A new look at software piracy: Soft lifting primes an inauthentic sense of self, prompting further unethical behavior

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Abstract

Soft lifting refers to the process whereby a legally licensed software program is installed or copied in violation of its licensing agreement. Previous research on this pervasive kind of unethical computer use has mainly focused on the determinants of this unethical act, which are rooted in personal, economic, technological, cultural, socio-political, or legal domains. However, little is known about the symbolic power that soft lifting has on the sense of self. Based on recent advances in behavioral priming, we hypothesized that soft lifting can influence the signals one sends to oneself; more specifically, soft lifting may prime individuals to experience an inauthentic sense of self, which, in turn, prompts further unethical behavior. In Study 1, we showed that participants, primed with the memory of a recent soft lifting experience, cheated more than participants recalling a recent experience of purchasing authentic software or than control participants. Moreover, feelings of inauthenticity mediated the priming effect of soft lifting on dishonest behavior. In Study 2, participants primed with soft lifting showed a greater willingness to purchase a wide range of counterfeit products over authentic products. Besides those antecedents or correlates of soft lifting already identified in the literature, educators should pay more attention to the negative impact of soft lifting on the self-images of users, which may go beyond computer-related behaviors. Priming may provide a new direction for HCI researchers to examine the impact of computer-use-related factors on users’ perceptions, motivations, and behaviors.

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1. Introduction

Ethics in computer using behavior have become an important issue for philosophers, computer scientists, and scholars (Van Den Hoven and Lokhorst, 2002). Baum (2005) emphasizes that the ethical issues have become more apparent as more educators have integrated technology into the classroom (Baek et al., 2008). Education in information ethics is expected to teach users about the potential dangers of unethical computer use and to raise awareness of the ethical challenges arising in the education environment (Miller, 1988).

Regarding unethical computer use, soft lifting (also known as end-user piracy or soft loading), in which a legally licensed software program is installed or copied in violation of its licensing agreement, is one of the most prevalent unethical behaviors relating to intellectual property and is a common type of software piracy (Thong and Yap, 1998; Kuo and Hsu, 2001). Large bodies of research have attempted to identify individuals’ demographic variables (e.g., Adam and Ofir-Amanfo, 2000; Venkatesh et al., 2003; Akbulut et al., 2008; Beyciglu, 2009), attitudes and intentions (e.g., Christensen and Eining, 1991; Chang, 1998; Leonard and Cronan, 2005; Namlu and Odabasi, 2007; Gole et al., 2008), and moral and ethical judgments
Furthermore, incidental use of cheaper, generic products (e.g., Thong and Yap, 1998; Burnam and Kafai, 2001; Ramakrishna et al., 2001; Tan, 2002; Kini et al., 2004; Haines and Leonard, 2007) toward unethical computer use and factors that might impact their decision to be involved in such unethical acts. Many studies have focused on determinants operating beyond the individual level, such as economic factors (e.g., GDP per capita, Gopal and Sanders, 1998; inflation rate, Depken and Simmons, 2004; income inequality, Ki et al., 2006), technological factors (e.g., IT infrastructure, van Kranenburg and Hogenbirk, 2005; Internet diffusion, Bezman and Depken, 2006), cultural factors (e.g., the well-known Hofstede’s cultural model, Hofstede, 1983; Husted, 2000; Moore, 2003; Depken and Simmons, 2004; Shin et al., 2004), socio-political factors (e.g., democracy, Ginarte and Park, 1997; corruption, Ronkainen and Guerrero-Cusumano, 2001; Bagchi et al., 2006) or legal factors (e.g., intellectual property rights protection, Marron and Steel, 2000; Yang and Maskus, 2009).

Moreover, rapid advances in Internet connectivity and digital compression technologies have dramatically increased online sharing of digitized material, raising issues of intellectual property rights and lost sales (Bhattacharjee et al., 2003). Increased internet connection speed (bandwidth) increases piracy (Givon et al., 1995). In the face of more sophisticated preventive controls (e.g., encryption), individuals who do not legitimately own software simply do without piracy (Gopal and Sanders, 1997). However, the impact of soft lifting on a perpetrator’s sense of self has not been investigated in any of the fields mentioned above. In this article, we hypothesized that soft lifting causes people to feel about themselves in ways they do not expect: they feel that their behavior is not admirable, generating in them a feeling of an unethical self that leads them to behave immorally in other situations. We conducted two experimental studies looking at soft lifting from the perspective of behavioral priming to fill the gap in the research literature, which, up until now, has only identified antecedents and correlates of the behavior.

