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SOFTLIFTING: EXPLORING DETERMINANTS OF ATTITUDE

Softlifting, or the illegal duplication of copyrighted software by individuals for personal use, is a serious and costly problem for software developers and distributors. In order to understand what motivates individuals to engage in the behavior, it is important to understand the factors that determine attitude toward softlifting. We examined a number of factors, including personal moral obligation, perceived usefulness, and awareness of the laws and regulations governing software acquisition and use, along with facets of personal self-identity that may play a role in the development of attitudes and intentions regarding this behavior. These factors were examined across multiple settings expected to be pertinent to our survey respondents: home, work and school. Personal moral obligation and perceived usefulness were significant predictors of attitude across all settings. Past behavior was a significant predictor of intention across all settings, and a significant predictor of intent in the home setting. We found evidence that awareness of the law causes a less favorable evaluation of softlifting in the school setting only, but had little effect in the home and work settings. As in previous studies, attitude is a significant predictor of intent. We did not find indications that one’s personal self-identity influences one’s attitude towards the behavior and the intention to perform it, except in the case of legal identity, where marginally significant effects were found in the work environment.

Key Words: Softlifting, Ethics, Piracy, Personal Moral Obligation, Attitude
Introduction

The personal computer revolution that began in the early 1980's has spread from business to school to home. The ubiquitous presence of PCs has long been taken for granted in businesses large and small. Use of PCs in academic institutions has likewise become commonplace. Almost 40% of American homes now contain at least one PC (Frand et al., 1988; Render and Stair, 1987; Software Publishers Association, 1997). While this explosive growth in the acceptance and use of personal computers has proved beneficial in many ways, it is accompanied by some disturbing side effects. One of the most serious of these is the illegal duplication of copyrighted software, or software piracy.

The cost to society of software piracy is huge. Several studies have indicated that anywhere from 50% to 90% of PC business applications in use worldwide are illegal copies (Business Software Alliance, 1997). As a consequence, annual revenue losses of software developers and distributors have averaged approximately $12 billion over each of the last three years (Robinson and Reithel, 1994). Nearly one-fourth of these losses occur in the United States and Canada, directly affecting over 11,000 companies (Taylor and Shim, 1993). There are other less obvious costs as well.

The price legitimate users pay for software is inflated to make up for the lost revenue from pirated copies (Eining and Christensen, 1991; Taylor and Shim, 1993). Developers have less incentive to bring new products to market (Solomon and O’Brien, 1990). In order to avoid the potential litigation and negative publicity that comes from being labeled a software pirate, organizations must devote a portion of management attention and effort to preventing the corporate use of pirated software (Solomon and O’Brien, 1990). Users of illegally copied software do not have access to user manuals,
vendor technical support, or upgrades, introducing inefficiencies into the organization and threatening data integrity (Eining and Christensen, 1991). Perhaps the most subtle and insidious cost of piracy is the erosion of ethics it encourages. Software is property - intellectual property, but property nevertheless - and taking another’s property without compensation is stealing. Although justified by many as a victimless crime or harmless economic shortcut, this attitude may lead to other “victimless” or “harmless” practices, further weakening the ethical underpinnings of individuals and organizations (Taylor and Shim, 1993).

Consequences of illegally copying software are also quite costly. Organizations and employers can be held liable for the acts of their employees, even if those acts are concealed from management (Robinson and Reithal, 1994). Employees of state agencies, including colleges and universities, are subject to action in federal court for copyright infringement. Individuals engaged in copyright infringement are subject to civil liability and criminal prosecution: software piracy is a felony (Koen and Im, 1997).

An interesting sidebar to the subject of software piracy is a study by Givon et al. (1995), which argues that piracy is, in essence, a "shadow diffusion" of software that parallels its legal diffusion. This shadow diffusion may increase future purchases of the software over time, either through word-of-mouth influence on potential buyers, or as a form of try-before-you-buy sampling. However, there are some caveats to be considered. First, this research is mainly limited to certain types of software, where the consumption utility depends on the total user base, as opposed to technically specialized software (Conner and Rumelt, 1991). Second, Givon et al. do not argue that piracy is 'good', but rather that some firms may wish to consider using positive marketing mechanisms, as
opposed to punitive measures, to encourage the conversion of shadow diffusion to legal diffusion. While Givon et al. have raised some intriguing issues, the bottom line remains that the preponderance of research to date indicates that software piracy has a variety of negative consequences.

A number of initiatives have been instituted to stem the rising tide of software piracy. Trade associations such as the Software Publishers Association (SPA) and Business Software Association (BSA) are becoming more aggressive in identifying and prosecuting pirates. Academic institutions are increasingly including ethical education in their curriculum (Simpson et al., 1994). However, these efforts appear to have had minimal impact on the problem (Koen and Im, 1997; Christensen and Eining, 1991; Simpson et al., 1994; Taylor and Shim, 1993). It may be more effective to take an alternative approach based on gaining a fuller understanding of how information technology innovations are spread or diffused among individuals. Once this is done, it may be feasible to develop measures to slow or prevent undesirable diffusion such as software piracy.

The viability of using innovation diffusion theory to study information technology diffusion is well established (see Prescott and Conger, 1995, for a thorough review). This paper extends that vein of research by examining an IT phenomenon within the context of both traditional innovation diffusion theory (Rogers, 1983; 1995) and intention models rooted in behavioral decision theories from the area of social psychology. The current study is unique, however, in the IT diffusion literature for three reasons. One, it explores the specific IT phenomena of software piracy from the hitherto unutilized perspective of innovation diffusion. Two, the underlying motivation of the study is the prevention of
diffusion. Three, attitudes towards diffusion intention were explored across multiple environments (home, work and school).

The paper is organized as follows. Relevant literature concerning software piracy is reviewed, followed by a discussion of behavioral intention theories and innovation diffusion theory. Then the research model is presented, the methodology employed is described, and the results are analyzed. Finally, the findings are discussed, along with implications for practitioners and future avenues for research.

Software Piracy

There have been a number of studies examining software piracy. One research stream has focused on identifying demographic characteristics related to piracy. In general, findings have indicated that there are linkages between certain demographic factors and differences in attitudes toward the illegal copying of software. For example, gender and age appear to partially account for differences in attitudes concerning piracy (Solomon and O’Brien, 1990; Sims et al., 1996). Similarly, career orientation (e.g., college faculty versus business managers, major area of study) may also be related to differing attitudes about piracy (Shim and Taylor, 1991; Solomon and O’Brien, 1990; Taylor and Shim, 1993). While this research may be useful in constructing a profile of potential software pirates, it does little to help explain why software piracy behavior is linked to certain demographic characteristics.

A second research stream approaches software piracy from an ethical perspective: that is, to what extent do ethical factors influence an individual’s propensity to engage in software piracy (Harrington, 1989; Logsdon et al., 1994; Oz, 1990; Simpson et al., 1994; Swinyard et al., 1990; Chang, 1998; Thong and Yap, 1998). This approach provides a
theoretical framework for examining piracy, but the resultant studies have been inconclusive - "application of ethical decision making models to software piracy ... has not provided significant results" (Glass and Wood, 1996; p. 1190). One explanation for this is a basic assumption of ethical decision-making models: in order for the model to be applicable, the individual making the decision must recognize it as a moral or ethical decision (Jones, 1991).

