

# Correlates of participation in e-book piracy on campus

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## abstract

While the intention and participation in media and software piracy have been widely investigated, little is known concerning the determinants associated with electronic book piracy. With the adoption of e-book reader devices, Internet piracy remains a global concern that impacts multiple stakeholders, including authors, publishers, and libraries. The current study aims to examine the factors associated with electronic book piracy among college students. Results indicate that peer association and perceived risk are significantly linked to one's participation in e-book piracy. However, techniques of neutralization are not statistically significant. Libraries and publishers must educate students and raise awareness about the potential outcomes and risks related to ebook piracy.

## Keywords

E-book piracy, Peer association, Perceived risk, Neutralization

## Introduction

With the ease and speed of emerging technologies, the use of digital media has become an integral part of our society. People consume digital media (e.g., music, movies, books) for various functions and tasks. Electronic books, in particular, have gained more ground in the recent decade due to the proliferation of digital publishing and e-book readers. As publishers, retailers and libraries worldwide have gradually adopted a paperless method of distributing books via electronic platforms, consumers have enjoyed the experience of reading e-books for educational, recreational, and personal needs (Bennett & Landoni, 2005; Embong, Noor, Hashim, Ali, & Shaari, 2012).

Despite the benefits accruing from technological advances, there are potential risks that arise with the willful misuse of technology. Online piracy, including unauthorized use of copyrighted works, has been growing in multiple countries (Camarero, Antón, & Rodríguez, 2014; Garz, Rott, & Wass von Czege, 2015; Hill, 2007; UK Intellectual Property Office, 2017). Peer-to-peer file-sharing programs and websites allow individuals to download or share copyrighted content. In particular, e-book piracy presents a considerable threat to publishers, booksellers, authors, and consumers around the globe. Economic cost associated with e-book piracy is staggering. According to the

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**Media  
management**

September, 2020

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Digimarc (2017) study, illegal downloading of electronic books accounted for approximately \$315 million in loss of sales by U.S. publishers.

In university settings, there are practical reasons for e-book piracy becoming prevalent. With the commercial model of publishing industry, the current generation of students is faced with increasing expense and frequent editions of textbooks in higher education (Carbaugh & Ghosh, 2005; US General Accountability Office, 2013). As a result, students may be inclined to resort to the act of accessing pirated e-books for their courses. Moreover, illegal distribution of e-books is facilitated by file-sharing websites (such as ExtraTorrent or Planet Book) that allow individuals to download and upload copyrighted ebook files efficiently and conveniently. Given the rising cost of textbooks as well as the prevalent use of computer mediated technology, higher education institutions may serve as a suitable venue for identifying the factors associated with e-book piracy. Minimal research has been conducted on the relationship between e-book piracy and theoretically relevant factors.

The purpose of this study is to examine the factors that influence a person's likelihood of participating in the act of illegal downloading, uploading, creating, or sharing electronic books. We seek to investigate whether peer association, perceived risk, and neutralization are significantly linked with e-book piracy behavior. The present study aims to answer the following research questions:

1. How often do college students engage in e-book piracy?
2. Is association with deviant peers related to participation in e-book piracy?
3. Is perceived risk of punishment related to participation in e-book piracy?
4. Is neutralization related to participation in e-book piracy?

### **Explanations of participation in e-book piracy**

#### ***Peer influence***

Prior studies have documented the effect of social influence on the intention and participation in different types of digital piracy. Among the types of social agents, peers and the Internet had direct influence on both attitude toward and likelihood of participating in music piracy (Yang & Wang, 2015). Particularly, association with peers who engage in digital piracy was found to be significantly linked to one's likelihood of taking part in digital piracy, including music, movie and software (Gunter, 2008; Morris & Higgins, 2010). Notably, despite the significant impact of offline and online peers, association with real world peers was, to a greater degree, found to be related to participation in music piracy (Hinduja & Ingram, 2009). In addition to media and software piracy, students are likely to be influenced by societal acceptance toward the purchase of pirated books in academic settings (Dionísio, Leal, Pereira, & Salgueiro, 2013). Taken together, existing research reveals that peer association is an important factor in explaining different types of digital piracy behavior.