According to current views on behavioral priming (Ferguson and Bargh, 2004), primed cues activate goals and a corresponding behavior is then solicited. The activation and execution of these goals does not require conscious awareness or regulation (Bargh et al., 2001). A common finding in the literature is that the activation of a social construct through priming can affect subsequent judgments and behaviors. For example, a subliminal prime of the Apple logo can activate a creative goal that leads participants to perform more creatively than they do following an IBM logo prime (Fitzsimons et al., 2008). Priming with religious concepts, for example, by asking participants to unscramble sentences with words such as “spirit” and “divine,” can increase prosocial behavior. Participants primed in this way allocate more money to anonymous strangers (Shariff and Norenzayan, 2007). Furthermore, incidental use of cheaper, generic products may prime people for a lowered sense of self-worth, which can then produce disadvantageous self-evaluations (Chiou and Chao, 2011). People whose polling location is a school are more likely than others to endorse school funding initiatives on the ballot (Berger et al., 2008).

If soft lifting can influence the signals one sends to oneself, what are the likely consequences? We hypothesized a link between the prime of soft lifting and feelings of being inauthentic, prompting individuals to behave accordingly. Given the well-documented effects of primes on behavior (e.g., the mere presence of particular objects can influence behavior; Berkowitz and LePage, 1967; Berger and Fitzsimons, 2008), we suggest that reminders of unethical behavior may cause people to feel less authentic, and this feeling may then increase morally questionable behaviors. In short, we suspect that feeling like a fraud makes people more likely to commit fraud. We tested our prediction in two studies. In the first study, we found that recalling an experience of soft lifting caused people to cheat more on a test, given the opportunity. We further investigated the mechanism underlying the impact of soft lifting on the sense of self, establishing that soft lifting causes people to feel inauthentic and that these feelings of inauthenticity can prompt dishonest behavior. In the second study, we showed that the priming effect of soft lifting extends to participants’ relative preferences for counterfeit products.

2. Study 1

2.1. Method

2.1.1. Introduction

In this study, we examined the priming effect of soft lifting on dishonest behavior. Rather than rely on self-report measures, we used a paper-and-pencil matrix task (Mazar et al., 2008), which allowed us to obtain a true indication of dishonesty, rather than an artifact of impression management. In addition, this research examined the psychological mechanism behind this effect by including measures of our proposed mediator, feelings of authenticity. We predicted that soft lifting would prime individuals with an inauthentic sense of self, which would in turn drive an increase in dishonest behavior.

2.1.2. Participants

We recruited an initial sample of 145 undergraduate and graduate students through posters placed around our University campus. Upon arrival at the laboratory, participants were given a short introduction to the research project and signed consent forms. This study was approved by the institutional review board of Southern Taiwan University.

The purpose of the study was disguised, so that subjects believed it was about computer-using behavior. Participants first completed the Ethical Computer Self-Efficacy Scale developed by Kuo and Hsu (2001). We used three embedded items in the background data section of the
questionnaire to select the participants with experiences of soft lifting (on a 5-point scale from **never** to **very frequently**) to participate in the formal experiment. The screening items were the most common forms of soft lifting: providing software to more corporate users than are covered by the license agreement; installing software licensed to an organization on home-based computers, and sharing software among friends.

Participants who indicated that they had never engaged in soft lifting ($n=37$) were rewarded for their time and told the experiment was over. The formal sample consisted of 108 students (age range, 18–36 years; $M=27.4$, $SD=6.4$; 48 females and 60 males) with experiences of soft lifting (**rarely**: 27, **occasionally**: 43, **frequently**: 21, **very frequently**: 17).

