The Effects of Salience, Deterrence, and Social Influence on Software Piracy: A Proposed Experimental Study

Research-in-Progress

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Abstract

Studies of software piracy have usually been based on self-report data. Self-report data on ethical beliefs and behaviors are susceptible to social desirability bias. An experimental study is proposed in which subjects are given the opportunity to acquire software either from an authorized website at a legal price, or from a pirate source free of cost. In the study, actual money is at stake, reducing the possibility of self-report bias. The experimental design used by Gino, Ayal, and Ariely (2009) is adapted to study the effects of three antecedents (salience, deterrence, and social influence) on software piracy. In the current article, the theoretical bases of the study, and the proposed experiment, are described. It is anticipated that the authors will be able to present preliminary data and analysis at the conference.

Keywords

Software Piracy, Information System Ethics, Digital Media, Intellectual Property Theft, Social Desirability Bias.

Introduction

The extent of software piracy continues to be of major concern to software publishers. While there is a significant body of research attempting to identify reasons why individuals pirate, a coherent understanding of the motivations underlying software piracy has yet to emerge. One concern with results reported by past researchers is the likelihood of social desirability bias (Chung and Monroe 2003; Paulhus 2002). A program of research to understand the role of social desirability bias and to simultaneously gain a better understanding of the antecedents of software piracy is being undertaken. The study being described in the current article is a part of the overall effort.

The first aim of the proposed study is to reduce or eliminate social desirability bias in the data gathering process. This is accomplished by placing actual money at stake. The second aim is to understand the effects of some key antecedents. The choice of antecedents was driven by published literature in ethics and software piracy. For instance, (Gino, Ayal, and Ariely 2009) have shown that salience of ethicality, deterrence, and social influence affect ethical behavior. The issue of salience of ethicality has not received any attention in software piracy, but is considered important in ethical research (Gino et al. 2009; Mazar, Amir, and Ariely 2008; Vohs and Schooler 2008). The role of deterrence has received much attention, but results have been conflicting. For instance, Konstantakis, Palaigeorgiou, Siozos, and Tsoukalas (2010) deem that most users pay little attention to laws, finding them unrealistic and inapplicable, while Moores, Nill, and Rothenberger (2009) argue that the fear of legal ramifications is the primary motivating factor against an individual's attitude towards piracy. The role of social norms has been demonstrated by Cheng, Sims, and Teegen (1997), who found that 'most people I know copy software' was ranked highly in factors explaining why individuals pirate software. However, the effect of social influence itself has not been examined. Essentially, the proposed study plans to use a method heretofore untested in software piracy, to examine the effects of three key antecedents shown to be important in software piracy and ethics research.

In view of space limitations, the article combines the customary sections of literature review, and theory and hypotheses into a single section entitled 'Theory and Hypotheses.' The literature review is limited to such research as is needed to support the hypotheses. This is followed by a discussion of the experimental details, to highlight the use of actual money in a software piracy study, and concluding remarks.

Theory and Hypotheses

In the current section, literature is reviewed to provide theoretical support for the hypotheses that will be tested in the experimental study.

Salience of Ethicality

The 'self' is comprised of three major attributes (Baumeister 1998). First, reflexive consciousness, or self-awareness, allows individuals to turn their attention inwards, in order to construct a concept of themselves. Second, is the interpersonal aspect of selfhood, or social context, the tools individuals use to relate to others. Finally, third, the executive function, acts as the agent or decision-maker in an individual. Without this utility, the self would act as a simple onlooker of surrounding events, individuals would be unable to make vows or resolutions, stop themselves from acting on an impulse, or choose to eat or drink (Baumeister 1998).