#### ***Perceived risk of punishment***

Perceived risk is shown to play a role on an individual's intention and involvement in digital piracy. Specifically, greater levels of perceived risk of legal prosecution were found to be linked to lower levels of intention of purchasing or using pirated software programs (Liao, Lin, & Liu, 2010; Tan, 2002). Moreover, perceived prosecution risk negatively impacts consumers' attitudes toward the act of purchasing pirated music products and intention of unauthorized duplication or downloading of pirated music files (Chiou, Huang, & Lee, 2005). The study by Peace, Galletta, and Thong (2003) offers

empirical support for the link between perceived risk and digital piracy, indicating that punishment certainty and severity have a significant effect on one's attitude toward software piracy. Additionally, using information from peer-to-peer file-sharing participants, the study by Bhattacharjee, Gopal, Lertwachara, and Marsden (2006) found that legal threats (e.g., lawsuits by the RIAA) may be moderately effective in deterring one's involvement in unauthorized file-sharing.

At the same time, one of the reasons for why people do not comply with the copyright law could be attributed to the perception that the act of downloading or file-sharing seems to be inherently different from real world theft (Wingrove, Korpas, & Weisz, 2011). Unlike the physical domain, online piracy does not require a physical target, hence perceived as posing no visible harm to a victim (Krawczyk, Tyrowicz, Kukla-Gryz, & Hardy, 2015). In particular, when compared with nondownloaders, downloaders were more likely to steal a CD from a music store if there was no risk of being caught (Robertson, McNeill, Green, & Roberts, 2012).

### **Neutralization**

According to the theory of neutralization, individuals are able to engage in various forms of illegal activities by using the techniques of neutralization that blur their sense of morality and free themselves from internal constraints (e.g., guilt, shame) associated with law-breaking behavior (Sykes & Matza, 1957). Empirical research examining the correlates of digital piracy indicates that neutralization techniques are commonly used to justify and rationalize the wrongdoings related to unauthorized downloading, uploading, creating, or sharing of copyrighted content. Higher levels of acceptance of the neutralization techniques are significantly associated with moderate levels of participating in music piracy (Ingram & Hinduja, 2008). Neutralization was found to have a significant, albeit weak, effect on an individual's participation in illegal downloading or uploading of commercial software programs (Hinduja, 2007). Furthermore, a qualitative study by Holt and Copes (2010) showed that those who are persistent downloaders learn not only the norms, values, and attitudes dominant within the piracy subculture, but also how to rationalize their law-violating behaviors. On a related issue, a person's normative consciousness (e.g., government, company, friends, family) is negatively and significantly associated with illegal downloading and installation of books through ebook reader devices (Camarero et al., 2014).

### **Perception toward online piracy in Asia**

Traditionally, countries without an established system of intellectual property protection tend to have higher rates of online piracy, particularly in Asia (Priest, 2006). Compared to the United States, the enforcement of laws and regulations in Asian countries has been ineffective in curbing pirating behavior (Hill, 2007). In a comparative study by Sang, Lee, Kim, and Woo (2015), while a negative relationship was found between perception of copyright protection and intention for illegal downloading of copyrighted content via peer-to-peer file-sharing sites among both American and Korean college students, a link between concern for one's risk of getting caught and intention for illegal downloading was significant only for American students. This is sensible given that digital piracy would become more prevalent if there is a lack of regulatory oversight that allows adequate protection of intellectual property and enforcement of sanctions. The study by Ki, Chang, and Khang (2006) found that intellectual property protection plays a significant role in predicting

music piracy rates across countries. Specifically, the stricter the intellectual property protection enforcement, the lower the prevalence of music piracy. Cultural factors could play a role in explaining an individual's intentions to participate in digital piracy. For instance, cultural belief systems may influence one's decision-making or ethical position related to law-violating behaviors. A cross-national study has indicated that countries with collectivist cultural traditions tend to show higher rates of software piracy compared to those with individualistic cultures (Marron & Steel, 2000). Additionally, college students from Asian culture are found to be more likely to justify their participation in digital piracy compared to U.S. college students (Yu, 2013). At the same time, moral obligation was found to influence one's attitude and intention to take part in Internet piracy among college students in South Korea (Khang, Ki, Park, & Baek, 2012).

