Understanding Behavioral Intention in IT Ethics: An Educational Perspective

Chou-Kang Chiu, Associate Professor, Ching Kuo Institute of Management & Health, Taiwan Luan-Ying Wei, Dept. of Human Resource Development, Ching Kuo Institute of Management & Health Shin-Yi Lin, Dept. of Information Technology, Ching Kuo Institute of Management and Health

ABSTRACT

This study proposes an extended framework of information cascades theory (EFICT) in the educational context of information technology (IT) ethics in order to understand the formation of IT users’ behavioral intention. In EFICT, perceived intrinsic motivation (PIM), perceived signal suggesting the action is worth trying (PS), and perceived extrinsic motivation (PEM) all have direct influences on behavioral intention towards IT (BI), while perceived others’ action towards IT (POA), PIM, and PEM has indirect influences on BI through the mediation of PS. Additionally, the linkages from PIM, PS, and PEM to BI are moderated by the perceived risk of the unethical action (PRUA). This study provides a research framework as a basis for future educators studying unethical intention based upon the information cascades theory which has been ignored in the area of ethics for years. Finally, the conclusions and limitations of this study for the educational field are provided.

Keywords: Information cascades, behavioral intention, perceived intrinsic motivation, perceived extrinsic motivation.

INTRODUCTION

An ethical or unethical issue in education arises whenever one party in pursuit of its goals engages in behavior that materially affects the ability of another party to pursue its goals. When the effect is positive, helpful, good, right, or fair, the behavior may be considered praiseworthy. However, when the effect is negative, harmful, bad, wrong, or unfair, the behavior may be regarded as unethical (Mason, 1995). Based on the above definition, information technology (IT) ethics may be defined as a set of principles or regulations used for moral decision making concerning IT usage. Particularly, unethical IT behavior is concerned with behavioral conflicts under ethics in the use of information, technologies, and information systems (Kuo and Hsu, 2001).

Information ethical issues in education can be viewed as a new species of old ethical issues. There are many unique characteristics in the new species, which makes it different from other species, yet the new species also has fundamental characteristics common to all members of the genus (Thong and Yap, 1998). In other words, information ethical issues have some unique characteristics, but do not exactly constitute a new category of issues (Thong and Yap, 1998). For instance, threats to intellectual property rights have not existed in quite the form that they do with IT, but property rights have been around for a long time. Whereas legal systems and concepts such as copyrights and patents surrounding tangible goods have stabilized for the past decade, the issue of IT piracy (e.g., software piracy) is shrouded in uncertainty (Straub and Collins, 1990).
Software piracy may be taken as one example for the education of IT ethics. The reason why software piracy is shrouded in uncertainty is that computer software does not fit within the definition of property since it is intangible and does not need to be moved from the owner’s possession to be useful to someone else. Previous literature indicates that digital piracy (e.g., software piracy) depends on more than a simple cost-benefit calculation (Walls and Harvey, 2006) - that is, IT piracy is often not seen as theft on the part of the consumers of pirate software, and even when it is considered theft it sometimes is considered as “striking a blow against ever-encouraging U.S. economic and cultural imperialism, or at the very least, ‘stealing’ from the rich” (Crawford, 2000, p. 11). Additionally, IT such as computer software and documents has special characteristics, including ease of replication, ease of transmission, and multiple uses (Samuelson, 1991, 1993, 1994). These inherent characteristics of IT bring on a new twist to ethical issues and make new legislation difficult to specify (Thong and Yap, 1998). Due to the unique characteristics of IT, IT ethical problems pose a much greater challenge.

A theory on which the line of ethical research is frequently based is the Theory of Reasoned Action (TRA) proposed by Ajzen and Fishbein (1980). TRA (Ajzen, 1991; Ajzen and Fishbein, 1980) has been extensively utilized as a model to forecast behavioral intention. It is mentioned in a meta-analysis by Sheppard, Hartwick, and Warshaw (1988) that the model predicts behavioral intention well. TRA, which has its roots in social psychology, is based on the assumption that human beings are rational and make systematic use of the information available to them, and that people consider the implications of their actions before they decide to engage or not engage in a given behavior (Ajzen and Fishbein, 1980; Ajzen, 1985).

