**A STUDY ON DIGITAL PIRACY OF GAMES
IN WESTERN AUSTRALIA**

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**2010001**

# MARKETING INSIGHTS
**Working Paper Series
School of Marketing**

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**ABSTRACT**

This study investigates the factors influencing "illegal" downloading of pirated games from the Internet. Specifically, it examines how personal factors ("habits", "affect, "self efficacy" and "moral judgement") and social factors ("facilitating conditions" and "social factors") influence "attitudes towards downloading pirated games".

The data analysis of 206 usable responses indicated three antecedents ("self efficacy", "affect" and "moral judgement" have significant relationships with "attitudes toward downloading pirated games from the Internet". Conversely, "habits", "facilitating conditions" and "social factors" do not have significant influence towards "attitudes toward downloading pirated games from the Internet". Additionally, internet usage, internet time spent and internet speed do not have significant influence to respondents' attitudes toward downloading pirated games from the Internet to change the respondents' intention to download pirated games from the Internet in the future. Self-control theory, neutralization theory and theory of planned behavior are used to explain some of the results.

Findings derived from this study can provide useful practical implications for marketers, policy makers and internet gatekeeper to have a better understanding of down-loaders' behaviour and help developed better anti-piracy measurement to reduce piracy rate in Australia. The major limitation in this study is the use of a convenience sample from a large university. Further research is needed with a random sample of down-loaders.

## INTRODUCTION

Games piracy, the unauthorized use or illegal copying or "burning" of games, sharing games on peer-to-peer networks, or illegal download of games from the Internet continues to be a major drain on the global economy especially games industry (Videogame Piracy – An Overview, 2009). It is difficult to estimate the exact amount of loss between $1 billion and $3 billion annually from games piracy because there is no accurate measuring activity on the internet-legitimate to determine how many

downloads happened when a hacker cracks a game's protection code and puts the game on the web (Hyman, 2006).

Electronic games piracy has been increasing recently that worried the games industry, which internet piracy has been encouraged by the ever-increasing reach of high-speed broadband Internet access (Dejean, 2009; Hyman, 2006; Ojeda-Zapata, 2004; Hunt, 2003; Das, 2008). Before broadband Internet access is available, a pirate needs more than a week to download a games with a 56K modem or dial-up speed but now the download time is reduced to less than a week with broadband or DSL speed (Tjew and Malle, 2004; Lewis, 2007).

This study purely focuses on games piracy through the Internet which internet users upload the games files in the Internet so other internet users can download it for free illegally. This research has two primary objectives. The first objective is to examine the relationship between six antecedent factors (social factors, facilitating condition, habitual conduct, self efficacy, affect and moral judgement) and attitudes toward downloading pirated games from the Internet. The second objective is to investigate the relationship between internet users' attitudes toward downloading pirated games from the Internet and the intention to download pirated games from the Internet. Additionally, this research also tries to find out how the internet usage, internet time spent and internet speed moderate the relationship between attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet. The difference perspective between down-loaders and non-down-loaders also will be investigated.

This paper enhances understanding of internet users' behavior in internet games piracy and leads to valuable implication for games developers, managers, the internet gatekeeper, the academic community, and governmental agencies on how to develop effective measures to deal with games piracy through Internet. For instances, marketers and policy makers are creating ad campaigns to invoke guilt factor and providing another cheaper alternatives for consumers on the Internet.

This paper is organized into several sections, beginning with a discussion on relevant literature, and leading to the model and hypotheses development. This is followed by

a description of the research methodology and some findings from the data analysis. The discussion of the finding will be provided in the next section. Finally, the implications and limitations of the study are highlighted as the conclusion of this study for further research.

## LITERATURE REVIEW

### Internet piracy

Internet piracy is the illegal downloading or distribution of unauthorized copies of intellectual property such as movies, television, music, games and software programs via the internet that occur in many forms including via file sharing networks, pirate servers, websites and hacked computers (AFACT, 2007; Hyman, 2006). The hacking of vulnerable web sites or defeating Digital Rights Management (DRM) tools to steal games developers' creation is also referred to as internet piracy (Ponte, 2008). Downloading pirated games without paying for it is morally and ethically no different to walking into a store and stealing a DVD off the shelf (Hyman, 2006). These actions violate copyright infringement law (Commonwealth Consolidated Acts, 2009) because it is stealing intellectual property right. The term "copyright" is defined as a type of legal protection for people who produce things like writing, images, music, films and games to prevent others from doing certain things (such as copying and making available online) without permission (Australian Copyright Council, 2009).