"If the individual is ethically insensitive - that is, he or she does not perceive a situation posed to him of her as having ethical content - then subsequent elements of the model do not come into play." (Thong and Yap, 1998; p. 217)

Since there is reason to believe many individuals do not think of software piracy as an ethical issue (Solomon and O'Brien, 1990), the choice of an ethical model may not be appropriate. Even if the decision to copy or not to copy software is perceived to be an ethical one, the concept of moral intensity (Jones, 1991) may serve to limit the significance of findings. Moral intensity postulates that there are six characteristics, or categories, of a particular issue that affect moral decision-making. People make an ethical decision based on their evaluation of the choice in light of these individual characteristics. As Logsdon et al. (1994) have shown, software piracy ranks toward the low end of the spectrum in each category of moral intensity.

In short, most people do not consider software duplication as an ethical issue. Of those who do, most consider it low in moral intensity. The combination of these two conditions limits the applicability of ethical theories as a basis for understanding software piracy behavior.
Other approaches have focused on understanding software piracy behavior by examining situational and individual normative variables (as opposed to demographic characteristics). Eining and Christensen (1991) introduced one of the first models to take these factors into account. Their model is loosely based on Fishbein and Ajzen’s (1975) theory of reasoned action, which posits that intentions precede behavior, and are in turn preceded by attitudes toward a particular behavior (i.e., the individual’s favorable or unfavorable evaluation of the consequences of performing a particular behavior), and subjective norms related to that behavior (i.e., the individual’s perception of important others’ expectations about whether he or she should perform or not perform the behavior). Eining and Christensen customized this model to include attitudes toward computers, material consequences, normative expectations, socio-legal attitudes, and effective or emotional factors as determinants in an individual’s intention to engage in software pirating behavior. Their results indicate that computer attitudes (i.e., the individual’s disposition toward computers and the role they play in society), material consequences (i.e., the individual’s perceived value of gains and losses, including the possibility of punishment, related to software piracy), and normative expectations (i.e., the individual’s internalized norms, along with the perceived opinions of important others regarding software piracy) are significant factors in helping to explain piracy.

Drawing from both the ethical perspective research stream and Eining and Christensen (1991), Simpson et al. (1994) designed a model of determinants to explain software piracy behavior. Their model includes a stimulus to act (the factor which prompts the decision to copy or not copy software), socio-cultural factors, legal factors, personal factors, and situational factors. Their study found that personal variables
(including attitudes, motivations, and beliefs related to software piracy) and situational variables (e.g., not having time to purchase software) were significant when regressed on the dependent variable, propensity to pirate software.

Peace and Galletta (1996) advanced the study of piracy behavior in two ways. First, following developments in the social psychology field, they modified Eining and Christensen’s (1991) theoretical framework from one based on the theory of reasoned action to one based on the theory of planned behavior. Second, they decomposed certain elements of the theory of planned behavior into multiple variables that influence the theory of planned behavior’s primary components in a software piracy context. Their results are consistent with Eining and Christensen (1991) and Simpson et al. (1994) in indicating that attitudinal factors play a significant role in predicting piracy behavior.

This study will build on the findings of previous research as they relate to the notion of attitude. We will also draw on social psychology as a referent source for our theoretical foundation, most notably the stream of behavioral intentions research. The contributions of this study are threefold: 1) a closer appraisal of specific factors that influence attitude formation in the context of software piracy; 2) an assessment of the effect of different settings on the tendency to pirate software; and 3) concentration on a specific form of piracy, namely softlifting (defined on page 8).

One of the key constructs in innovation diffusion is attitude (Karahanna et al., 1999; Rogers, 1995). This construct also plays a pivotal role in behavioral decision theories such as the Theory of Reasoned Action (Fishbein and Azjen, 1980), the Theory of Planned Behavior (Azjen, 1985; 1991), and the Technology Acceptance Model (Davis,
1989; Davis et al., 1989). Prior research has indicated that attitude is significantly correlated with piracy behavior (Peace and Galletta, 1996; Simpson et al., 1994). By identifying specific dimensions that influence attitude formation related to softlifting, the research model points out opportunities to affect the perception of such behavior, potentially resulting in a decrease in the diffusion of pirated software.

Little of the prior research into software piracy behavior has included the setting as a significant variable. One notable exception is Eining and Christensen (1991), which included employment status as one of the demographic variables. They found it to have a significant positive correlation with piracy behavior. In a similar vein, this study examines piracy in the context of three different settings: home, school, and work. This approach is based on the notion that the behavioral intentions of an individual may vary depending on where they are. For example, decisions made in the workplace correspond to the values of the job environment, which may or may not be an accurate representation of the individual’s values (Bommer et al., 1987; Weber, 1991). Following these studies, we raise the question of whether or not the setting influences attitude toward the specific software piracy behavior of softlifting.

The generic term “piracy” can be subdivided into three distinct types of behavior: commercial piracy, or the illegal duplication of copyrighted software for resale; corporate piracy, or the illegal duplication of copyrighted software for use within an organization; and softlifting, or the illegal duplication of copyrighted software by individuals for personal use (Athey and Zmud, 1987; Koen and Im, 1997). Previous studies have made

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1 The Software and Information Industry Association provides a more comprehensive definition of softlifting: "purchasing a single licensed copy of software and loading it on several computers, contrary to the license. This includes sharing software with friends, co-workers, and others"
little distinction between these different types. This paper will focus on determinants that may influence an individual's propensity to engage in a specific form of software piracy; to wit, softlifting.

Behavioral Intention Theories

The underlying conceptual foundation of much recent research involving behavioral intention theories was laid by Fishbein and Ajzen (1975). In general, this approach argues that beliefs influence attitude, which in turn influences behavioral intention, which then influences the actual behavior. Beliefs represent the information an individual has (or more accurately, thinks he has) about an object. More specifically, a belief links an object to one or more attributes, and assigns a degree of certainty to those associations. Attitude is broadly defined as a general feeling of favorableness or unfavorableness towards performing a given behavior. Behavioral intention is the individual's subjective probability that he will in fact perform a given behavior. Behavior is an overt, observable act.

This basic framework has lead to the construction of several theories, most notably the Theory of Reasoned Action (Azjen and Fishbein, 1980), Theory of Planned Behavior (Azjen, 1985; 1991), and the Technology Acceptance Model (Davis, 1989; Davis et al., 1989).

The Theory of Reasoned Action (Fishbein and Ajzen, 1975) argues that an individual's behavior is determined by that person's intention to perform (or not perform)

(www.sia.net/piracy/programs/backgrunder.htm#problem). We interpreted "sharing software with others" to be bi-directional. That is, it encompasses both an individual illegally providing others with a copy of software, as well as an individual illegally using copied software provided by others. This was made clear to the participants in this study (see Appendix A). Our thanks to the anonymous reviewer who called attention to the need for clarification on this point.
that behavior. The intention, in turn, is based on two factors: the individual's attitude toward the behavior, and the individual's subjective norms. The theory of reasoned action goes on to suggest that a person's attitudes are a function of the person's beliefs that engaging in a given behavior will result in certain consequences, either positive or negative. Similarly, a person's subjective norms are derived from normative beliefs regarding the desirability of engaging in a given behavior.