In order to understand the influence of saliency during ethical decision making (e.g., software piracy) the concept of the reflexive consciousness needs to be considered and understood (Gino et al. 2009). In social psychology, the theory of self-awareness was formulated by Duval and Wickland (1972). In this seminal work, the authors proposed that attention could be focused both inwards, as well as outwards. As a result of this inward focus, i.e., self-awareness, individuals create a self-concept, or self-image, of themselves that they wish to adhere to (Gino et al. 2009). Within this self-concept, individuals formulate their own moral standards that they abide by (Mazar et al. 2008). If an individual fails to adhere to these moral standards, he/she experiences cognitive dissonance, and his/her self-image is updated negatively (or alternately, the unethical action is mentally re-classified as ethical). Conversely, if an individual follows his/her moral codes or internal standards, he/she avoids the need for negative updating of their self-image, and continues to view himself/herself as being honest. However, if an individual does not pay close attention to his/her own internal standards, his/her actions may not adhere to them (Langer 1989). Thus, when moral standards are more accessible (i.e.: through salience of ethicality of an act), individuals are forced to confront the standards, and are more likely to need to justify their actions to themselves (Mazar et al. 2008). Consequently, their behavior is likely to be consistent with their standards. Thus, if the ethicality of an act is made more salient, it is predicted that an individual will pay more attention to his/her standards in order to avoid conflict with his/her ethical self-image, and therefore, behave more rationally and ethically (Baumeister 1998; Schweitzer and Hsee 2002).

The influence of saliency on ethical behaviors has been reported by Vohs and Schooler (2008). The authors showed that priming research subjects has an effect on the tendency of individuals to cheat. Individuals primed negatively (to believe in determinism) behaved more dishonestly than their counterparts, who were primed positively (to believe in free will). Further, Gino et al. (2009), as well as Mazar et al. (2008), in their studies of ethical behavior, demonstrated that as saliency of dishonesty increases, cheating decreases. It can be hypothesized that if the act of illegal downloading is made more accessible to research participants, by increasing salience of ethicality, participants will behave more ethically and pirate less. Thus:

H1: The number of individuals engaging in software piracy in the high salience condition will be lower than the number of individuals engaging in software piracy in the low salience condition.

Deterrence

Rational crime theory argues that when an individual is considering an illegal activity, the individual engages in a cost-benefit analysis that leads to the decision on whether to commit the act or not (Gino et al. 2009; Hill and Kochendorfer 1969; Steininger, Johnson, and Kirts 1964). The decision is based upon three factors: the amount gained from the illegal act, expected punishment, and finally, likelihood of being caught (Allingham and Sandmo 1972; Becker 1968). The last of these three factors is a vital input in

deterrence theory, in which it is suggested that sanctions play an important role in maintaining conformity in social order (Tittle and Rowe 1973). Leming (1980), as well as Michaels and Miethe (1989) found that dishonesty (cheating) was situation specific, and that high risk of detection (high deterrence) significantly reduced the incidence of cheating. However, in the majority of software piracy literature, deterrence is deemed an ineffective way to curb digital theft. For example, Konstantakis et al. (2010) concluded that most users pay little attention to laws, finding them unrealistic and inapplicable. Others agree that software piracy poses minimum risk to the perpetrator (Moores et al. 2009; Siponen and Vartiainen 2007). However, some researchers continue to find support for the role of deterrence, arguing for the need to consider rational crime theory in studies of software piracy. For instance, Moores et al. (2009) argue that the fear of legal ramifications is the primary motivating factor against an individual's attitude towards piracy.

In the environment in which software piracy by individual users occurs, it is generally believed that there is very low likelihood of being caught, and if caught, punishment is minimal (Konstantakis et al. 2010; Moores et al. 2009; Siponen and Vartiainen 2007). In effect, deterrence is very low or non-existent. On the other side, there are also high profile stories of individuals who have been prosecuted for music piracy (Hardigree 2010). Thus, it could be argued that while software piracy by individuals is usually ignored by publishers and law enforcement agencies, there is always possibility that an individual may be prosecuted (an element of uncertainty about apprehension and punishment) which may deter some individuals from engaging in piracy. Thus, it is argued:

H2: The number of individuals engaging in software piracy in the low deterrence condition will be higher than the number of individuals engaging in software piracy in the uncertain deterrence condition.