## Methodology

### Sample and procedures

The target population of this study was college students as they are known to be active users of electronic books for both academic and nonacademic purposes (Foasberg, 2014; Mizrachi, 2015). The data for the current study were collected from a medium-sized university in a metropolitan city of South Korea during the spring of 2017. Self-administered questionnaires were distributed to undergraduate students enrolled in social science courses. The respondents were informed of their rights (e.g., confidentiality, anonymity, voluntary participation) before the questionnaires were handed out. The survey included question items regarding participation in digital piracy (including e-books), association with peers, perceived risk of legal punishment, techniques of neutralization, usage of computers, and demographic information. The distribution of the surveys resulted in a convenience sample of 264 students. Overall, the response rate was 48% (264/550). Descriptive statistics of the sample are presented in Table 1.

## Measurement

### Participation in e-book piracy

Our dependent variable was concerned with the participation in e-book pi-

**Table 1**  
Descriptive statistics and correlations of study variables (n=264).

	1	2	3	4	5	6	7	8
E-book piracy	—							
Peer association	0.20**	—						
Perceived risk	-0.15*	0.19**	—					
Neutralization	0.02	0.42**	0.21**	—				
Age	-0.12*	0.18**	0.33**	0.47**	—			
Male, N (%)	0.03	0.27**	0.13*	0.36**	0.37**	—		
Daily hours online	-0.03	0.13*	0.21**	0.36**	0.36**	0.40**	—	
Computer proficiency	-0.15*	0.11	0.26**	0.35**	0.58**	0.33**	0.52**	—
Mean	0.25	1.84	1.55	12.64	19.59	138 (52%)	2.85	0.96
SD	0.43	2.99	1.24	14.87	4.00		2.40	1.59

\* p < .05;

\*\* p < .01

racy. It was measured by asking respondents how often they have knowingly downloaded, uploaded, created, or shared a pirated ebook during the past four years. Consistent with prior research (Hinduja, 2007; Hinduja & Ingram, 2009; Ingram & Hinduja, 2008), the current study aimed to explore the students' participation and involvement in pirating activity of electronic books. Considering the large number of zeros and skewed distribution, the dependent variable was dichotomized to reflect the likelihood of e-book piracy (0=no; 1=yes).

### **Peer association**

Consistent with prior studies (Hinduja & Ingram, 2009; Morris & Higgins, 2010), peer association was measured by incorporating the number of virtual peers who engaged in different piracy activities. Through online interaction, not only deviant behavior is learned but also norms and justifications of the collective subculture (Holt & Copes, 2010). Three items were combined to create a composite measure of differential association using the following items: How many of your closest friends have engaged in the following behavior during the past four years? 1) knowingly downloaded, uploaded, created, or shared with another person a pirated copy of a movie, 2) used BitTorrent or another type of torrent program to download or upload a pirated copy of a movie, and 3) used BitTorrent or another type of torrent program to download or upload a pirated copy of commercially sold computer software. The responses were scored using a five-point scale (0=none; 1=very few; 2=about half; 3=more than half; 4=all of them). Higher scores on the scale indicate a stronger association with peers engaging in digital piracy. The Cronbach's alpha value revealed a reliability of 0.93 for these items.