The Theory of Planned Behavior (Ajzen, 1985) adds the notion of perceived behavioral control to the Theory of Reasoned Action. Note that perceived behavioral control influences both intentions and behavior. The link from perceived behavioral control to intention is indicative of the assumption that when individuals perceive they have little or no control over performing the behavior due to a lack of opportunity or resources, then the intention to perform the behavior will decrease even if attitude and subjective norms toward the behavior are favorable. The link between perceived behavioral control and behavior reflects the actual or perceived control a person has over the behavior.

Both of these theories have been used with success in a number of different settings. Sheppard et al. (1988) conducted a meta-analysis of 86 studies based on the theory of reasoned action that validated the effectiveness of the model. Similarly, researchers have found the theory of planned behavior to be useful in predicting behavior across a wide range of activities. These activities include an individual's intention to use an information system (Mathieson, 1991), ethical decision making in the medical profession (Randall and Gibson, 1991), intention to commit driving violations (Parker et al., 1992), adoption of a consumer product innovation (Taylor and Todd, 1995b),
intention of managers to benchmark (Hill et al., 1996), and, of particular relevance to this study, software piracy (Chang, 1998).

IS scholars have long incorporated behavioral intention theories in their research. Swanson (1982) used Fishbein and Azjen's (1975) initial model as a reference base in his early research on the concept of an MIS attitude. Other IS researchers have used behavioral intention theories to examine intention to use a specific information system (Mathieson, 1991), student use of a computer resource center (Taylor and Todd, 1995a), adoption of IT in a small business environment (Harrison et al., 1997), and software piracy (Chang, 1998). Perhaps the greatest impact of behavioral intention theories on the IS field has been the development of the Technology Acceptance Model (Davis, 1989; Davis et al., 1989).

The Technology Acceptance Model is derived from the Theory of Reasoned Action. The Technology Acceptance Model posits that behavior, or IT usage, results from behavioral intentions. Intentions are determined by attitude, which in turn is determined by the individual's beliefs about the technology's perceived usefulness and perceived ease of use. The merit of this model in predicting a user's acceptance and use of a technology has been demonstrated by a number of studies (Adams et al., 1992; Davis et al., 1989; Mathieson, 1991; Szajna, 1994; Taylor and Todd, 1995a; Rose and Straub, 1998).

**Diffusion of Innovation Theory**

The classic definition of diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995; p. 5). One important aspect of this definition is the concept of diffusion as a process. Rogers (1995) describes this process as consisting of five stages:
1) knowledge, during which the entity\(^2\) becomes aware of an innovation's existence and acquires some understanding of it; 2) persuasion, during which the entity forms an attitude towards the innovation; 3) decision, during which the entity engages in activities that result in adoption or rejection of the innovation; 4) implementation, during which the entity utilizes the innovation; and 5) confirmation, during which the entity avoids or reduces dissonance related to the innovation adoption/rejection decision by seeking reinforcement or reversing the decision. Of particular interest to us is the persuasion stage, with its emphasis on attitude formation. This dovetails nicely with the role attitude plays in both behavioral intentions theories and previous software piracy research.

Before proceeding to a discussion of attitude and innovation diffusion, it is necessary to reflect on two issues inherent in existing research on diffusion. The first, acknowledged by several investigators, is the pro-innovation bias present in much of the studies to date (Abrahamson, 1991; Downs and Mohr 1976; Kimberly, 1981; Rogers, 1995; Van de Ven, 1986). Pro-innovation bias is the often unstated but generally implied assumption that innovations are beneficial, and subsequently worthy of diffusion and adoption throughout organizations and society. Underlying this bias is another supposition - one which Abrahamson (1991) calls the "efficient-choice perspective" (p. 587). This is based on the view of the actor as rational, in that a rational actor will not adopt an inefficient innovation, or likewise will not reject an efficient one. However, the efficient-choice perspective overlooks the role perception plays in the adoption/rejection decision (Rogers, 1995). For example, an effort by public health officials in Egypt to

\(^2\) Recall that one element included in the definition of diffusion is "members of a social system", which can include individuals, groups, or organizations. Although this paper's focus is on individuals, the process of diffusion is equally applicable to any set of members, hence the use of the term "entity".
persuade villagers to use a new, chemically pure water system in place of canal water was largely unsuccessful, in part due to the villagers' perception that their zirs\(^3\) purified the water (Rogers, 1995). In order to overcome pro-innovation bias, several researchers have pointed out the need to examine the factors behind an individual's decision to adopt or reject an innovation (Abrahamson, 1991; Baskerville and Pries-Heje, 1998; Rogers, 1995; Van de Ven, 1986). Since attitude is a key factor in determining behavior (e.g., adoption or rejection of an innovation) (Ajzen, 1985; Rogers, 1995), understanding how an individual's attitude towards an innovation is shaped is an important step in surmounting pro-innovation bias.

A second issue related to diffusion research is the lack of attention given to situations in which it might be desirable to deliberately impede the diffusion of a given innovation (Baskerville and Pries-Heje, 1998). There are a number of circumstances in which the diffusion of an innovation may not be desirable. Examples include non-proliferation of nuclear, chemical, or biological weapons, safekeeping security-related technology such as encryption, and preservation of proprietary technology. Our focus here is on the preservation of proprietary technology (i.e., software) by taking a first step towards an increased understanding of the underlying factors leading to the formation of an individual's attitude regarding softlifting.

Returning now to Rogers' (1995) five stages of the diffusion process, we focus on Stage II - persuasion. It is important to note that Rogers defines persuasion not as an attempt to change an individual's attitude, but rather as the formation of an attitude

\(^3\) A zir is a traditional earthen vase used to store water. As the water sits, visible impurities settle to the bottom of the vase, resulting in clear water that is perceived by the villagers to be pure. Consequently, they see no need for the innovation; that is, the piped water system supplied by the government.
toward an innovation. "The main outcome of the persuasion stage in the innovation-diffusion process is either a favorable or unfavorable attitude toward the innovation" (Rogers, 1995; p. 169). This is key, because there is a tendency for attitude and behavior to be consistent (Ajzen, 1991; Rogers, 1995). In other words, if a person's attitude toward an innovation is favorable, that person will tend to adopt it.

Also occurring in the persuasion stage is the individual's efforts to attain what Rogers terms "innovation-evaluation information" (Rogers, 1995; p. 168). This is where an individual attempts to determine the advantages and disadvantages of the innovation, and the consequences of using (or not using) it. A parallel can be drawn between this and the assertion of behavioral intentions theories that attitude is a function of beliefs about the consequences of performing a behavior, and the individual's evaluation of those consequences.

From the preceding discussion, it is apparent that there are certain similarities in the behavioral intentions perspective and the innovation diffusion perspective. These similarities have been noted by other IS researchers. Taylor and Todd (1995a) integrated the behavioral intentions and innovation literature in comparing models from both lines of research to examine student use of a computer resources center. Karahanna et al. (1999) combined aspects of the Theory of Reasoned Action with innovation diffusion theory to study pre-adoptions and post-adoptions beliefs and attitudes towards a technology innovation. In a like vein, we have linked the two perspectives by focusing on the role attitude plays in an individual's intention to softlift, and the determinants of that attitude.