2.1.3. Prime manipulation

The experiment involved three conditions, two priming conditions and one control condition. Each person was assigned to one of the three study conditions using block-randomization. Participants assigned to the soft lifting prime condition were instructed to recall and write about a recent experience of soft lifting, e.g., sharing software among friends. Participants assigned to the legal software using prime condition were instructed to recall and write about a recent experience of authentic software installation. Participants assigned to the control condition were instructed to recall and write about a recent shopping experience in a grocery store. Using the recall technique to prime particular concepts has been widely adopted in behavioral priming (e.g., Vohs et al., 2006; Zhong and Liljenquist, 2006; Williams and Bargh, 2008; Chao et al., 2011). Participants were unaware of the prime manipulation that the other participants in their session had received.

2.1.4. Rating of perceived authenticity

We added a measure of authenticity, by using a personality questionnaire (which also included some bogus questions). Specifically, we assessed authenticity using a four-item scale, adapted from Wood et al. (2008), that measures authenticity in terms of self-alienation. Participants indicated their agreement with the following items using a 7-point scale (1 = **not at all**, 7 = **very much**): “Right now, I don’t know how I really feel inside;” “Right now, I feel as if I don’t know myself very well;” “Right now, I feel out of touch with the ‘real me’;” and “Right now, I feel alienated from myself”.

Higher scores on this scale indicate higher levels of self-alienation and, thus, lower levels of perceived authenticity. Participants’ responses to the four items showed high consistency ($z=0.86$) and their scores across the items were averaged.

2.1.5. Dependent measure

To assess their dishonest behavior, participants were asked to complete a problem-solving task following the experimental manipulation and authenticity ratings described above. Participants were asked to help us with a matrix task, which was introduced as a pretest of materials to be used in future studies on mathematical reasoning.

Each participant received two sheets of paper. The first was a work sheet with 20 matrices, each based on a set of 12 three-digit numbers (e.g., 5.78; see Mazar et al., 2008, for the details). The second sheet was a collection slip on which participants were asked to report their performance and to answer demographic questions. On the back of the collection slip we included instructions for the task and a different matrix as an example.

Participants had 5 min to find two numbers in each matrix that added up to 10; the time allotted was not sufficient for anyone to solve all 20 matrices. In previous studies (Mazar et al., 2008; Gino et al., 2009), people were able to find 7 of the 20 pairs on average during this amount of time. For each pair of numbers identified correctly, participants received NT $10 (for a maximum payment of NT $200). After the 5 min had passed, participants were instructed to fold their work sheet and to place it in a recycling box positioned in a corner of the room; then they wrote down on the collection slip the number of matrices they had solved correctly. The payments were given according to their reported performance. There was no identifier on the two sheets, so that participants could feel anonymous as they reported their performance on the task.

With regard to the measure of cheating, all participants received the same matrices to solve, except that a single number was unique for each participant. One of the three-digit numbers in the matrix used as an example on the back of each collection slip matched the unique number on the corresponding test sheet. This allowed us to match the work sheet with the collection slip of each participant and compute the difference between self-reported performance and actual performance. Positive difference scores indicate that participants inflated their performance and cheated on the task.

Each participant was fully debriefed except the measure of cheating. This was done so as to avoid generating negative effect to the self (e.g., Griffin and Ross, 1991; Mazar et al., 2008). Two female participants in the soft lifting prime condition and one male participant in the legal use condition expressed suspicion that the prime manipulation and the matrix task were related. Their responses were excluded from subsequent analysis.

2.2. Results

2.2.1. Cheating on the matrix task

Participants’ responses to the measures are shown in Table 1. The percentage of participants who inflated their performance varied across conditions, $\chi^2(2, N=105)=12.96, p < 0.01$, Cramer’s $V=0.35$. Sixty-five percent (22 out of 34) inflated their performance in the soft lifting
prime condition, 31% (11 out of 36) inflated it in the control condition, and 26% (9 out of 35) did so in the legal use condition. No gender differences were found between female participants (37%, 17 out of 46) and male participants (42%, 25 out of 59), χ²(1, N=105)=0.32, p=0.57 with regard to inflated performances.