### **Perceived risk**

Perceived risk was measured by asking participants "how likely or unlikely do you think it is that you will be legally punished for copyright infringement due to the unlawful use of digital media (e.g., software, music)?" The responses were recorded using a five-point scale (0=very unlikely, 1=unlikely, 2=possible, 3=likely, 4=very likely). It was intended to capture the level of an individual's perception of legal sanctions if he or she was caught for violating copyright laws.

### **Neutralization**

Based on the studies by Maruna and Copes (2005) as well as Morris and Higgins (2010), the measure of neutralization comprised 14 statements rated on a four-point scale (0=strongly disagree, 1=disagree, 2=agree, 3=strongly agree). In order to reflect an individual's neutralizing attitudes toward the act of digital piracy, this measure included six techniques of neutralization: denial of injury, denial of victim, denial of responsibility, condemnation of condemners, appeal to higher loyalties, and defense of necessity (see Appendix A for a full list of statements). A composite measure was created by summing the 14 items of neutralization; higher score indicates a greater tendency to rationalize one's participation in digital piracy. The Cronbach's alpha value of 0.94 indicates a very high level of reliability among these items.

### **Demographic measures**

Four sociodemographic measures were included in this study. While age was measured as a continuous variable, gender was a dichotomous measure (0=female, 1=male). With regards to daily time spent online, respondents were asked to indicate the number of daily hours spent using the Internet for academic purposes, using a six-point ordinal scale (0=none, 1= <1 h, 2=1 to

2 h, 3=2 to 3 h, 4=3 to 4 h, 5=>4 h). Finally, an individual's level of computer proficiency was measured by asking participants of their ability to use computers and assessed on a four-point scale (0=low; 1=average; 2=high; 3=very high).

### **Analytic method**

A set of bivariate correlations was conducted to assess the statistical significance and direction of the relationships between each of the independent and dependent variables. A multivariate analysis was performed to evaluate the significant relationships at the bivariate level. Since the dependent measure was dichotomous, the current study employed the logistic regression model to simultaneously explore the impact of peer association, perceived risk, and neutralization on one's participation in e-book piracy. Additionally, the Variance Inflation Factor (VIF) statistics for all variables were found to be smaller than 10, and all Tolerance values were larger than 0.10, ensuring that multicollinearity was not a problem. Given that there were 8 missing responses, a listwise treatment was applied.

### **Results**

#### ***Descriptive statistics and correlations among measures***

First, descriptive statistics and correlations among the study variables were computed (see Table 1). Approximately 25% of the sample engaged in illegal downloading, uploading, creating, or sharing of copyrighted book content. In terms of peer association, the respondents reported that, on average, about half of their friends had engaged in pirating behaviors (e.g., movie, software). More than 60% of respondents perceived that they were unlikely to be punished due to their unlawful use of copyrighted digital media. Additionally, the mean for neutralization was 12.64 with a standard deviation of 14.87.

With regards to demographic characteristics, 52% of the sample was male, and the mean age was about 19 years. While the majority of our respondents spent their daily time using the Internet for academic purposes, 25% reported to have spent more than 4 h per day. Finally, the mean for computer proficiency was 0.96.

Pearson's correlations were computed to assess the relationship between peer association, perceived risk, neutralization, age, gender, daily hours spent online, computer proficiency, and e-book piracy. Table 1 illustrates that e-book piracy was significantly correlated with peer association ( $r=0.20$ ), perceived risk ( $r=-0.15$ ), age ( $r=-0.12$ ), and computer proficiency ( $r=-0.15$ ). Consistent with prior research on music and movie piracy (Hinduja & Ingram, 2009; Morris & Higgins, 2010), peer association was positively related to ebook piracy. The more a person associates with pirating peers, the more likely he or she engages in e-book piracy. Perceived risk was negatively linked to e-book piracy. If students perceive that they are less likely to be punished for their law-violating acts, they are more likely to participate in e-book piracy. Age and computer proficiency were negatively correlated with e-book piracy. It is possible that the onset of digital piracy could begin as early as adolescence (Kim & Kim, 2015; Malin & Fowers, 2009).