Theoretical Determinants of Softlifting
IS researchers utilizing both a behavioral intentions perspective (e.g., Harrison et al., 1997) and an innovation diffusion perspective (e.g., Chau and Tam, 1997) have pointed out the necessity of refining and tailoring a theory to fit a specific research context. Thompson et al. (1991; 1994) selected a subset of constructs from an attitude and behavior model for further examination in a specific context. We have adopted this approach in restricting our focus to the role attitude and its determinants play in an individual's intention to softlift. We chose to concentrate on attitude because of its prominent role in both behavioral intentions models and innovation diffusion theory. This approach also coincides with studies that have found a significant relationship between attitude and software piracy (Peace and Galletta, 1996; Simpson et al., 1994). To further refine our theory, we decomposed the attitudinal component into what we think are relevant belief dimensions applicable to softlifting.

The following variables are included in the research model (Figure 1) as antecedents to attitude towards softlifting and intention to softlift.

---- insert Figure 1 here ----

**Perceived Usefulness.** There are basically three ways an individual can acquire software; develop it, purchase it, or softlift it. For most commonly used applications, developing it is impractical. This narrows the choice to purchase or pirate. If softlifting a piece of software can increase a person's performance without increased effort or cost, or maintain the level of performance and decrease effort, the action of softlifting will be perceived as useful by the individual, resulting in a more positive attitude toward softlifting behavior. This parallels the notion of perceived usefulness, or the relative
moral obligation to have a strong effect on the attitudes of individuals toward piracy behavior. Banerjee et al. (1998) found what they term "personal normative belief", which they defined as moral obligation, to significantly influence an IS employee's intention to behave ethically or unethically. Thus it seems reasonable to expect that an individual with a strong or highly developed sense of personal moral obligation would look askance at illegal or ethically questionable behavior such as softlifting, resulting in the following hypothesis.

H3: The more an individual’s sense of moral obligation runs counter to the notion of softlifting, the less favorable his or her attitude will be toward softlifting.

Personal identity, sometimes referred to as self-concept, consists in part of the attributes individuals use to characterize themselves. Triandis (1979) speculates that personality variables, including self-concept attributes, may have a linkage with attitude. In this study, the particular attributes of interest that are believed to affect the intention to softlift are an individual’s risk-taking personal identity, legal personal identity, and technical personal identity.

- Risk-Taking Personal Identity

Risk-taking personal identity is the extent to which one considers himself or herself to be a risk-taker. An individual’s propensity for risk-taking is influenced by how he perceives himself. For example, if he sees himself as a daredevil, he may engage in such activities as sky-diving or bungee-jumping. Similarly, an individual with a personal identity inclined toward risk-taking may copy software because he perceives it as a risky endeavor, at least in terms of potential consequences. When Sims et al. (1996) found that

behavior, event, item, etc. (Fishbein and Ajzen, 1975).
improvement in performance as a result of adopting a particular system or technology (Davis, 1989). This view of perceived usefulness is supported by Taylor and Todd’s (1995a) decomposition of the attitude component of the theory of planned behavior to include perceived usefulness as antecedent to attitude, leading to the following hypothesis.

**H1:** The greater an individual perceives the usefulness of softlifting, the more favorable his or her attitude is toward softlifting.

*Awareness of the Law.* Attitude has been described as “a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object” (Fishbein and Ajzen, 1975; p. 6). The key aspect here is “learned”. An individual may be unaware, or may have not learned, about certain potential consequences of a particular behavior. As awareness is increased, an individual’s attitude may change. For example, a toddler may view a stove as a large, harmless white object. His attitude toward it is neutral. However, if he burns himself on it, he has become more aware of the potential consequences of touching it, and his attitude changes to one of caution or fear. In a like manner, many people have “little understanding of the restrictions and penalties for software copying” (Eining and Christensen, 1991; p. 187). As their awareness of copyright law and the consequences (to them) of breaking it increase, their attitude toward softlifting should become less positive. This leads to the next hypothesis.

**H2:** The more an individual is aware of laws regarding software copying, the less favorable his or her attitude will be toward softlifting.

*Personal Moral Obligation and Personal Identity.* Some behavioral intention theories differentiate between three types of beliefs; behavioral, normative, and control.
(Ajzen, 1991). Although normative beliefs are primarily subjective in nature, the theoretical framework is open to the inclusion of personal norms (Beck and Ajzen, 1991). Because individuals differ in the extent to which they are influenced by internal beliefs or norms as opposed to situational conditions (Gorsuch and Ortberg, 1983; Snyder, 1974), in certain contexts it is appropriate to consider the influence of personal norms such as personal moral obligation and personal identity on attitudes and behavioral intentions. This may be particularly relevant in cases of dishonest or unethical behavior such as softlifting.

- **Personal Moral Obligation.**

Attitude toward a behavior is a function of the individual's beliefs that performing that behavior will result in certain outcomes, and the individual's evaluation of those outcomes (Fishbein and Ajzen, 1975; 1980). Personal Moral Obligation (PMO) is an individual's moral stance about performing that behavior, or how the individual feels about performing the behavior, as opposed to his evaluation of the outcomes of performing the behavior (Beck and Ajzen, 1991). Personal Moral Obligation reflects whether the individual feels guilty because he violated an internalized norm, or does not feel guilty because the behavior was consistent with the norm. This feeling of guilt (or lack of the same) may be particularly relevant in cases of socially questionable activity (Grasmick and Scott, 1982; Peace and Galletta, 1996).

As Beck and Ajzen (1991) have shown, the addition of a measure of personal moral obligation to the theory of planned behavior increases the model's predictive power in the specific cases of lying, cheating, and shoplifting. Peace and Galletta (1996) found

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4 "Object" in this context is used in the generic sense; that is, the object may be a person, group, institution,
males were significantly more likely to copy software than females, they explained it in part by arguing that males are more prone to risk-taking than females. If this is the case, then rather than study softlifting behavior by gender, it may be more appropriate to include risk-taking as a component of personal identity. Thus

H4: The more an individual sees himself or herself as a risk-taker, the more favorable his or her attitude will be toward softlifting.

- Legal Personal Identity

Legal personal identity is the extent to which one considers himself or herself as law-abiding. Awareness of the law is one thing. Respect for it, or intention to obey it, is another. For example, a driver may be knowledgeable about traffic laws and speed limits. However, if he has little respect for the law, or believes he is above the law, he will quite likely speed or break other traffic laws. Similarly, an individual may be aware of copyright laws and how they relate to copying software. However, if his legal personal identity is such that he does not consider himself bound by those laws, he probably will not heed them.

H5: The more an individual sees himself or herself as law-abiding, the less favorable his or her attitude will be toward softlifting.