### Global Games Piracy

Computer-game piracy has lagged behind music piracy because digital game files are much bigger than digital music files and more cumbersome to swap over the Internet (Ojeda-Zapata 2004). Games piracy affect PC games most and console will also get affected in the near future (Dyer-Witheford and de Peuter, 2009). Therefore, computer-game publishers have done some counter move to fight back the games piracy such as increased copy protection, spoofing, intimidation and capitulation (Ojeda-Zapata, 2004; Myles and Nusser, 2006; Dyer-Witheford and de Peuter, 2009). Surprisingly, consumers, who purchased pirated games if the price reduced more than 75 percent or downloaded pirated games, do not perceive it as a crime (Fed: Consumers risk criminal record over pirated games, 2005). Dyer-Witheford and de Peuter (2009) found that not all piracy for profit and piracy is the only way for many people can afford games.

**High- Speed Broadband Impact to Games Piracy**

The widespread adoption of the Internet has opened up a whole new opportunity for information sharing including file sharing that encourage individuals to do digital piracy (Aiken, Vanjani, Ray and Martin, 2003; Lewis, 2007; Altschuller and Benbunan-Fich, 2009; Chalkiti and Sigala, 2008; Parameswaran, Susarla and Whinston, 2001; Zentner, 2008). At the same time, peer to peer networks support, the high-speed internet connections and inexpensive and bigger media storage capacity are the three factors that have also opened the opportunities to illegal downloading and digital piracy (Cronan and Al-Rafee, 2008; Pouwelse, Garbacki, Epema and Sips, 2005; Terrell and Rosen, 2003).

**Games Piracy in Australia**

Australia has a world-class computer and video game industry however local Australian games retailers' loss $21.8 million and suppliers loss $4.3 million each year as a result of piracy whereas it also denies Australians hundreds of jobs each year (Facts about Video & Computer game piracy, 2009). Additionally, the piracy cost the games industry $100 million lost in sales each year (Facts about Video & Computer game piracy, 2009). According to Chen, Shang, and Lin (2008), hundreds of thousands more Australians have turned to illegal download sites in the past year to save money on movies, music, software and TV shows during the economic downturn. Total visits by Australians to BitTorrent websites including Mininova, The Pirate Bay, isoHunt, TorrentReactor and Torrentz grew from 785,000 in April last year to 1,049,000 in April this year with a year-on-year increase of 33.6 per cent (Chen et al., 2008). This fact indicates that economic downturn has influenced consumer behaviour to illegally downloading games because consumers spending power has decreased.

**Previous Research**

There are no study have been done in games piracy but some concepts from digital piracy will be used to construct the model for this study. According to Walls (2008), the previous research indicates that social factors have positive relationship with digital piracy but internet usage level has negative relationship with digital piracy. Using theory of Planned Behavior, Peace et al (2003) found that individual attitudes,

subjective norms and perceived behavior control were all significantly related to the intention to commit digital piracy with attitude being the strongest predictor. Limayem et al. (2004) adopted the Triandis (1980) model and investigated various factors including social factors, affect, habit, and facilitating conditions. All of these factors except affect significantly influenced both the intention to pirate and actual digital piracy behavior. According to Shin et al. (2004); sociological factors have more influence than economic factors. In this empirical study, sociological factors will be investigated in relation to the level of digital piracy. Further, Al-Rafee and Cronnan (2006) found that people who did digital piracy want to save money and did not believe they would get caught. Additionally, the data analysis indicated moral judgement was not significant with attitude towards digital piracy. Banerjee and Cronan (1998) found that individual and situational (social) characteristics influence the intention to do digital piracy. Thus, this study will use personal factors and social factors to measure the attitudes toward downloading pirated games. In this context, the antecedents from previous research for music piracy and software piracy can be used to measure games piracy.