Social Influence

Researchers have shown that social norms account for much of human behavior (e.g., Cialdini, Reno, Kallgren 1990). Bandura (1965) demonstrated that children exposed to an aggressive model displayed more aggressive behavior towards a doll than children not exposed to such a model. Hicks (1968), as well as Siegel and Kohn (1959), corroborated these findings, and further established that disapproving actions of an adult also influence aggressive behavior in children. Children exposed to aggression, as well as a disapproving adult, demonstrated less aggression than those children that were not. These comments evaluating the behavior of said children are interpreted by the children as a form of social norm. Despite such findings of the role of social norms on ethical behaviors, social norms are an understudied area in software piracy research (Nill, Schibrowsky, and Peltier 2010; Yi, Xu, and Heales 2013).

An individual's primary motivation behind any action is to act in a manner that achieves set goals in the most effective manner possible (Cialdini and Trost 1998). Within this effort to maximize the effectiveness of the decision making process, individuals rely on two types of social norms: descriptive and injunctive norms. Festinger (1954), in his seminal paper on the theory of social comparison processes describes the first of these, descriptive norms, as the behavior usually displayed by a reference group regarding an unclear decision. These descriptive norms 'describe' a behavior, or action. Injunctive norms, the second of the two types of social norms, prescribe behavior (Cialdini et al. 1990; Cialdini and Trost 1998; Reno, Cialdini, and Kallgren 1993). Injunctive norms characterize the moral rules of a group, i.e.,what should (and should not) be done when confronted by a decision. Cialdini et al. (1990) further explain the two separate types of social norms as the former being what 'is' typically done, while the latter being what 'ought' be done in a given circumstance. These disparate types of norms form the basis of Cialdini et al.'s (1990) focus theory of normative conduct. Within this theory, a specific social context is what determines which of these two types of norms individuals adhere to. For example, the authors found that in a pro-littering (dirty) environment, individuals viewing a confederate litter would litter more than in an anti-littering (clean) environment.

In addition to the focus theory of normative conduct, the degree to which individual's identify with people in their surroundings also greatly influences behavior (Gino et al. 2009). Wenzel (2004) verified that social norms greatly influence the behavior of those that identify strongly with the group to which the norms are attributed. These findings are explained by Tajfel and Turner's (1979) social identity theory (Gino et al. 2009; Rubin and Hewstone 1998). When an in-group member engages in unethical behavior, descriptive norms are utilized, and the action is accepted as the norm to emulate. On the other hand,

when an out-group member engages in the same unethical behavior, the injunctive norm takes over, and non-group members attempt to distance themselves from the 'bad apple' (Gino et al. 2009).

In previous literature, most researchers assume that social norms surrounding software piracy are pro-piracy, particularly in student communities (Cronan, Foltz, and Jones 2006; Gopal and Sanders 1998; Nill et al. 2010; Woolley and Eining 2006). Thus, for an in-group confederate influencing subjects with unethical behavior, it is hypothesized:

H3a: The number of individuals engaging in software piracy in the negative social influence condition will be higher than the number of individuals engaging in software piracy in the condition when there is no social influence.

For an in-group confederate influencing the subjects with ethical behavior, it is hypothesized:

H3b: The number of individuals engaging in software piracy in the positive social influence condition will be lower than the number of individuals engaging in software piracy in the condition when there is no social influence.

In the next section, details of the experimental design are provided.

Experimental Design

In the current section, we provide key details of the experimental design: an overview of the task, the treatments, the planned comparisons, some key experimental design issues, and the variables.

Overview of the Task

Groups of eight to twelve subjects will perform a task at the same time, independent of each other, in a computer laboratory under controlled conditions. Each subject is required to acquire a software program from an online site for a class. The primary dependent variable of interest is the mode of software acquisition: purchase or pirate. Subjects will be provided the uniform resource locator (URL) of a purchase website, built for the study, from which to acquire the software program. When subjects access the website to acquire the software, in addition to information from the legitimate website, they will see a large advertisement from another website, evidently a pirate site, which offers the same software for free.

At the start of the session, each subject will be provided a gift card (prepaid debit card) with a $20 value on it. Subjects will be informed that the $20 is partly compensation for their participation, and partly to defray the cost of software, which is about $10. They will be told that the value remaining on the card at the end of the session is theirs to keep. Thus, there is actual money at stake for the subjects.