- Technical Personal Identity

Technical personal identity is the extent to which one considers himself or herself as technologically advanced. Software publishers have tried a variety of methods to copy-protect their products, with little effect (Swinyard et al., 1990). One explanation advanced for this is that, for some, the safeguards are a technical challenge. Overcoming them is a rewarding experience (Simpson et al., 1994; Sims et al., 1996). Another possible explanation is the need of some individuals to be on the leading edge of technology, or to
acquire the most recent versions of software packages. Thus it seems reasonable to postulate that an individual whose self-concept is, to some extent, based on technical accomplishments or acquisitions will engage in software copying, resulting in the following hypothesis.

H6: The more an individual’s personal identity is based on technical accomplishments or acquisitions, the more favorable his or her attitude toward softlifting.

Past Behavior. The role of past behavior in predicting future behavior has been the subject of much debate. While some researchers have argued that past behavior has a substantive role (e.g., Fredricks and Dossett, 1983), Ajzen (1991) asserts that any correlation between past and future behavior is an indication of the behavior’s stability, not of a causal relationship between past and future behavior. One point is, however, common to both positions: past behavior results in experience related to that behavior, its determinants, and its outcomes. It is this experience which may help explain future behavior. For example, consider the case of an individual attempting to copy software. If he does so successfully and gains some perceived benefit, his attitude towards performing that behavior will become relatively more favorable (recall that attitude is the general feeling of favorableness or unfavorableness towards performing a particular behavior). This in turn will increase his intent to repeat that behavior. This leads to the following hypotheses.

H7a: The more an individual softlifts, the more favorable his or her attitude toward softlifting.

H7b: The more an individual softlifts, the greater his or her intention to softlift.
**Attitude.** The original theory of reasoned action (Fishbein and Ajzen, 1975) asserts that intention is determined by attitude. This relationship is carried forward in the theory of planned behavior (Ajzen, 1985). A large number of empirical studies have confirmed that attitude has a significant impact on intentions (see Ajzen, 1991; Sheppard, 1988 for reviews). It is a relatively straightforward leap of logic to conclude that this relationship holds true for software copying.

H8: The more favorable an individual's attitude is toward softlifting, the greater his or her intention will be to softlift.

**Setting.** There is reason to believe that environmental factors may influence software piracy. For example, Bommer et al. (1987) presented a behavioral model of ethical decision making in which they postulated that an individual's behavior might vary as the environmental setting changes. Both Weber (1991) and Elm and Nichols (1993) provide empirical support for this notion, finding that managers in a work setting display different moral characteristics than they do in a non-work environment. Researchers have called for more research into environmental factors with respect to software piracy (Bommer et al., 1987; Glass and Wood, 1996). Accordingly, this study will take an initial step toward providing a basis for examining factors related to softlifting by evaluating the preceding hypotheses in light of the individual's setting - home, school, or work.5

**Methodology**

**Sample**

---

5 To reduce confusion, participants were instructed as follows. "The phrase 'at school' means the computer labs at the University. The phrase 'at home' means the place where you sleep (e.g., dormitory room, apartment, etc.) as distinct from 'at work' or 'at school'."
The sample for the study was drawn from the population of students in the business school of a state university. The business school has a student population of 4,824, of whom 72 percent are undergraduates. Volunteers to participate were solicited from a wide variety of graduate and undergraduate business classes. The age of the participants ranged from 17 to 51, with a median age of 23. Fifty-two percent of the participants were female. Respondents included those with very little computer experience (less than one year) and those with more extensive usage experience (up to 26 years). The average participant had five to seven years of experience with computers. Approximately 63 percent of the respondents live in households with annual income of at least $25,000.

An individual’s attitude towards softlifting is shaped prior to his or her entry into the workforce, and is likely to be carried forward into his or her business career (Cheng, 1997; Oz, 1990; Sims, 1996). Today's students are the employees and managers of tomorrow. Consequently, our study was targeted at business students both preparing for entry-level positions (undergraduates) and beginning to ascend the management ladder (graduates). This is particularly relevant because, in the particular case of softlifting, an organization can be held responsible for the actions of its employees, even if; 1) the employee conceals his or her actions from the organization, or 2) the employee was unaware that his or her action was unacceptable (Robinson and Reithal, 1994). Furthermore, as Sambamurthy and Chin (1994) have pointed out, the use of students is reasonable in instances where their response is linked to their 'real world' context. Our participants were asked to respond based on three settings: home, school, and work. At least two of these three settings - home and school - are closely coupled with the
respondents' environment. Seventy-six percent of the respondents are employed at least part-time, providing a link to the third setting.

To further explore any possible bias resulting from the use of students, bivariate correlations between demographic data (i.e. age, gender, income, years of education, and GPA) and the dependent variables (attitude and behavioral intention) were calculated. There were no significant correlations noted. In addition, the age variable was included as an independent variable in an exploratory model along with the independent variables noted in Figure 1. The results indicate that age was not significantly related to either attitude or behavioral intention. Based on these results, it appears that demographic factors are not significant in explaining attitude toward softlifting and intention to softlift. Therefore, the use of student subjects, whose demographic data may not be reflective of the general population, can provide useful information about general attitudes toward softlifting.

The surveys were administered using either the traditional pen and paper form or via the Internet. Five hundred twenty-three pen and paper surveys were distributed to students and two hundred ninety-three, or 56 percent, were completed and returned. Two hundred nineteen students in an Introduction to Computers and Management Information Systems class were offered the option of completing the survey on the Internet. One hundred seventy-nine, or 81.7 percent, were completed and submitted. Of the Internet surveys, thirteen were determined to be duplicates and were eliminated from the database. Additionally, four of the Internet surveys had no responses completed and were eliminated. The resulting sample size is 455, an overall response rate of 61 percent. A summary of the responses is presented in Table 1.
The portion of the sample using the Internet survey was compared to the sample using the pen and paper form to determine whether significant differences existed between the two groups. The mean score for each of the latent variables from the pen and paper respondents was compared to the mean score for the corresponding variable from the Internet respondents. The mean scores were not significantly different at $\alpha = 0.05$. Additionally, the proportions of female and male participants (female participants accounted for 51% of the pen and paper group versus 55% of the Internet group), mean grade point average, and household salary of the members of each subsample were compared and no significant differences ($\alpha = 0.05$) were noted.

Since the Internet respondents were all undergraduates from an introductory level class, the average age and years of computer experience of the Internet respondents (22 years and 5 years, respectively) was less than that of the pen and paper respondents (26 years and 7 years, respectively). However, neither age nor computer experience is predicted to directly affect attitude towards softlifting or intent to softlift. The bivariate correlation between age, computer experience and each of the model’s variables was calculated for each group. No strong correlations between age or computer experience and each of the model’s variables were detected. Based on this analysis, there appears to be no substantial differences associated with the different data collection methods.

Instrument Design

A survey was formulated to measure each of the variables included in the research model. Items to measure perceived usefulness were generated based on the scale used by Davis (1989, 1993). The personal moral obligation, risk-taking personal identity, legal
personal identity, and technical personal identity scales were designed based on scales used by Azjen and Fishbein (1980), Beck and Ajzen (1991) and Taylor and Todd (1996). The attitude and behavioral intention scales were developed using scales designed by Taylor and Todd (1995a), which specifically dealt with computer usage. The past behavior scale was modeled on the scale used by Eining and Christensen (1991). The awareness of the law measures were designed by the authors.