## THEORY DEVELOPMENT

Studies based on the perspectives of theory of planned behavior (TPB), expected utility theory (Peace, 1997) and equity theory (Glass and Wood, 1996) have explained the behavior that favours piracy. The literature has shown that the attitudes and intentions towards downloading pirated games from the Internet are highly applicable to the theory of reasoned action (TRA) and TPB (Cronan and Al-Rafee, 2008; Peace et al., 2003). This study will use both well-developed theoretical orientation to clarify the psychological processes underlying intention and behaviors of internet users favouring internet games piracy (Plowman and Goode, 2009). Thus, both theories will be used to underpin this research. Self control theory (Gottfredson & Hirschi, 1990) and neutralization theory (Sykes & Matza, 1957) will also be used in this study to explain personal factors that affect the individuals to do digital piracy.

**Self Control Theory**
Originally, Gottfredson and Hirschi's (1990) self control theory suggests that self-control is the principle causal factor for all crimes. Gottfredson and Hirschi (1990)

argued that individuals who are subjected to poor or ineffective parenting practices are likely to have low self-control. Those with low self-control are likely to perform criminal behaviour when an opportunity presents itself (Gottfredson and Hirschi, 1990; Higgins et al., 2009). In this context, digital piracy is a criminal behavior (Zhang et al., 2009; Higgins et al., 2009). Higgins and his colleagues (Morris and Higgins, 2009; Higgins et al., 2009; Wolfe and Higgins, 2009; Higgins et al., 2006; Higgins, 2005; Higgins & Makin, 2004) have applied this theory in the context of digital piracy and found that low self-control is significantly related to digital piracy.

**Neutralization Theory**

Originally, neutralization theory is developed by Sykes and Matza (1957) to develop "techniques of neutralization" specific to criminal offending even their exploration was limited to juvenile offending (Morris and Higgins, 2009; Ingram and Hinduja, 2008; Hinduja, 2006). Five techniques are created by Sykes and Matza (1957): denial of responsibility, denial of injury, denial of victim, condemnation of the condemners, and appeal to higher loyalties (Hinduja, 2006). Hinduja (2006) also explored metaphor of the ledger (Klockars, 1974; Minor, 1980), claim of normalcy, denial of negative intent and claim of relative acceptability (Henry, 1990) as other four techniques to explain neutralization theory. The neutralization theory has been used to explain a number of criminal behaviours such as digital piracy in this context.

Existing literature found that digital piracy offenders do not view piracy as being illegal or unethical (Morris and Higgins, 2009; Ingram and Hinduja, 2008; Hinduja, 2006; Peace et al. 2003). This finding can be explained by using neutralization theory which postulates that individuals are able to neutralize their wrongdoing by justifying their illegal actions as "normal" (Hinduja, 2006).

Denial of responsibility is blaming another person or another factor for conducting the illegal activity. Denial of injury is dismissing the possibility that others or entities may suffer serious consequence for conducting the illegal activities. Denial of victim is reducing the possibility that another party is harmed to some degree. Denial of negative intent dismisses the illegal behaviour as a joke or otherwise unintended repercussion. All these neutralization techniques will be applied to ethical stance of downloading behaviours. Down-loaders normally mention "it is not my fault to download it for free", "all my friends are doing it", "the games industry will not lose

too much", "games developers still makes revenue from other sources", "I play it myself and it is only for private use" or "I don't have time to go to the game retailers to purchase the games so I download it" are good examples of the attributes of neutralization theory in explaining digital piracy.

Claim of normalcy ("everyone in the society is downloading pirated games from the Internet") contends the illegal activity (illegally downloading pirated games) treated as a normal activity because it has become a common practice in the society that it is considered to be the norm. The claim of relative acceptability ("downloading pirated games from the Internet will not murder anyone; people engage in much worse activity than this") is comparing the act to more reprehensible deeds with the intention to minimizing its detrimental consequence because other people can engage in much worst activity than digital piracy.

Condemnation of the condemners ("how dare the games industries claim that down-loaders are not ethical and it is an illegal activity when they charge their products with high price") is shifting the focus from their own deviance by pointing out that they are the one who are being victimized by the providers. Appealing to higher loyalties ("downloading pirated games from the Internet will give benefit to the individuals in the society to have a chance to enjoy games entertainment") involves championing and supporting a greater cause for the greater good of the society. Additionally, games industry also gets benefit from illegal downloading pirated games (i.e. the games become more popular). Metaphor of the ledger ("All pirated games that I downloaded illegally were enjoyed by everyone in the society so I am a decent person") is comparison of one's good deeds with the current questionable deed, thereby the illegal activity (downloading pirated games) is perceived as no wrongdoing because it benefits the society.