Fishbein and Ajzen (1975) divide the beliefs antecedent to behavioral intentions into two conceptually distinct dimensions: behavioral and normative. The behavioral beliefs are postulated to be the underlying influence on an individual’s attitude toward performing the behavior, whereas the normative beliefs affect the individual’s subjective norm about performing the behavior. Therefore, information or salient beliefs influence intention either through attitudes or through subjective norms. As noted by Fishbein and Ajzen (1975), exogenous variables of the model are assumed to affect intention indirectly through the mediation of attitudes or subjective norm. However, an exploratory analysis by Loch and Conger (1996) found that TRA fails to describe the ethical decision-making process properly. Other research studies have arrived at a similar conclusion (Randall, 1989; Randall and Gibson, 1990). Hence, the appropriateness of TRA for information ethics research has been questioned (Banerjee et al., 1998; Loch and Conger, 1996; Thong and Yap, 1998).

Based on TRA, Ajzen (1985) proposes a more extension of the TRA model, the theory of planned behavior (TPB), explicitly incorporating perceived behavioral control as an antecedent to behavioral intention and behavior. Perceived behavioral control refers to the perceived control over a given behavior or behavioral goal, so it is one’s disposition that holds his or her beliefs concerning his or her capacity to perform a certain behavior.

Although both TRA and TPB provide a reasonable understanding of why and how people yield their behavioral intention in general, they may not be suitable specifically for predicting IT behavioral intention given today’s advanced IT. With recent breakthroughs in the infrastructure of IT, interactive software, and wireless delivery mechanisms, the key determinants of subjective norm (affected by significant others such as their family or close friends) may not effectively drive IT users’ behavioral intention today, given that the users nowadays are involved with much more mutual interaction with online others than with their significant others. This implies that subjective norm in TRA or TPB could become less influential than before. For example, individuals’ intention to download illegal software or
music files may be likely influenced or boosted by online others through instant messaging or chatrooms rather than family or friends through phone calls in a real world. For that reason, the purpose of this study is to establish a theoretical framework that may better fit today’s IT so as to understand behavioral intention towards IT, including pirating software, spraying viruses, invading computer systems, downloading music files illegally, and so on. According to those in the music industry, its lawyers, and the courts, file sharing is a simple case of copyright infringement and theft (Wade, 2004). Therefore, business organizations today use loss prevention to lessen the likelihood of high-technology theft as much as possible. That is why a framework proposed in this study is important for both academic researchers and business practitioners.

This study differs from previous works in three critical ways. First, this study is the first to apply an educational perspective of information cascades to explore behavioral intention in IT ethics. Second, while previous research regarding information cascades only examines perceived others’ action as a critical antecedent, this work provides an extended framework of information cascades theory (EFICT) by additionally including perceived extrinsic and intrinsic motivations that affect both perceived signal and behavioral intention. Knowing the direct and indirect influences of motivational antecedents on behavioral intention can help bring on implications about the immediate impacts and strategies to deal with such impacts. Finally, perceived risk is considered in the framework that has not been considered in traditional information cascades. Indeed, perceived risk of the unethical action (PRUA) may play an important moderator in the formation of behavioral intention. For example, IT users may choose not to pirate software as their peers did, only because they feel a high level of perceived risk of pirates (e.g., heavy monetary penalty).

The Background of Information Cascades Theory

The literature of information cascades has presented that individuals usually stick to the actions identical to those performed by other people in the same circle or society, even if those actions are inferior (Tingling and Parent, 2003). Information cascades may result from rational inferences that others’ decisions or actions are based on information that dominates one’s own signal (Anderson and Holt, 1997). Specifically interesting is the possibility of reverse cascades: the initial decision makers are unfortunate to observe private signals that imply the misinformed state, and a large number of followers may join the resulting pattern of “mistakes,” despite the fact that their private signals are more likely to indicate the correct state precisely (Anderson and Holt, 1997). The information cascades theory may take into account both the value propositions of a specific action and the uncertainty of those propositions, with respect to the novel behavior (Bikhchandani, Hirshleifer, and Welch, 1992, 1998).