Immediately before subjects make a decision, one of the subjects, a confederate actor, will make specific statements, the statements being different for each treatment. The same confederate actor will participate in each of the treatment sessions. Each statement constitutes the experimental manipulation for a session, which will be discussed further under the subsection 'Treatments'. Following the manipulations, subjects will make their decision, and then complete questionnaires (which will include items for manipulation checks, demographics, and other individual characteristics).

Treatments

There are three variables that are being manipulated by the treatments: salience of unethicality of pirating (low or high), deterrence (uncertain or low), and social influence (none, negative, or positive). In each treatment, more than one variable may be manipulated. The effects of individual antecedent variables will be teased out by performing planned comparisons in the statistical analysis phase. The five treatment groups can be seen in Table 1.

Treatment Groups				
Control Condition	Saliency Condition	Deterrence Condition	Unethical Social Influence Condition	Ethical Social Influence Condition

Table 1. Treatment Groups

The manipulations during treatments involve statements made by the confederate actor, and the response given by the research assistant conducting the session. Table 2. shows the manipulations, i.e., the verbal exchange between the confederate and research assistant conducting the study, and also the resulting values of the three variables of interest.

Treatment	Salience	Deterrence	Social Influence	Manipulation
1	Low	Uncertain	Low	Confederate: (makes no statement) Research Assistant: (stays silent)
2	High	Uncertain	Low	Confederate: "Hey, did you all see this link to the site where you can pirate the software for free? If we click it, we can keep all of our 20 dollar gift card!" Research Assistant: "Please do not disturb the others. You should complete the task in silence."
3	High	Low	Low	Confederate: "Hey, did you all see this link to the site where you can pirate the software for free? If we click it, we can keep all of our 20 dollar gift card!" Research Assistant: "Please do not disturb the others. You should complete the task in silence." Confederate: "Can we get the software from there?" Research Assistant: "Sure, if you want to. Now please do not disturb the others."

4	High	Uncertain	Negative (Unethical social influence is high)	Confederate: "Hey, did you all see this link to the site where you can pirate the software for free? If we click it, we can keep all of our 20 dollar gift card!" Research Assistant: "Please do not disturb the others. You should complete the task in silence." Confederate: "I am going to get it from that site for free!" Research Assistant: "Please do not disturb the others."
5	High	Uncertain	Positive (Ethical social influence is high)	Confederate: "Hey, did you all see this link to the site where you can pirate the software for free? If we click it, we can keep all of our 20 dollar gift card!" Research Assistant: "Please do not disturb the others. You should complete the task in silence." Confederate: "No, that would be wrong. I will not get it from there!" Research Assistant: "Please do not disturb the others."

Table 2. Manipulations for Each Treatment

The first treatment condition is the control condition, in which the confederate actor will be present, but will not say anything. In this treatment, the effect of the manipulation on each of the three variables is as follows. The salience of piracy is low, since no one has pointed out the presence of the ability to pirate the software. Deterrence is uncertain, since the likelihood of getting caught if they pirate the software, or the consequences if they get caught, has not been discussed with the subjects. Lastly, there is no social influence, as the confederate says nothing.

In the second treatment condition, the saliency condition, the confederate actor makes the unethicality of the free download link more salient for the rest of the group (see Table 2.). Thus the salience of the unethicality of the free download is high. The deterrence level is uncertain because subjects do not know if it is permissible to download from the free website, or if there will be negative consequences if they do. Subjects will not be aware of the actual download decision of the confederate actor, thus there is no social influence.

In the third treatment condition, the deterrence condition, there are two interactions between the confederate and the research assistant. In the first interaction, the salience of the unethicality of the free download is raised. The second part of the interaction removes/reduces the uncertainty associated with the possibility of consequences for getting the software from the free download site. The RA's response, "sure if you want to," reassures the subjects that there will be no consequence if they pirate, i.e., deterrence becomes low (or non-existent) in this condition. Subjects in the session are unaware of the site from which the confederate actor is acquiring the software, and thus are not influenced by the confederate's behavior, i.e., social influence is low or not present.

In the fourth treatment condition, the negative social influence condition, the first part of the manipulation enhances the salience of the unethicality of downloading from the pirate site. The consequences of acquiring software from the pirate site are not addressed, so deterrence is uncertain. In the second part of the interaction, the confederate actor loudly states that he intends to acquire software from the pirate site, so unethical social influence is high.