**Theory of Reasoned Behavior**
The TRA theory indicates that personal in nature (attitude) and social influences (subjective norms) affect human behavior which people intend to behave in ways allow them to obtain favourable outcomes and meet the expectation of others (Azjen and Fishbein, 1977). According to TRA, a decision to engage in a behavior (downloading pirated games from the Internet) is predicted by an individual's
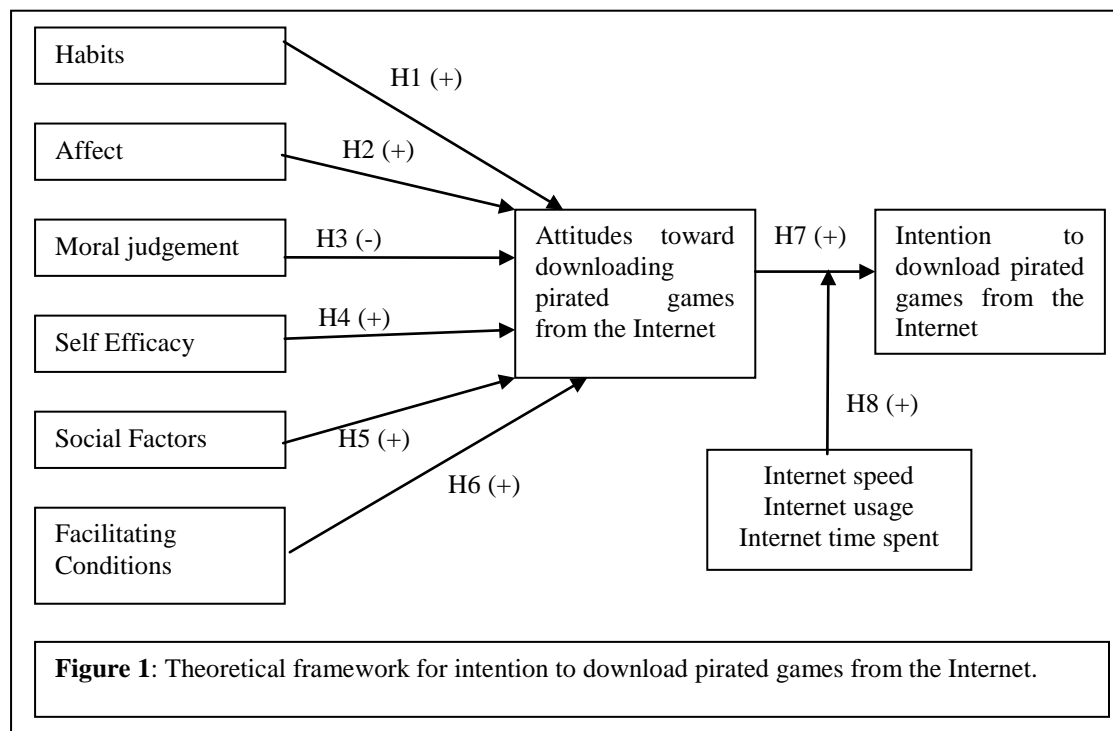
intention to perform the behavior directly. Additionally, an individual's intention to perform the behavior can be predicted if the individual's attitude and subjective norms are known. Results from other studies have indicated that attitudes have a stronger effect on predicting behavioral intentions than subjective norms (Cronan and Al Rafee, 2008; Peace et al., 2003).

**Theory of Planned Behaviour**

The TPB is an extension of the TRA, introduced by Azjen in 1985 with the additional variable of perceived behavioural control as a predictor for intentions and behaviour to improve the main flaw of the TRA. According to Azjen (1991), behaviour is guided by belief about likely outcomes of behaviour and evaluations of these outcomes (behavioural beliefs), beliefs about normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of behavior and the perceived power of these factors (control beliefs).