In order to test the validity of the measurement scales, two procedures were performed. First, each of the survey questions was written on a separate index card. Seven individuals were asked to place the survey questions into between five and ten separate categories and label the categories. This test was performed in order to determine if computer users see the survey items that were intended to measure a particular construct as measuring one latent variable. Additionally, the category name given by the respondents to the each of the groups of survey items was compared to the assigned construct name to determine if the users' descriptions of the constructs are similar to the latent variable names. Though some variation existed among the seven users, the survey questions intended to represent the latent constructs in the sample were categorized together most of the time. Additionally, the category names given by the card sorters were similar to the construct names used in the survey instrument. These results indicate the measurement items exhibit face validity.

Second, a pilot test of the survey was conducted using sixty undergraduate students in the business school of a state university. The pilot test results were analyzed by performing an exploratory factor analysis for each of the constructs. The factor analysis indicated that the measures were unidimensional. The pilot test participants were
interviewed after completion of the survey to determine whether any items were unclear or confusing and to obtain any suggestions for improvement in the survey content and/or form. After making a few, insignificant changes, the survey was ready for use in the final data collection.

The final survey items were measured using 7-point Likert scales. Twenty percent of the survey questions were reverse-scaled in order to detect common method effects in the responses (such as choosing a single response at one end of the scale for all items). Instructions included on the instrument and given verbally to the participants assured the confidentiality of participants and stressed the voluntary nature of participation. Additionally, softlifting (labeled "copying software" to avoid a negative connotation) was defined for the participants. Appendix A contains the items and definition of softlifting used in the survey.

Measurement Scales

Common factor analysis was used in order to assess the construct validity of each of the final measurement scales. A factor loading of 0.70 or greater is considered to represent substantial correlation between the indicator and the latent variable (Chin, 1998). With only one exception, the factor loadings are 0.70 or greater (see Table 2).

----- insert Table 2 here -----  

The results of the confirmatory factor analysis suggest that the measurement items within each scale are highly correlated with the underlying latent variable. Additionally, the average variance explained by each of the scale items is greater than 50%. This indicates that the measurement items in each scale exhibit convergent validity, in that
they are highly correlated to each other due to a single underlying construct. The average variance explained by the indicators is summarized in Table 3.

----- insert Table 3 here -----

The correlations among the latent variables are shown in Table 4. The numbers presented in the diagonal depict the square root of the average common variance extracted by the measurement items within the scale, which represents the average inter-item correlation. The correlations among the latent variables are smaller than the square root of the common variance extracted within each scale. This demonstrates that divergent validity exists, since the items within a scale are more significantly related to one another than to items in other scales.

----- insert Table 4 here -----

As an additional test of divergent validity, factor loadings were calculated for each of the indicators with all of the latent variables. The factor loadings for each of the indicators with its assigned construct are higher than the cross-loadings with the other constructs. This indicates that the measurement items exhibit divergent validity, because they are more correlated with the latent variables they are intended to measure than with the other latent variables. The loadings and cross-loadings for each of the indicators are presented in Table 5.

----- insert Table 5 here -----

To test the reliability of each of the scales, a composite reliability is calculated and presented in Table 3. Each of the reliability statistics generally meets or exceeds the 0.80 recommended by Nunnally and Bernstein (1994, p. 265).
Based on the preceding results, the measurements exhibit reasonable validity and reliability.

Analysis

The primary endogenous variable in the research model in Figure 1 is attitude towards softlifting. Univariate statistics for the indicators that measure these variables are presented in Table 6. The index for the attitude construct is calculated as the average of the associated indicators for each case. Based on these statistics, the attitudes of respondents vary substantially, with responses received at both extremes of the measurement scale.

----- insert Table 6 here -----

In order to test the model in Figure 1, which requires testing each of the relationships simultaneously, a structural equation technique is necessary. Frequency distributions of the scale responses show the data are not normally distributed. There is also no basis on which to assume the latent variables are independently and identically distributed, which is necessary in order to rely on many multivariate techniques. Therefore, Partial Least Squares (PLS) was chosen to analyze the data and test the model. PLS does assume linearity of data, to which a 7-point Likert scale is conducive.

For each of the survey items, the respondents were asked to give the answer based on three different settings; at home, at work and at school. We separately examined the model using the data from each of these settings.

The data collected were randomly divided into two data sets, each with a similar proportion of pen and paper and Internet surveys. The average age, computer experience
grade point average and the proportion of males and females were compared and were not significantly different with $\alpha = 0.05$.

The model was first tested using one data set, and then was cross-validated using the holdout sample. The results in each setting from the holdout sample were not different from those for the same setting in the initial sample. There were no path coefficients between latent variables that were significant at $\alpha = 0.05$ using one data set and not the other. The factor loadings from the latent variables to the indicators were not significantly different using one data set or the other. The results presented are those from the analysis of the three settings using the first data set.

Results and Discussion

Measurement Model

The path coefficients to the indicators from the latent variables, also called epistemic correlations, are presented in Table 2, along with the weights assigned to each loading by PLS. These coefficients are similar to factor loadings, and do not vary substantially from those obtained in the common factor analysis. The epistemic correlations indicate the observed indicator variables are significantly related to the unobserved latent variables. All of the epistemic correlations are significant at $\alpha = 0.05$. The epistemic correlations were not significantly different based on the setting about which the question was asked. This indicates that the measures work equally well in all three settings.

Structural Model

----- insert Table 7 here -----
The path coefficients among the latent variables for all three settings are presented in Table 7. A path coefficient greater than 0.20 is defined as meaningful by Chin (1998).

Analysis of the results shows that there is a significant positive relationship between perceived usefulness and attitude across all settings, as predicted by H1. This is in agreement with prior research, which indicates a consistent relationship between perceived usefulness and attitude. The value of this result stems from two things. One, it further confirms the perceived usefulness - attitude path. Future researchers can use this with an even greater degree of confidence. Two, in the specific context of softlifting, it illustrates one of the main determinants of a favorable attitude towards softlifting. Find a way to decrease the perceived usefulness of softlifting, and attitude toward softlifting will less favorable. One way may be to link future upgrades of the program to a legitimate copy, possibly through use of a key or code. Another way might be to include rebate or discount coupons with the legitimate version.

There is also a significant negative relationship between personal moral obligation and attitude towards softlifting across all settings, fully supporting H3. By mounting a campaign to highlight the moral implications of softlifting, this finding can be used by software vendors to amplify any leanings an individual might have toward an unfavorable attitude regarding softlifting. This would help limit the diffusion of the practice.

One’s awareness of the law is negatively related to attitude toward copying software, as predicted by H2, but is only significant ($\alpha = 0.005$) in the school setting. It is possible that this is true because school is the one setting where there is the perception of real consequences to violated software laws. It is very unlikely that softlifting in one’s home will be discovered and prosecuted. Therefore, even if home users are aware that
such behavior is illegal, attitudes toward softlifting will not be less favorable due to the remote possibility of negative consequences. Additionally, employees may believe that it is the company, and not the individual employee, that bears the brunt of any prosecution for illegal softlifting behavior. In this case, the perceived consequences of softlifting at work are not substantial, resulting in a lack of a significant relationship between awareness of the law and attitude toward softlifting.