In the fifth, and final, treatment condition, the positive social influence condition, the first part of the manipulation enhances the salience of the unethicality of downloading from the pirate site. The consequences of acquiring software from the pirate site are not addressed, so deterrence is uncertain. In the second part of the interaction, the confederate actor loudly states that he does not intend to acquire software from the pirate site, so ethical social influence is high.

Planned Comparisons

The goal of the study is to understand the influence of four factors on the ethical behavior of subjects: salience, deterrence, unethical social influence, and ethical social influence. The values of each of these variables for each treatment are shown in Table 2. The effect of each variable can be determined by making the appropriate planned comparison.

- Effect of Salience: Comparison of treatments 1 (Low Salience) and 2 (High Salience), with the values of deterrence and social influence remaining constant
- Effect of Deterrence: Comparison of treatments 2 (Uncertain Deterrence) and 3 (Low/No Deterrence), with the values of salience and social influence remaining constant
- Effect of Negative Social Influence: Comparison of treatments 2 (No social influence) and 4 (High Unethical Social Influence), with the values of salience and deterrence remaining constant
- Effect of Positive Social Influence: Comparison of treatments 2 (No Social Influence) and 5 (High Ethical Social Influence), with the values of salience and deterrence remaining constant

Key Issues in Experimental Design

The experiment has been designed to maximize internal validity. Some key issues are mentioned.

To avoid social desirability bias, subjects must feel reassured that the researchers cannot tell if the subject pirated or not, i.e., actions of the subjects must be confidential. Subjects pick a gift card at random from a bowl at the beginning of the study. The last four digits of the gift card serve as the identification number of the subject for the study. Since, there is no record of which subject picked which gift card, the researchers have no way of discovering which individual pirated, and which did not. Further, the use of an electronic gift card masks if the subjects are walking out with $10 or $20, thus reassuring subjects that the research assistant cannot tell if the subjects pirated or not.

A second issue that is critical is the timing of the manipulation – it has to be done before the subject makes the decision to buy or pirate. This proves tricky as each subject in a session may proceed at a different speed. To avoid this, the research assistant guides all subjects in a session step-by-step to the point where they have to enter the URL to access the website. Only then is the URL address shared with the subjects. Subjects are allowed about 30 seconds (the optimal time will be determined in pre-tests) to come to the point of the decision, at which time the confederate actor will speak up as required by the manipulation.

A third issue is the choice of the confederate actor. For the use of the confederate to be effective, he/she must blend in, yet at the same time, the presence of the confederate in multiple sessions may be noticed and raise questions. This is being managed by using a student from a neighboring university, who can blend in, but at the same time will not be known to the other subjects, reducing the likelihood that the confederate will be noticed.

Variables and Measures

Dependent Variable

The dependent variable being measured in the study is the respondents' software acquisition choice. This is a binary response: purchase from the legal site, or pirate from the illegal site. When the subject purchases from the legal website, he/she will enter her gift card number, which will be captured in a database. The presence of the gift card number in the database yields the value "purchased from legal site," and the absence of the card number yields the value "acquired from pirate site."

Independent Variables

Three independent variables are being manipulated across the five treatment groups in order to tease out a change in software acquisition choice, as follows:

- Saliency of Ethicality of Act, referred to as Saliency (values are: Low or High)
- Deterrence (values are: Uncertain or Low)
- Social Influence Conditions (values are: None, High Unethical Influence, High Ethical Influence)

Manipulation Checks

Items will be included to examine if the manipulations were interpreted by subjects as intended by the researchers.

Concluding Remarks

Understanding the factors that influence software piracy continues to be a challenge both because of its potential economic consequences, and because of its ethical implications. Such understanding will elude researchers until they are able to comprehend the role of social desirability bias in the participants of study. In the experiment being considered, the likelihood of bias is reduced by placing actual money at stake. Deterrence and social influence have been considered key explanatory factors of software piracy, and have received some attention in prior research. On the other hand, salience of ethicality at the moment of piracy has never been considered. The empirical evidence from the current study is expected to further the field's understanding of factors that motivate software piracy, and bring to light new experimental methods to conduct more valid research on the topic.

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