Azjen's Theory of Planned Behaviour (TPB) is a well recognized intention model because it is very useful to understand and explain behaviour in a wide range of topics including digital piracy (Cronan and Al-Rafee, 2008; Peace et al., 2003). Both personal and social factors influence intention to download pirated games from the Internet as explained by TRA. Peace et al. (2003) have shown that these factors are strongly affected to attitudes toward the behaviour. In this context, these factors (habits, affect, facilitating conditions, social factors, moral judgement and self efficacy) are those accrue to attitudes toward the behaviour. According to Morton and Koufterous (2008, 491), a recent survey conducted of 216 respondents based on this planned behaviour theory also suggested that attitudes toward digital piracy, subjective norms and perceived level of control in individuals were factors that led to the intention to commit online piracy. In order to gain an initial exploratory understanding of the games downloading phenomenon situation, this paper uses the wide model view of rational choice (Figure 1).

## HYPOTHESES DEVELOPMENT



**Figure 1**: Theoretical framework for intention to download pirated games from the Internet.

**Habits**

According to Triandis (1980), habits are situation-behavior sequences that have become automatic and occur without self-instruction. An individual's behavior and attitudes are affected by habits because habits are function of an individuals' past experience and the ability to accomplish specific tasks (Limayem et al., 2004). In such instances, habits have positive influence to individuals' attitudes toward downloading pirated games from the Internet. As such, the following hypothesis:

**H1**: There is positive relationship between habitual conduct and attitudes toward downloading pirated games from the Internet.

**Affect**

According to Triandis (1980), affect refers to an individual's feeling of joy, elation, pleasure, depression, dictate, discontentment, or hatred with respect to a particular behavior. Triandis (1980) argues that literature shows a profound and substantial relationship between affect and attitude that will lead to intention to download pirated games from the Internet. The affect factors that used in the questionnaire are positive individual's feeling toward downloading pirated games such as wise, exciting, amusing and pleasant (Limayem et al., 2004). In such instances, affect has positive

influence with the attitudes toward downloading pirated games from the Internet. As such, the following hypothesis:

**H2**: There is a positive relationship between individuals' affect toward downloading pirated games and their attitudes toward downloading pirated games from the Internet.

**Moral Judgement**

Moral judgement has been used to predict ethical judgement and attitude (Al-Rafee and Cronan, 2006). Studies in cognitive moral development have consistently affirmed a direct relationship between higher stage of moral judgement and higher occurrence of downloading pirated games from the Internet in this context (Tan, 2002). Blasi (1980) proved that there is a significant relationship between moral thinking and moral behavior that will affect the individuals' attitudes toward downloading pirated games from the Internet. Several studies have found that moral judgement have a connection with digital piracy which the intention to do digital piracy will decrease if the moral beliefs are increasing (Higgins and Makin, 2004; Higgin et al., 2006; Wolfe and Higgins, 2009). In this context, attitudes toward downloading pirated games from the Internet will be lower when the moral judgement is higher. Hence, the following hypothesis is proposed:

**H3**: Individuals who are high on the moral judgement scale will have lower attitudes toward downloading pirated games from the Internet.

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**Self Efficacy**

Self efficacy is the "beliefs in one's capabilities to organize and execute the courses of action required producing given levels of attainment" (Bandura, 1998, p. 624). Self efficacy in this study refers to individuals' judgement of their capability to engage in digital piracy behavior (downloading pirated games from the Internet) in various situations especially technological capabilities (Zhang et al., 2009). Individuals who are involved in digital piracy behavior should know how to access pirated games that can be downloaded for free from the Internet by using software or direct download from the Internet. Additionally, an individual with high level of self efficacy will have small chance to get caught (Krueger and Dickson, 1994). Therefore, individuals who intend to download pirated games from the Internet should perceive themselves capable of doing the tasks aforementioned. As such, the following hypothesis is proposed:

**H4**: There is a positive relationship between self efficacy and attitudes toward downloading pirated games from the Internet.

**Social Factors**

According to Limayem et al. (2004), perceived social pressure refers to individuals' perception affected by most people that influential to them think that the behaviour should be performed or not so social factors can be defined as those norms, roles and values at the societal level that influences an individual's intention to download pirated games from the Internet. In this context, the norms and values that are conveyed through interaction with friends, colleagues, and family members such as comments, suggestions or directives are all examples of social factors (Limayem et al., 2004). In such instances, the influence of social norms on personal behavior is positively related. As such, the following hypothesis proposed:

**H5**: Social factors have a positive influence on the attitudes toward downloading pirated games from the Internet.

**Facilitating Conditions**

Similar to the notion by Azjen (1991) of perceived behavioral control, facilitating conditions are important in explaining human behavior because it will influence an individuals' attitudes toward downloading pirated games from the Internet that will lead to have intention to download pirated games from the Internet but the action may be unable to do so if the environment prevents the act from being performed.