The information cascades theory demonstrates how the uncertainty about value propositions may cause fad-like action in the adoption of novel behavior (Song and Walden, 2003) - that is, information cascades are attributed to mimetic isomorphism, or rather a process wherein individuals achieve legitimacy in their circle or society by mimicking other people in the circle or society (Deephouse, 1996; DiMaggio and Powell, 1983; Haveman, 1993). Being originally an institutional theory describing how business organizations make decisions, the behavioral suggestions of mimetic isomorphism have been captured in the information cascades theory from an economic consumer aspect. Fortunately, such a theory may also be applied towards explaining the behavioral intention of individuals given that mimetic isomorphism is a behavioral theory (Deephouse, 1996; DiMaggio and Powell, 1983; Haveman, 1993). Figure 1 shows the traditional concept of information cascades using software pirates as an example. The theory suggests that others’ action in most cases brings on the perceived signal that the action may be
worth trying, and this perceived signal consequently influences individual behavioral intention.

**Figure 1. The Theoretical Concept of Information Cascades Theory**

Based on the information cascades theory, this study proposes an extended framework of information cascades theory (EFICT) as an excellent description of ethical behavioral intention in Figure 2. Figure 2 shows this study’s EFICT with the inclusion of perceived intrinsic and extrinsic motivations. There is growing interest in what motivates people’s intention to behave ethically or unethically given that previous studies have estimated monetary losses at billions of dollars annually arising from unethical information use such as anonymous defamation, spread of computer viruses, software piracy, unauthorized information access, computer fraud, and corporate sabotage using computers in the United States (Fitzpatrick, 1995). While perceived extrinsic motivation (e.g., usefulness, efficiency, productivity, and benefits) is strongly related to users’ behavioral intention, directly and indirectly across different studies (Davis, 1989; Davis, Bagozzi and Warshaw, 1989), research on the role of perceived intrinsic motivation (enjoyment, fun, unique, hedonic, and playfulness) is found to have a similar influence to that of the perceived extrinsic motivation (Davis, Bagozzi and Warshaw, 1992).

In summary of EFICT in Figure 2, perceived intrinsic motivation (PIM), perceived signal suggesting the action is worth trying (PS), and perceived extrinsic motivation (PEM) all have direct influences on behavioral intention towards IT (BI), while perceived others’ action towards IT (POA), PIM, and PEM all have indirect influences on BI through the mediation of PS. Additionally, the linkages from PIM, PS, and PEM to BI are moderated by perceived risk of the unethical action (PRUA). The PRUA of IT users includes a variety of potential risks such as receiving stiff penalties, being illegal, infamous, or jailed, and so on.

**Figure 2. Extended Framework of Information Cascades Theory in IT Ethics**
POA, PS, and BI

The probabilities of information cascades are considerably more complex to derive (Song and Walden, 2003), because they depend upon the perceived base rate of the occurrence in individuals’ surroundings, the perceived strength of private signals, and their behavioral intention reflected in the sequence (e.g., Song and Walden, 2003). The central prediction of EFICT on behavioral intention in Figure 2 is that individuals with a behavioral intention to a specific action are influenced indirectly by perceived others’ action (POA), which results relatively in the perceived signal suggesting that the action is worth trying.

The perceived others’ action (POA) is an important social factor that ultimately influences individuals’ behavioral intention to do things ethically or unethically. For example, Limayem, Khalifa, and Chin (2004) find in a study of Canadian university students that social factors significantly influence the behavioral intention to illegally copy software. Their arguments are also confirmed by Shin, Gopal, Saunders, and Whinston (2004) who present that cross-country variation in rates of software piracy is directly associated with the degree of social collectivism. This evidence suggests an important role of perceived others’ action during the intention formation in IT ethics. Previous research regarding information cascades has also noted that “bandwagon effects” in consumer purchases, politics, and the adoption of IT may be due to inferences about others’ private information that people make by observing others’ actions (Anderson and Holt, 1996). The tendency for people in groups to think and have similar intentions seems to imply some kind of irrationality, such as a loyalty-induced psychological motivation to be in accord with group members (Shiller, 1995), suggesting the influential power of information cascades.