We conducted a 2 (gender) × 3 (prime condition) ANCOVA on real performance and self-reported performance respectively, treating averaged scores on reported frequencies of the three common conditions of soft lifting (ranging from 1 to 4; M=1.99, SD=0.84) as covariates. On average, real performance on the matrix task did not differ across conditions, F (2, 98)=0.96, p=0.39, but self-reported performance did. F (2, 98)=13.78, p<0.001, partial η²=0.21. Gender differences were not found between female participants (adjusted M=6.33, SD=2.15) and male participants (adjusted M=6.96, SD=2.14), F(2, 98)=2.23, p=0.14. Follow-up contrasts revealed that self-reported performance was higher in the soft lifting prime condition (adjusted M=9.25, SD=1.71) than in either the control condition (adjusted M=7.22, SD=1.69), t (68)=5.01, p<0.001, Cohen's d=0.59, or the legal use condition (adjusted M=7.65, SD=1.68), t (67)=3.93, p<0.001, Cohen's d=0.47. Self-reported performance was about the same in the control and the legal use conditions, t (69)=1.07, p=0.29. In addition, male participants (adjusted M=8.32, SD=1.69) and female participants (adjusted M=7.77, SD=1.70) did not differ significantly in self-reported performance, F (1, 98)=2.73, p=0.10. The prime effect of soft lifting on self-reported performance was not affected by gender, F (2, 98)=0.22, p=0.80.

This pattern of results suggests that the effect was driven by the priming with soft lifting. As predicted, these findings indicated that priming participants with soft lifting led them to behave more dishonestly than did participants in either the legal use condition or the control condition.

2.2.2. The mediation of authenticity

A 2 (gender) × 3 (prime condition) ANCOVA on perceived authenticity was conducted, treating reported frequency of soft lifting as a covariate. Only the main effect of prime condition was observed, indicating that participants’ authenticity ratings varied across conditions, F (2, 98)=9.06, p<0.001, partial η²=0.15. Follow-up contrasts showed that participants felt less authentic (i.e., as manifested by higher scores on self-alienation) in the soft lifting prime condition (adjusted M=4.50, SD=0.83) than in either the legal use condition (adjusted M=3.72, SD=0.82), t (67)=3.93, p<0.001, Cohen's d=0.47, or the control condition (adjusted M=3.82, SD=0.82), t (68)=3.43, p<0.01, Cohen's d=0.41. Feelings of authenticity did not differ between the legal use condition and the control conditions, t (69)=-0.67, p=0.51. In addition, female participants (adjusted M=4.03, SD=0.83) and male participants (adjusted M=4.00, SD=0.82) did not differ in perceived authenticity, F (1, 98)=0.10, p=0.75. The prime effect of soft lifting was not affected by participant gender, F (1, 98)=0.73, p=0.49.

To examine whether perceived authenticity mediated the effect of soft lifting on dishonest behavior in the matrix task, we followed the procedures recommended by Baron and Kenny (1986). A variable functions as a mediator when it meets the following conditions: (1) the independent variable (the prime) should have an effect on the mediator variable (perceived authenticity), (2) the independent variable (the prime) should have an effect on the outcome variable (inflated performance), and (3) when we regress preference on both the mediator and the independent variable, the effect of the independent variable should no longer exist or be weaker than when it is by itself. Our data satisfy the three criteria for a mediation model. We used inflated performance (i.e., subtracting the real number of problems solved from the self-reported number of problems solved) as the dependent variable and used a dummy variable for our soft lifting manipulation (the independent variable; 1=the soft lifting prime condition, 0=the legal use condition and the control condition). Participant gender and frequency of soft lifting were treated as control variables. As expected, the soft lifting prime predicted both the perceived authenticity (β=0.38, t=4.12, p<0.001) and the inflated performance (β=0.44, t=4.94, p<0.001). More importantly, the effect of our soft lifting manipulation on inflated performance was reduced to non-significance (from β=0.44, p<0.001 to β=0.10, p=0.06) when perceived authenticity was included in the equation, and perceived authenticity was a significant predictor of inflated performance (β=0.70, p<0.001). Including perceived authenticity increased the variance significantly (by

Table 1
Summary of results for measures in the three study conditions.