#### ***Binary logistic regression***

When interpreting the logistic regression results (see Table 2), it must be noted that a unit increase in the independent variable is interpreted as the expected change in the odds of observing the outcome, holding all other variables constant (Hosmer, Lemeshow, & Sturdivant, 2013). The results show that peer association was significantly and positively associated with one's

participation in e-book piracy ( $p < .01$ ). Students who spent time with a greater number of friends taking part in illegal downloading, uploading, creating, or sharing of copyrighted files are more likely to engage in pirating activities of electronic books, compared to those interacting with a smaller number of digital pirating peers. Peer association increased the odds of e-book piracy such that for each additional level of association with pirating peers, the odds of e-book piracy increased by a factor of 1.19.

As expected, perceived risk was significantly and negatively related to e-book piracy. Students who perceived a higher risk of legal sanctions for copyright infringement were less likely to participate in e-book piracy than those with lower levels of perceived risk. It decreased the odds of e-book piracy by a factor 0.71. Neutralization was not related to participation in e-book piracy. It could be possible that our composite measure of neutralization may not signify a wide range of conditions that reflect a person's attitude toward digital piracy (Hinduja, 2007; Maruna & Copes, 2005). Despite the significant effect of age and computer proficiency in the bivariate correlations of the observed measures, it was not significant at the multivariate level. None of the demographic variables showed a statistically significant association with participation in e-book piracy. All the factors together explained 15% of the variance in e-book piracy, as indicated by the Nagelkerke  $R^2$ .

**Table 2**  
**Binary logistic regression analysis of factors associated with e-book piracy (n=264)**

	B	S.E.	Odds ratio
Peer association	0.17**	0.05	1.19
Perceived risk	-0.34*	0.14	0.71
Neutralization	0.00	0.01	1.00
Age	-0.05	0.05	0.95
Gender	0.13	0.15	1.14
Daily hours online (academic)	0.05	0.08	1.05
Computer proficiency	-0.21	0.14	0.81
Constant	-0.09	0.93	0.92
Nagelkerke $R^2$		0.15	

\*  $p < .05$ ;

\*\*  $p < .01$

## Conclusion and discussion

The current study explored the relationship between peer association, perceived risk of punishment, neutralization, and the likelihood of engaging in electronic book piracy. Our findings add to the literature on digital piracy in several ways. First, it validates the existing research by demonstrating that peer association and perceived risk of punishment have a significant impact on one's likelihood of engaging in electronic book piracy. Consistent with existing studies, peers engaging in pirating activity influence a person's likelihood of downloading, uploading, creating, or sharing of electronic books (Hinduja & Ingram, 2009; Morris & Higgins, 2010). The current study also confirmed that in addition to real world peers, the interaction with virtual



peers is closely related to digital piracy (Miller & Morris, 2016). This seems plausible given that young people nowadays are increasingly spending more time communicating and building online relationships with peers (Subrahmanyam & Greenfield, 2008).

Perceived risk of punishment was significantly, albeit moderately, related to the propensity of engaging in e-book piracy. This corresponds with prior research that the risk of prosecution and certainty of punishment negatively influences one's attitude toward and the likelihood of engaging in digital piracy of music or software (Chiou et al., 2005; Peace et al., 2003). Our finding demonstrates that if individuals perceive that they will be punished for their wrongdoings, it serves as a warning to those who have not engaged in unauthorized uploading or file-sharing that these behaviors will be sanctioned. The present findings are consistent with the prior finding that students are more inclined to engage in digital piracy based on their perceived enforcement and approval of others, regardless of enforcement context (Van Rooij, Fine, Zhang, & Wu, 2017).