However, unlike in the home and work environments, softlifting in the school environment carries the real threat of negative consequences. Students who are caught illegally copying software at school can receive a reduced grade or even lose computer privileges or their status as a student in good standing. The greater a student’s awareness of the rules regarding softlifting, the less favorably he or she views this behavior.

When the relationship between awareness of the law and attitude was not significantly negative in all three settings, an alternative relationship was explored. It is possible that one’s attitude interacts with one’s awareness of the law in determining intent to softlift. Those who are aware of the laws governing software piracy will be less likely to intend to copy software illegally, regardless of attitude. Attitude and intention for these individuals may have a negative relationship. However, for those who are less certain of the software piracy laws, a positive relationship between attitude and intention is expected.

To explore this additional explanation of the role of awareness in the determination of softlifting behavior, an additional interaction variable was entered into the model. The interaction variable was calculated as the multiple of the mean awareness measure and the mean attitude measure and was modeled as a direct antecedent to
intention. No significant relationship between the interaction of attitude and awareness of the law and behavioral intention was found.

The relationship between risk-taking personal identity and attitude is positive as predicted in H4, but is not significant ($\alpha = 0.05$). Weak significance is observed ($\alpha = 0.10$), but only in the school setting. It is possible that, as previously mentioned in the discussion of awareness of the law, the school setting is the only one that offers true risk of repercussions from softlifting. Therefore, individuals may not perceive copying software at home or work as risky behavior.

The relationship between legal personal identity and attitude is negative as predicted in H5, but is not significant at $\alpha = 0.05$. The negative relationship indicates that individuals will view softlifting less favorably if they feel an obligation to follow the law regardless of the likelihood that no negative legal consequences will be suffered. Only the path coefficient in the work environment is moderately significant ($\alpha = 0.10$), but no significance is noted in the other settings. This may be the result of using a single-item scale to measure legal personal identity, which decreases likelihood of detecting an existing relationship. The moderate significance detected in the work setting suggests that legal personal identity may play an important role in determining attitude toward this illegal behavior. With better measures of this construct, this finding could be strengthened.

The positive relationship between past behavior and attitude predicted in H7a is observed only in the home setting ($\alpha = 0.05$). The path coefficients in the work and school settings are not statistically different from zero. It is possible that the home environment is the one in which the probability of being discovered by others is the
lowest. Individuals who have more frequently engaged in softlifting at home are also aware of both the financial benefits of obtaining software without purchasing costs and the low odds of experiencing negative consequences (punishment). In the work and school environments, it is more difficult to pirate software without discovery. Additionally, the costs of obtaining software in these settings are typically borne by someone other than the user.

The results support the expectation in H7b that there is a significant positive relationship ($\alpha = 0.005$) between past softlifting and intent to softlift. Because those who have successfully softlifted in the past are not likely to have suffered negative consequences, they are more likely to intend to continue this behavior in the future.

There is a significant ($\alpha = 0.005$) positive relationship between attitude toward softlifting and intent to softlift. This result is consistent with prior research and supports H8.

We found no evidence to indicate that there is a significant relationship between technical personal identity and attitude (as predicted in H6). While some research indicates it may be a rewarding experience to overcome any technical challenges associated with software piracy (Simpson et al., 1994; Sims et al., 1996), our respondents did not share this viewpoint.

Table 4 shows moderate correlations among some of the independent variables, especially with past behavior, perceived usefulness and personal moral obligation. In the presence of multicollinearity among independent variables, there is the possibility that estimates will have a large standard error and diminish the likelihood of detecting a relationship with the dependent variable. However, both personal moral obligation and
perceived usefulness are found to be significantly related to attitude. Likewise, past behavior is found to be significantly related to both attitude and intent to softlift. Therefore, it does not appear that multicollinearity is a problem in the model.

Finally, the amount of variance in the endogenous variables explained by the model is represented by the squared multiple correlations. The model in Figure 1 explained between 63 and 72 percent of the variance in the attitude variable and between 63 and 70 percent of the variance in the behavioral intention variable. The model appears to explain a substantial portion of the variance in both endogenous variables. The squared multiple correlations for both attitude and behavioral intention are presented in Table 7.

To determine the usefulness of the research model in Figure 1, the results of this model were compared to those from a simple model, in which past behavior is the only antecedent to attitude. In the simple model the path from past behavior to attitude is significant (α = 0.005), but the explained variance in the attitude variable is approximately 14 percent in the work setting, 17 percent in the school setting, and 24 percent in the home setting. With the addition of the other independent variables in our research model, the path from past behavior to attitude becomes insignificant at both work and school, and the significance is reduced to 0.05 at home. This implies that the path coefficient in the simple model is upwardly biased due to the omitted independent variables which are related to the included variable past behavior. Additionally, inclusion of the additional independent variables increases the explained variance in the attitude variable. The research model appears to be more useful in explaining attitudes toward softlifting than the simple model.
Limitations and Further Research

The respondents were asked to report their evaluation of copying software illegally. Even though survey participants were promised confidentiality and told that their answers would be anonymous, the possibility exists that anti-social behavior might be underreported (Hessing et al., 1988). An analysis of responses to the items measuring attitude in Table 6 shows that responses were received at both extremes of the 7-point Likert scale. More than half of the participants claim to have a negative attitude toward softlifting. However, if more than half the individuals approve of software copying, it is possible that systematic measurement error exists in these items. Due to the confidential and anonymous nature of the survey, this threat to internal validity is minimal.

It should also be acknowledged that our student subjects, although including a number of individuals both older and with more work experience than 'traditional' student samples, do not perfectly reflect the make-up of actual managers and workers. However, our analysis showed no correlation between demographic variables, including age, and either attitude towards softlifting or intent to softlift. Nevertheless, it would be prudent to replicate this study with a non-student sample.

The legal personal identity construct was measured with a single item scale. It is preferable that measurement scales contain more than one item. However, moderate significance was achieved in the work setting with the single item scale, which indicates that legal personal identity could play an important role in attitudes toward softlifting. Future research with improved measures might lead to interesting and significant findings.
Finally, actual behavior was not included in the study. This is not a substantial problem as previous studies in the behavioral intentions research stream have supported a strong relationship between intention and actual behavior.

Conclusion

Seven of the original eight hypotheses were supported in at least one setting in the analysis. Perceived usefulness is shown to positively influence an individual's attitude toward softlifting. Additionally, one's moral obligation to avoid softlifting is significantly and negatively related to attitude toward this behavior. Prior research has suggested that the moral component is an integral part of attitude (Eining and Christensen, 1991; Taylor and Shim, 1993; Glass and Wood, 1996) and the empirical data strongly support this claim.

Risk-taking personal identity is positively related to one's attitude toward softlifting. However, this relationship is only moderately significant ($\alpha = 0.10$), and only in the school setting. Previous research found that males had a more favorable attitude towards software piracy than females, and suggested that one possible explanation might be that males were greater risk-takers (Solomon and O'Brien, 1990; Sims et al., 1996). This study finds evidence to support the explanation offered by those prior studies.