<table>
<thead>
<tr>
<th>Measures</th>
<th>Soft lifting condition</th>
<th>Control condition</th>
<th>Legal use condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived authenticity</td>
<td>4.48 (S.D. = 1.94)</td>
<td>3.83 (S.D. = 0.64)</td>
<td>3.73 (S.D. = 0.72)</td>
</tr>
<tr>
<td>Participants’ inflated performance</td>
<td>65% (22 out of 34)</td>
<td>31% (11 out of 36)</td>
<td>26% (9 out of 35)</td>
</tr>
<tr>
<td>Self-reported performance</td>
<td>9.29 (S.D. = 1.89)</td>
<td>7.25 (S.D. = 1.42)</td>
<td>7.68 (S.D. = 1.69)</td>
</tr>
<tr>
<td>Real performance</td>
<td>6.51 (S.D. = 2.24)</td>
<td>6.47 (S.D. = 2.05)</td>
<td>7.08 (S.D. = 2.04)</td>
</tr>
</tbody>
</table>

n=34 for the soft lifting condition; n=35 for the legal use condition; n=36 for the control condition. Participants’ scores for authenticity ranged from 1 to 7. Higher scores indicated higher levels of self-alienation and, thus, lower levels of perceived authenticity. The number of problems solved ranged from 1 to 20.
42%, from $R^2=0.19$ to 0.61), $F(1, 100)=107.14$, $p<0.001$; the Sobel test was significant, $z=3.83$, $p<0.001$, indicating that perceived authenticity fully mediated the effect of primed soft lifting on inflated performance (as depicted in Fig. 1).

2.3. Discussion

In short, the findings of this first study demonstrated that priming with soft lifting led people to feel less authentic and that these feelings of self-inauthenticity prompted dishonest behavior. Since soft lifting can influence the signals one sends to oneself, the question arises as to whether this priming effect will extend to other unethical consumption domains relevant to intellectual property. The spread of counterfeit goods (commonly called “knock-offs”) has become a global phenomenon in recent years and the range of goods subject to infringement has increased significantly (Counterfeiting Intelligence Bureau of the International Chamber of Commerce, 1997). For most people, cost savings are a primary motivation for the purchase of counterfeits (Eisend and Schuchert-Guler, 2006; Wilcox et al., 2009). Given that software users may engage in soft lifting for the same economic reasons, we contend that a sense of self-inauthenticity, primed with soft lifting, may also manifest in a willingness to purchase counterfeit goods, beyond computer technology products.

3. Study 2

In the second study, we explored how far-reaching the priming effect of soft lifting might be, by testing whether it extended beyond the context of software purchasing. Study 2 tested the hypothesis that if soft lifting primes students to feel less authentic and to behave more immorally, this effect will be reflected in their willingness to purchase counterfeit products.

3.1. Method

Using the same screening questions as in Study 1, 82 undergraduate and graduate students (age range, 18–34 years; $M=26.2$, $SD=5.9$; 39 females and 43 males) with experiences of soft lifting were selected to participate in this study. Participants were randomly assigned to one of two study conditions, the soft lifting prime condition and the control condition. The legal use prime condition, which was investigated in Study 1, was not included in this study. The prime manipulation was conducted as in Study 1.

To increase a sense of involvement with the task, this research was introduced as a self-reflection study. Participants received a booklet describing self-reflection as the “ability to re-experience past events with significant meaning”. They were further told that “people with better self-reflection have been found to be better parents, lovers, partners and managers, and that they tend to learn lessons from experience, helping them to avoid making the same mistakes”.

After the prime manipulation, the experimenter asked participants to help with a marketing survey, by evaluating the quality of different pairs. Participants received the following instructions: “Your task in this marketing survey is to express your preference across various product categories. You will be asked to choose between two options for the different products. You will be shown pictures of each product. Some of the products you will see are authentic products of various brands, while others are counterfeit products (e.g., replica products of well-known brands). Price information will be provided for some of the choices. Please make your choices based on your willingness to buy right now. There is no right or wrong answer”.

