advantages, features, and features. Learning know-how will improve users' verdict and their ability in using the program in moral actions manner [2]. With components of social components, attention, moral research and user adopting a structure was create as major goal of this study.

In contrast, education and learning which is based on the PAPA model will assist and coach customers towards a better understanding of smart cards and its benefits. In order to pre-assessment of proposed framework real life scenario was created and it might be applicable as future instruments and further research.

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