Facilitating conditions can be defined as those factors in an individual's environment that facilitate the act of downloading pirated games from the Internet such as absence of penalties for illegal downloading, availability of pirated games to download for free and the absence of a code of ethics (Triandis, 1980; Limayem et al., 2004). Similarly, Cheng et al. (1997) found that the low risk of being caught and the ease of piracy are among the main factors that facilitate piracy. In this context, facilitating condition will have positive influence for attitudes toward downloading pirated games from the Internet. As such, the following hypothesis:

**H6**: There is positive relationship between facilitating conditions and attitudes toward downloading pirated games.

**Attitudes toward downloading pirated games**

According to Cronan and al Rafee (2008), attitude is one of the major components of the TPB as the best predictor of intention to do digital piracy. Similarly, Peace et al. (2003) found that attitude had the strongest effect on intention to do digital piracy based on TPB. As such, the following hypothesis:

**H7**: There is positive relationship between attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet.

**Moderating variables**

Studies have shown that internet speed facilitate internet users to download files faster (Dejean, 2009; Lewis, 2007) and there is no study about level of internet usage and internet time spent that moderate between attitudes toward downloading pirated games as an independent variable and intention to download pirated games illegally as a dependent variable. It is expected that internet speed, internet usage and internet time spent have moderation relationships between attitudes toward downloading pirated games from the Internet with intention to download pirated games from the Internet. Hence, the following hypothesis:

**H8a**: Internet usage is a moderation variable between attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet.

**H8b**: Internet time spent is a moderation variable between attitudes toward illegally downloading pirated games from the Internet and intention to download pirated games from the Internet.

**H8c**: Internet speed is a moderation variable between attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet.

## METHODOLOGY

**Data Collection**

The survey instrument was designed and distributed to convenience samples in one large university which nearly every one of the samples is internet users to take part in the survey. The data collection is conducted over a four week period. The survey took place at various times in the day to achieve a broad cross-section of the population. It was highlighted to the respondents that participation in this study was voluntary and that respondents' anonymity was ensured due to the sensitivity of this study. The respondents were further reassured that their responses would not be traced back to

them owing to the sensitivity of some questions in the survey. The demographic details requested were purely for statistical analysis. Respondents were given 3-4 minutes to complete the survey. Two hundred and six surveys were completed and employed in the final analysis.

**Survey instrument**

All of the scales, with the exception of the first section have been used in previous research. The first section of the survey instrument comprised three filter questions to differentiate internet users and non-internet users also to differentiate down-loaders and non-down-loaders. Additionally, eight items scale were developed to measure internet usage level (Teo, 2001). Additionally, eight items scale were developed to measure internet usage level (Teo 2001). The first four items measured internet usage level (seven-point scale: 1 = Never, to 7 = Very Often). The second four items measured internet time spent (seven-point scale: 1 = Never, to 7 = More than 4 hours). One-item scale was established to measure internet speed.

The second section comprised a 5-item scale to measure habits (Limayem et al., 2004), a 4-item scale to measure self efficacy (Zhang et al., 2009), and a 3-item scale to measure social factors (Limayem et al., 2004).

The third section comprised a 6-item scale to measure affect (Limayem et al., 2004), a 5-item scale to measure facilitating conditions (Limayem et al., 2004), a 4-item scale to measure moral judgement (Tan, 2002), a 10-item scale to measure attitudes toward downloading pirated games from the Internet (Ang et al., 2001) and a 4-item scale to measure the intention to download pirated games from the Internet (Limayem et al., 2004).

All items in second and third sections were measured on a 7-point Likert scale, with 1 representing 'strongly disagree' and 7 representing 'strongly agree'. The last section comprised a series of demographic items.

Relevant issues were revised and amended from the feedback of reviewers before the survey instrument was distributed to the actual sample.

In total, 246 responses were collected, and 40 responses were discarded due to incompletion. Two hundred and six usable responses were analyzed with SPSS version 16. The sample distribution between non-down-loaders and down-loaders is shown in Table 2. Over fifty percent of respondents were females. The percentage of down-loaders (44.8 percent) was slightly lower than non-down-loaders (55.2 percent), which showed a moderate or low prevalence and acceptance of downloading among university students. Most of the down-loaders were in "age range 18-25" with 86.8 percent. The results from Table 2 also indicates that majority of people with low income are down-loaders (70.3 percent).