In this study, EFICT suggests that individuals with a substantial mimetic characteristic may be in general quite sensitive to others’ action, stimulating their contemplation of whether the action is good (superior) or not. Particularly, the perceived positive signal suggesting that the action is worth trying is likely to emerge among individuals when they identify a high rate of the action performed in their circle or at their institution, leading to their attempt to imitate others’ action, which to them seems right. Individuals’ behavioral intention to the action is therefore strengthened given that individuals often have an inclination to perform behaviors identical to those performed by other people in their circle or society, even if the behaviors are not ethical.

An example of software pirates may be provided for reference as the following process. First, individuals found that software pirates are a common phenomenon by others (POA). Second, the phenomenon signals to them that the action of pirates is worth trying (PS). This is understandable, because people who interact with each other regularly tend to think and have similar behavioral intention (Shiller, 1995). Finally, their behavioral intention (BI) may be strengthened given a low perceived risk of the pirates or may be weakened given a high perceived risk of the pirates (or considered PRUA). Consequently, the above discussion leads to POA being related to PS, whereas PS is related to BI given a moderating effect of PRUA.

PIM, PEM, and BI

The EFICT embeds motivational variables related to IT in order to gain a better understanding of behavioral intention and the underlying processes involved. Motivation research often distinguishes between two broad classes of perceived motivation to perform an action: perceived intrinsic motivation and perceived extrinsic motivation (e.g., Scott, Farh and Podsakoff, 1988). Perceived extrinsic motivation refers to the perceived performance or productivity of an activity, because it is perceived to be
instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, or enhanced productivity, pay, or promotions (Davis et al., 1992). Whereas perceived extrinsic motivation affects behavioral intention due to the reinforcement value of outcomes, perceived intrinsic motivation refers to the performance of an activity for no apparent reinforcement other than the process of performing the activity per se (Davis et al., 1992). Within this dichotomy for perceived motivation, perceived enjoyment is a typical example of perceived intrinsic motivation, while perceived usefulness is a typical example of perceived extrinsic motivation.

A study by Davis et al. (1992) supports an assumption of this present study in that perceived extrinsic and intrinsic motivations are relevant for users’ behavioral intention in an IT context. Although this perspective is used by Davis et al. (1992) for predicting users’ intention to perform the behavior of using IT, such intention is analogous to the intention to perform IT piracy. It is not surprising, because an IT product (e.g., software) which is neither useful nor fun is unlikely to attract widespread pirates. For example, Davis (1989) points out that the perceived usefulness (considered a typical PEM) appears to exhibit a stronger and more consistent relationship with behavioral intention than other variables reported in previous literature, including various attitudes, satisfaction, and perception measures.

Of course, this does not mean that an IT product that is perceived as either fun or useful will be definitely pirated in widespread use, because it also depends on PRUA accordingly. For instance, the software used by professionals in business organizations is less likely to be pirated given a high PRUA, even if the software is very useful or hedonic. On the other hand, individuals who perceive a low level risk of pirating are apt to duplicate the IT (low PRUA) illegally at home when they feel the IT is useful or fun in their work or life (PEM). Thus, the above discussion leads to PIM and PEM being related to BI given PRUA as a moderator.

IM, EM, and PS

Much of the work on the role of intrinsic motivation in computer use has been done in the context of computer games (Davis et al., 1992). Carroll and Thomas (1988) suggest that enjoyment (considered a typical PIM) is a key factor underlying the user action of using specific IT, signaling that PIM is likely to influence PS. Given the intrinsically motivating ability of, for example, computer-based games (e.g., Malone, 1981), this should not be too surprising (Davis et al., 1992). For example, gamers who perceive specific games to be fun and enjoyable are likely to mimic whatever others’ action (e.g., either pirating or buying) is in order to get the games so as to favorably participate in the games with others. Particularly, when individuals are attracted to specific software, they will naturally think of having the software by following suit of others’ action. Similarly, when specific IT is perceived as useful (a typical PEM) in individuals’ life or work, the individuals who are driven by the PEM are likely to consider the others’ action worth trying (PS). In summary, the above discussions consequently lead to both PIM and PEM being related to PS.