Participants indicated their choices for 12 different pairs of products, from various product categories, not including computer technology (e.g., clothing, watches, glasses, DVDs, fashion luxuries). The dependent measure was the number of counterfeit products chosen. At the end of this experiment, participants were fully debriefed. No participants expressed any suspicion that the prime manipulation and the marketing survey were related.

3.2. Results and discussion

We conducted a 2 (gender) × (prime condition) ANCOVA on responses where participants chose counterfeit products, in which reported frequency of soft lifting (ranging from 1 to 4; $M=2.13$, $SD=0.98$) was treated as a covariate. The number of counterfeit products chosen did not differ between female participants (adjusted $M=4.62$, $SD=1.44$) and male participants (adjusted $M=4.15$, $SD=1.55$), $F(1, 77)=2.54$, $p=0.12$. As predicted, participants’ willingness to purchase counterfeit products differed between the prime condition ($M=4.98$, $SD=1.42$) and the control condition ($M=3.76$, $SD=1.22$), $F(1, 77)=18.22$, $p<0.001$, partial $\eta^2=0.19$. Participants in the soft lifting prime condition (adjusted $M=5.01$) were willing to purchase more counterfeit products than those in the control condition (adjusted $M=3.76$). The priming effect of soft lifting was not affected by participant gender, $F(1, 77)=0.73$, $p=0.40$.

In line with our prediction, participants primed with soft lifting showed a greater willingness than control...
participants to purchase counterfeits (manifested by a larger number of counterfeits chosen). The results indicate that the priming effect of soft lifting may extend to students’ intent to purchase counterfeits other than computer software, suggesting a proliferation effect on consuming behavior related to intellectual property.

4. General discussion

Our findings showed that one consequence of soft lifting might be to harm self-image by inducing an inauthentic sense of self. This research examined the psychological mechanism behind this effect by including measures of our proposed mediator. We predicted that soft lifting would prime an inauthentic self, and dishonest behavior would be prompted by these feelings of inauthenticity. The study included a contrast condition and a control condition so we could determine whether priming with soft lifting motivates dishonest behavior or whether priming with legal use reduces it. This analysis addresses a viable explanation for our results, indicating that dishonest behavior is primed by soft lifting via a sense of inauthentic self.

In the literature, research on unethical computer using behavior is frequently based on Ajzen’s (1985, 1991) theory of planned behavior (e.g., Kuo and Hsu, 2001; Al-Rafee and Cronan, 2006; Goes et al., 2008), the expected utility theory (e.g., Conner and Rumelt, 1991; Givon et al., 1995) or the deterrence theory (e.g., Gopal and Sanders, 1997; Peace et al., 2003; Higgins et al., 2005; Hinduja, 2008) to investigate the relation of a sense of self to unethical behavior (Liang and Yan, 2005). Research into this relationship from the other causal direction is scarce. Using two experimental studies, we demonstrated that the impact of soft lifting on dishonest behavior is mediated by its priming effect on the sense of self. Moreover, the priming effect of soft lifting diffuses to a willingness to purchase counterfeit products. This is the first evidence showing the negative impact of soft lifting on the moral self, and its possible proliferating effect, extending to other consumption domains relevant to intellectual property, i.e., counterfeit products. These results not only enrich the behavioral priming literature but also fill a gap left by previous studies. In HCI studies, there is little or no research addressing the relationship between software privacy and self-moral endangerment, increasing the importance of the current findings.

According to the active-self account of exemplar prime-to-behavior effects (Wheeler et al., 2007), primes can influence people’s behavior by creating changes in the active self-concept. However, the priming effect of soft lifting does not change the fact that personal factors, cultural norms, and changing economic circumstance can also impact ethical choices. We provide the first evidence showing the situational effect of software piracy on morality-related behaviors. This perspective may allow HCI researchers to further explore how an active self-concept can be primed by computer-use-related factors, inducing changes in users’ behavior, motives, and self-perceptions. The priming effect of computer interactions on users’ sense of self opens new areas of potential research on Internet technologies. Environmental priming has implications for the design of human-computer interfaces, for explaining user behaviors, and for evaluating interface designs.