**Table 1:** Sample distribution between non-down-loaders and down-loaders of pirated games.

| Demographic | Non-down-loaders (n=112; 55.2 %) | Down-loaders (n=91; 44.8 %) |
|---|---|---|
| *Gender* | | |
| Male | 35 (31.3 %) | 62 (68.1 %) |
| Female | 77 (68.7 %) | 29 (31.9 %) |
| *Age* | | |
| 18-25 | 86 (76.8%) | 79 (86.8%) |
| 26-35 | 15 (13.4 %) | 11 (12.1 %) |
| 36 and above | 11 (9.8 %) | 1 (1.1%) |
| *Household income* | | |
| 0-20000 | 59 (52.7 %) | 64 (70.3 %) |
| 20001-40000 | 17 (15.2 %) | 7 (7.7 %) |
| 40001-60000 | 15 (13.4 %) | 6 (6.6 %) |
| 60001 and above | 21 (18.7 %) | 14 (15.4 %) |
| *Education* | | |
| Secondary Education | 48 (42.9 %) | 35 (38.5 %) |
| Diploma TAFE | 18 (16.1 %) | 20 (22 %) |
| Bachelor Degree | 30 (26.8 %) | 32 (35.2 %) |
| Postgraduate Degree | 16 (14.2 %) | 4 (4.3 %) |

**Preliminary checks**

The scales were each factor-analysed to ensure uni-dimensionality, followed by a reliability check. These results and the respective sources are shown in Table 2. As reflected, most of the scales exhibit a high degree of reliability with the Cronbach α above 0.80, except for affect (0.782), facilitating condition (0.600), moral judgement (0.782), internet usage (0.645), and internet time spent (0.673). The scale is adapted in this study is still deemed as acceptable, as it is greater than 0.60 (Nunnaly,1978).

**Table 2:** Reliability scores of scales

| Scale Measure | Source | No. of items | Cronbach alpha |
|---|---|---|---|
| Habits | Limayem et al. 2004 | 5 | 0.934 |
| Self efficacy | Zhang et al. 2009 | 4 | 0.929 |
| Social factors | Limayem et al. 2004 | 3 | 0.861 |
| Affect | Limayem et al. 2004 | 6 | 0.782 |
| Moral judgement | Tan 2002 | 4 | 0.782 |
| Facilitating Conditions | Limayem et al. 2004 | 5 | 0.600 |
| Attitudes toward downloading pirated games from the Internet | Ang et al. 2001 | 10 | 0.800 |
| Intention to download pirated games illegally from the Internet | Limayem et al. 2004 | 4 | 0.948 |
| internet usage | Teo 2001 | 4 | 0.645 |
| internet time spent | Teo 2001 | 4 | 0.673 |
| All scales measured using 7-point Likert scale. | | | |

## Regression Analysis

In order to test the hypotheses (Hypthoses 1-6), multiple regressions were used to analyze the effects of the independent factors on attitudes toward downloading pirated games from the Internet. Results generated are show in Table 3.

**Table 3**: Predictors of attitudes toward illegally downloading pirated games

| Independent variables | B-values | Std. error | β | Adjusted $R^2$ | t-value | Sig. |
|---|---|---|---|---|---|---|
| Affect | 0.483 | 0.058 | 0.571 | 0.640 | 8.335 | 0.000** |
| Social Factors | -0.045 | 0.044 | -0.078 | | -1.025 | 0.307 |
| Facilitating Conditions | -0.046 | 0.054 | -0.049 | | -0.860 | 0.391 |
| Habits | 0.032 | 0.045 | 0.056 | | 0.710 | 0.478 |
| Moral Judgement | -0.229 | 0.048 | -0.283 | | -4.800 | 0.000** |
| Self Efficacy | 0.103 | 0.035 | 0.178 | | 2.927 | 0.004** |
| Dependent variable: Attitudes toward downloading pirated games from the Internet. Adjusted $R^2$=0.640; F=60.779 (significant at P< 0.01) **significant at P< 0.01 | | | | | | |