Legal personal identity is negatively related to one's attitude toward softlifting. However, this relation is only moderately significant ($\alpha = 0.10$), and only in the work setting. The ability to detect this effect may be limited by the single-item measure used in this study. However, in spite of the reduced ability to detect the relation, the results support the expectation of a negative effect of legal personal identity on attitude. The concept of legal personal identity seems a promising avenue for further research.
Awareness of the law is significant in reducing a favorable attitude toward softlifting, but only when the likelihood of negative consequences is greatest. At home, where the probability of detection is low, and at work, where the company is more likely to absorb any punishment, increased awareness does not diminish one's evaluation of this behavior. However, at school, where a student runs a greater risk of loss of privileges or a blemish on his or her record, increased awareness does serve its purpose and decrease a student's favorable evaluation of this behavior.

The research model is able to explain over 60 percent of the variance in attitude toward softlifting in all settings. Only a small portion of the total variance remains unexplained. Prior studies involving the Theory of Reasoned Action, the Theory of Planned Behavior and the Technology Acceptance Model have shown that attitude is an important determinant of behavioral intention. It is therefore important to understand the determinants of attitude in order to comprehend the reasons that such behavior exists. This model has demonstrated that with a behavior that has a moral component (such as softlifting), personal moral attitude and legal personal identity are important in explaining attitude toward the behavior. Additionally, perceived usefulness is significant as well. This model could possibly be useful in predicting other behaviors that include a strong moral component.

In addition to significant findings regarding the determinants of attitude toward softlifting, this research represents a first step in examining software piracy behavior in different settings. Future research along these lines could produce intriguing results.
References


Figure 1 – Research Model
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Table 1 – Survey Response Rate
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<th>Legal Personal ID</th>
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Table 2 – Measurement Model using PLS
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<th>Average Variance Explained</th>
<th>Composite Reliability</th>
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Table 3 – Common Variance Explained and Composite Reliability Measures
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<td>0.30</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Technical Personal ID</td>
<td>0.15</td>
<td>0.26</td>
<td>0.10</td>
<td>-0.15</td>
<td>-0.11</td>
<td>-0.02</td>
<td>0.83</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.37</td>
<td>0.62</td>
<td>-0.39</td>
<td>-0.74</td>
<td>-0.48</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Behavioral Intent</td>
<td>0.52</td>
<td>0.04</td>
<td>-0.26</td>
<td>-0.66</td>
<td>-0.50</td>
<td>-0.28</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Note: The diagonals represent the square root of the average common variance explained.

Table 4 – Correlations Among Latent Variables
<table>
<thead>
<tr>
<th>Indicators for Attitude</th>
<th>AT1</th>
<th>AT2</th>
<th>AT3</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.49</td>
<td>4.43</td>
<td>4.78</td>
<td>4.58</td>
</tr>
<tr>
<td>Median</td>
<td>5.00</td>
<td>4.00</td>
<td>5.00</td>
<td>4.67</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.88</td>
<td>1.89</td>
<td>1.68</td>
<td>1.59</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Indices are average scores for each case.

Table 6 - Univariate Statistics for the Endogenous Variable
### Path Coefficients

<table>
<thead>
<tr>
<th>Paths to Attitude</th>
<th>Work</th>
<th>School</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Behavior</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.10 **</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>0.29 ***</td>
<td>0.32 ***</td>
<td>0.33 ***</td>
</tr>
<tr>
<td>Awareness of the Law</td>
<td>-0.05</td>
<td>-0.15 ***</td>
<td>-0.04</td>
</tr>
<tr>
<td>Personal Moral Obligation</td>
<td>-0.53 ***</td>
<td>-0.39 ***</td>
<td>-0.43 ***</td>
</tr>
<tr>
<td>Risk-Taking Personal Identity</td>
<td>0.06</td>
<td>0.12 *</td>
<td>0.10</td>
</tr>
<tr>
<td>Legal Personal Identity</td>
<td>-0.11 *</td>
<td>-0.05</td>
<td>-0.06</td>
</tr>
<tr>
<td>Technical Personal Identity</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.04</td>
</tr>
</tbody>
</table>

**Paths to Behavioral Intention**

| Past Behavior                     | 0.27 ***| 0.23 ***| 0.27 ***|
| Attitude                          | 0.69 ***| 0.72 ***| 0.63 ***|

**Squared Multiple Correlation**

| SMC-Attitude                      | 0.64 | 0.63   | 0.72 |
| SMC-Intent                        | 0.67 | 0.70   | 0.63 |

*** Significant at 0.005
** Significant at 0.05
* Significant at 0.10

*Squared Multiple Correlation represents
the variance explained by the model.

Table 7 – Structural Model using PLS
Appendix A

The following definition of softlifting was provided to survey participants in the introduction of the survey:

*The phrase "copying software" is intended to encompass these behaviors:*
- You purchase software and give copies to your friends, coworkers or other students.
- Your friend, coworker or other student provides you a copy of software.
- Your friend, coworker or other student allows you to copy software.
- You copy software at home or at work or at school and install it on another machine.

*Copying software" does not include*
- the making of a single backup copy,
- the acquisition of shareware or freeware requiring no licensing or payment.

Measurement Items – 7-point Likert scales:

*Past Behavior*
PB1 I have copied software in the past. (very frequently to very infrequently)
PB2 I only use software that I purchase or is authorized for my use. (strongly agree to strong disagree)

*Perceived Usefulness* (strongly agree to strongly disagree)
PU1 Copying software would be useful.
PU2 Copying software allows me to have more enjoyment out of my personal computer.
PU3 Copying software would allow me to get more value from my personal computer.
PU4 It is easier to obtain software for use by copying it than by purchasing it.
PU5 Overall, the advantages of copying software will outweigh the disadvantages.
PU6 Copying software would allow me to improve my performance.
Awareness of the Law (strongly certain to strongly uncertain)
AW1 Copying software is illegal.
AW2 Anyone copying software for personal use (that is, not reselling it for a profit) can be sued.
AW3 Anyone copying software for use (that is, not reselling it for a profit) can be jailed.
AW4 Anyone copying software for use (that is, not reselling it for a profit) can be fined.

Personal Moral Obligation (strongly agree to strongly disagree)
MO1 It is my obligation as a personal computer user not to copy software.
MO2 I would not feel guilty if I used copied software
MO3 I would feel guilty if I copied software.

Risk-Taking Personal Identity (strongly agree to strongly disagree)
RT1 I see myself as a risk taker.
RT2 I prefer to avoid taking unnecessary chances.

Legal Personal Identity (strongly agree to strongly disagree)
LG1 I see myself as someone who is law-abiding.

Technical Personal Identity (strongly agree to strongly disagree)
TE1 I see myself as someone who needs to have the latest version of software.
TE2 I see myself as someone who needs to be on the leading edge of technology.
TE3 With respect to computer software, for me having more is always better.

Attitude (strongly agree to strongly disagree)
AT1 Using copied software is a bad idea.
AT2 I dislike the idea of using copied software.
AT3 Using copied software is a wise idea.

Behavioral Intention (strongly agree to strongly disagree)
IN1 I do not intend to copy software in the future.
IN2 I do not plan to copy software within the next year.
IN3 If the need or opportunity arises within the next year, I plan to copy software.