4.1. Limitations and future directions

The obvious differences between laboratory settings and real-world contexts aside, our results have worrisome implications for the many users who are inclined to engage in soft lifting for cost-saving reasons. Given the social and economic relevance of the soft lifting epidemic, future research on the educational psychology of soft piracy and its potential moral costs seems warranted.

In the debriefing of Study 1, we did not disclose that the matrix task was designed to measure cheating responses, because awareness on cheating may negatively influence self-concept (e.g., Griffin and Ross, 1991; Mazar et al., 2008). Moreover, diffusion of this particular measure of cheating would likely happen among participants recruited from a university campus. Respondents in one treatment group may learn the information intended for others. Therefore, the experiment may become invalid because there are no planned differences among experimental conditions. This kind of threat to internal validity might be methodologically problematic. When inter-subjects diffusion of disguised treatments or measures is rarely possible, studies involving unethical computer using behaviors within HCI may prompt participants to think about ethical acts in their own life during the debriefing. This particular practice might neutralize experiences of unethical behaviors.

In the present research, we employed students who had experience of soft lifting. Would the priming effect of soft lifting on morally questionable behaviors also apply to those students if they had not actually committed this unethical act? Carnagey et al. (2007) investigated the link between psychological desensitization and aggression. They demonstrated that playing a violent video game, even for just 20 min, can cause people to become less physiologically aroused by real violence. From the perspective of desensitization to antisocial behavior (Anderson and Bushman, 2002), desensitization to soft lifting may increase beliefs that unethical computer use is normal, and decrease negative attitudes towards ethical violation, thereby decreasing feelings of personal ethical responsibility. If soft lifting is prevalent among users, frequent exposure to soft lifting by others may lead to a condition of being comfortably numb with regard to unethical computer use and to a lower responsiveness to unethical behavior. Here, we used a recall technique for manipulating priming. Personal experiences are highly relevant and should have the most powerful influence.
Future studies should examine whether incidental exposure to others’ soft lifting (e.g., reading a soft-lifting scenario) also generates a priming effect.

Good et al. (2005) showed that end users typically skip over end-user license agreements. This phenomenon could be related to soft lifting. There is currently no strong consensus in the HCI research community as to how user interfaces should be designed to increase awareness (Iachello and Jason Hong, 2007). Designing to prevent end users from feeling comfortable with soft lifting is a topic worthy of many future studies.

Recently, HCI researchers have begun to examine the use of information technology (IT) to promote environmental sustainability and ecological consciousness (e.g., DiSalvo et al., 2008; Froehlich et al., 2009; Tomlinson, 2010). Consumer choices reflect not only price and quality preferences but also social and moral values (Caruana, 2007). A large literature on contextual priming shows that human behavior can be primed by subtle contextual or environmental cues (e.g., Hertel and Kerr, 2001; Aarts and Dijksterhuis, 2003; Berger et al., 2008). These cues are seen as activating associated social norms, encouraging consistent behavior. Hence, HCI researchers may examine whether interfaces involving users with the primes associated with green consumerism would activate norms of social responsibility and environmentally sustainable conduct and thereby increase corresponding behaviors.

4.2. Conclusion

In recent years, the Internet has provided a means for software users to easily transport stolen software around the world (Peace et al., 2003). Economic issues, costs, and benefits, are commonly cited factors in people's decision-making processes. For example, a lack of financial resources is often given as a reason for illegal software copying (e.g., Solomon and O'Brien, 1990). Cheng et al. (1997) identified software price and household income as significant factors. They suggested that that a higher software price might cause potential buyers to buy pirated copies. Conversely, by pricing software according to buyers' household income, a reduction in their piracy intention might be expected. Users who install illegal software for personal use or who share software among friends may be engaging in this unethical act because of economic constraints but are paying a hidden price in terms of their moral selves. Perhaps most troublingly, our results suggest that the negative impact of soft lifting extends more broadly than the task context, suggesting that overlooking the negative impact of soft lifting on the self may have far-reaching negative consequences for moral behavior. Educators and users should not overlook the priming effect of soft lifting on morally questionable behaviors inside and beyond the HCI domain.

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