Regarding neutralizations of digital piracy, it was expected that students with greater acceptance of the neutralization techniques were associated with higher levels of participation in e-book piracy compared to those with lower acceptance. Individuals with neutralization techniques are inclined to blur their moral boundaries and remove the feelings of guilt or shame from participation in digital piracy by justifying the actions involving free download, uploading, creating, or sharing of electronic books via the Internet. Given that there has been minimal research on book piracy (Camarero et al., 2014; Nkiko, 2014), our study expands the scope of research on e-book piracy by exploring theoretically relevant constructs, particularly social influence, perceived risk, and neutralization.

The current study has several limitations that must be considered. First, due to the cross-sectional nature of our study, causal inferences cannot be made. Future studies could longitudinally investigate whether virtual peer association and perceived risk of punishment contribute to lower levels of participation in e-book piracy. Secondly, we used a relatively small convenience sample of college students at a midsized university. Thus, the findings of this study cannot be generalized to college students in other universities across South Korea. Given there is limited research on the correlates of e-book piracy, this study offers a snapshot of e-book piracy behavior among college students in South Korea. Thirdly, the current study used only one measure of social learning theory—peer association. The exclusion of measures representing social learning theory may result in the possibility of model misspecification (Burruss, Bossler, & Holt, 2013; Pratt et al., 2010). Future research should incorporate all four measures of social learning process. Finally, the construct for perceived risk of punishment may not precisely capture the extent to which individuals perceive the risk of being sanctioned for not complying with the copyright laws.

Several policy implications can be derived from the key findings concerning the factors influencing e-book piracy behavior. First, university administrators and librarians can develop programs to educate and remind students about the importance of adhering to copyright policies as well as the legal consequences of violations during their stay at colleges or universities. If students perceive that it is beneficial to conform to the rules and regulations rather than law-violating norms of their peers, they are less likely to engage



in e-book piracy. As suggested by prior research, copyright instructions in college contexts have been primarily aimed at educating faculty members, excluding student populations that can be users and creators of copyrighted content (Muriel-Torrado & Fernández-Molina, 2015; Rodriguez, Greer, & Shipman, 2014). Additionally, college students have little knowledge about copyright, warranting more inclusive and effective educational programs on college campuses (Muriel-Torrado & Fernández-Molina, 2015). Secondly, warnings of legal sanction may have a deterrent effect on those who engage in e-book piracy. Educating students about ethical and legal use of intellectual property upon entering college could help to create an environment in which they learn to comply with policies established to protect the integrity of digital media. Finally, authors, publishers, and libraries can increase public awareness and disseminate information about the potential risks facing copyright infringing activities via online and face-to-face channels. If students perceive that the potential risks of engaging in e-book piracy outweigh the benefits, it may discourage their participation in such activity.

### **Appendix A. Neutralization measure (14 items) from Morris and Higgins (2010)**

1. If a college student gets in trouble for using a software file from an illegitimate source instead of paying for it, it is more the university's responsibility because they should provide the software to students.
2. The university should be responsible for providing access to software or other digital media; this way people would not have to download it illegitimately.
3. I shouldn't have to pay for music and software when most of the people I know download for free.
4. Music and software companies are not really harmed when students download their products for free. Those companies have so much money, it doesn't really matter.
5. Artists make so much money from concerts, videos, sponsors, and other sources, they aren't really hurt by illegal downloading.
6. If music and software companies don't want students to download their products for free, they should have better online security.
7. I don't really buy into the idea that music companies lose much from illegitimate downloaders and file sharing; my (or other students') downloading doesn't really hurt them.
8. Illegitimate downloading is a victimless crime.
9. Music and software companies have been ripping people off for years, so illegitimate downloading is justified.
10. It's really not college students' fault that they download music and software rather than paying for it; prices are just too high these days.
11. If I had to pay for all the music and software that I listen to or use, I would likely have to work more to pay for things like food, tuition, clothes, and so on.
12. Illegitimate downloading should not be frowned on when people need those programs to do their job or their class work and the university doesn't make the software as available as it should be.
13. People who download necessary software because they can't afford it should not be held liable for doing such things.
14. I think it is okay to use copied software for research purposes because everybody shares the benefits.

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