CONCLUSION

This study provides an illustrative example of how EFICT may be tailored to fit the issues of IT ethics in the area of education. Though several theories such as TRA and TPB, which have been influential in prior research of IT ethics, continue to provide adequate explanations for understanding individual ethical behavioral intention in the IT context, they may not sufficiently explain the behavioral suggestions of mimetic isomorphism, which have been well demonstrated in the information cascades
theory from an economic perspective. Indeed, individuals’ behavioral intention seems in accordance with the phenomenon of information cascades. This implies that individuals’ behavioral intention in the IT educational context, ethically or unethically, would be strengthened indirectly based upon the perception of others’ action towards the IT rather than purely information from textbooks. Hence, creating positive information cascades - by, for example, providing the IT at reasonable prices - is likely to generate the chain reaction of legal IT usage and consequently encourages the ethical behavioral intention towards the IT. The perceived motivations in this study imply that people’s intention to perform an action related to specific IT, ethically or unethically, is influenced not only by their perceptions of how useful the IT is for improving their work (considered PEM), but also by the degree of enjoyment they experience in using the IT per se (considered PIM). Furthermore, educating IT users with examples of the serious consequences of unethical action towards the IT may prevent the unethical events from happening.

The influence of perceived others’ action is crucial given the popular phenomenon of mimetic isomorphism in a human society. Individuals who perceive others’ pirating of IT at a high rate may often lead to a wrong signal strengthening the view that their following suit may be a good idea. In other words, when others’ pirating at a high rate is perceived, individuals’ lack of cognitive dissonance between others’ action and their own is likely to result in a strong doubt about their decision to buy the copyrighted IT.

Periodic surveys designed by educators on IT users for PIM, POA, PEM, and PS can be useful checkpoints to know in depth about their behavioral intention towards IT. Through the scanning of their perceptions, marketers can filter out the users who are likely to have unethical behavioral intention in the beginning and consequently re-educate them by amplifying the risk they might face under the circumstance of pirating. In other words, information cascades occur when it is optimal for an individual, having observed the actions of those ahead of him, to intentionally follow the behavior of the preceding individual without regard to his own information (Bikhchandani et al., 1992). It is important to deter unethical behavioral intention (e.g., IT pirates) via user or consumer education in the first place so that negative information cascades can be substantially lessened. For example, Hong Kong police have occasionally cracked down on the sale of pirated products in certain districts, especially those areas well known for the sale of counterfeit goods (Walls and Harvey, 2006). These events by police have been used as a good lesson for people in Hong Kong and it has been particularly effective for those who have an intention to buy the goods in the districts and efficiently deters the pirates due to their high PRUA. Given that PRUA is an important moderator, registering trademarks and copyrights will also secure the intellectual property of IT organizations, such as the right to sue in court, and will consequently discourage those who have unethical behavioral intention.

Limitations and Future Research

This study suffers from several limitations. The theoretical framework proposed herein makes up the first limitation. Given that the framework developed in this study benefits IT ethics from the information cascades angle, empirical studies may provide an additional complementary on the proposed framework via testing from either a cross-sectional or a longitudinal design. However, note that empirical studies might have their own weaknesses such as the possibility of a common method bias by using a questionnaire to measure all constructs, limited generalizability due to different national laws across countries, and so on. Second, the framework proposed by this study does not consider cultural differences. As cultural psychologists suggest that national cultural differences may influence users’ (or
consumers’) evaluations in the IT context, the framework of this study should not be construed to be representative of IT users from all the countries. Cultural differences were not considered in this study since our goal is to establish an initial model of behavioral intention in IT ethics from the perspective of information cascades, which has not been previously tried yet. Nevertheless, this study helps facilitate future researchers to develop extensive models based on the framework proposed herein.

REFERENCES