Only three variables, namely affect, moral judgement and self efficacy, are found to be significant influence "attitudes toward downloading pirated games from the Internet" (F= 60.779, P< 0.01, Adjusted $R^2$= 0.640). These predictors are explained by 64 percent of the variance in attitudes toward downloading pirated games from the Internet. The results indicate "habits" does not have a positive influence on "attitudes toward downloading pirated games from the Internet" (β = 0.056, adjusted $R^2$ = 0.640, Sig. = 0.478). Hence, H1 has been rejected. Further, a positive relationship between

"affect" and "attitudes toward downloading pirated games from the Internet" is also reported (β = 0.571, adjusted $R^2$ = 0.640, Sig. = 0.000). Therefore, H2 is accepted. The regression between "moral judgement" and "attitudes toward downloading pirated games from the Internet" indicates that there is a negative relationship (β = -0.283, adjusted $R^2$ = 0.640, Sig. = 0.000). Therefore, H3 has been accepted. There is a significant relationship between "self efficacy" and "attitudes toward downloading pirated games from the Internet" (β = 0.178, adjusted $R^2$ = 0.640, Sig. = 0.004). Hence, H4 has been accepted. The results indicate that there is no significant influence between "social factors" and "attitudes toward downloading pirated games from the Internet" (β = -0.078, adjusted $R^2$ = 0.640, Sig. = 0.307). Thus, H5 is rejected. The analysis indicate that "facilitating conditions" has no significant influence on "attitudes toward downloading pirated games from the Internet" (β = -0.049, adjusted $R^2$ = 0.640, Sig. = 0.391). Thus, H6 is rejected.

**Table 4**: Regression from factors of attitudes toward downloading pirated games from the Internet onto intention to download pirated games from the Internet.

| Independent variables | B-values | Std. error | β | Adjusted $R^2$ | t-value | Sig. |
|---|---|---|---|---|---|---|
| Attitudes toward downloading pirated games from the Internet | 1.169 | 0.101 | 0.629 | 0.393 | 11.555 | 0.000** |
| Dependent variable: Intention to download pirated games from the Internet. Adjusted $R^2$=0.393; F=133.508 (significant at P< 0.01). **significant at P< 0.01 | | | | | | |

The analysis (based on Table 4) indicates that "attitudes toward downloading pirated games from the Internet" has a positive influence on "intention to download pirated games from the Internet" " (β = 0.629, adjusted $R^2$ = 0.393, Sig. = 0.000). Therefore, H7 is accepted.

**Hierarchical Moderated Regression Analysis**

Hierarchical moderated regression analysis will be used to analyze three factors (internet usage, internet time spent and internet speed) as moderation variables between "attitudes toward downloading pirated games from the Internet" as an independent variable and "intention to download pirated games from the Internet" as a dependent variable.

**Table 5:** Hierarchical Moderated Regression Analysis for Internet Usage

| Independent Variables | Cumulative $R^2$ | F | df | Independent Variable Added | $R^2$ Increment | F(step) | df |
|---|---|---|---|---|---|---|---|
| Z | 0.394 | 130.46[a] | 1,201 | Z | 0.394 | 130.46[a] | 1,199 |
| Z + X | 0.413 | 70.36[a] | 2,200 | X | 0.019 | 6.61 | 1,198 |
| Z + X + ZX | 0.413 | 46.68[a] | 3,199 | ZX | 0.000 | 0.02 | 1,197 |

[a]p < .001
Z = attitudes toward downloading pirated games from the Internet
X = Internet usage

Moderated regression analysis seeks to determine the change in $R^2$ that results during a hierarchical test of three regression equations (Caruana et al., 2002; Aiken and West, 1991).Based on Table 5 Row 1, results indicate that independent variables provide a significant $R^2$ of 0.39. The results shown in Table 5 row 2 and 3 indicate a higher $R^2$ of 0.413 but the increase in $R^2$ from 0.394 to 0.413 is statistically not significant $\pm$ F = 6.63; p > 0.001. Therefore, there is no significant influence when internet usage (moderation variable) added into attitudes toward illegally downloading pirated games from the Internet (independent variable) because there is no significant change in $R^2$. Therefore, H8a is rejected.

**Table 6:** Hierarchical Moderated Regression Analysis for Internet Time Spent

| Independent Variables | Cumulative $R^2$ | F | df | Independent Variable Added | $R^2$ Increment | F(step) | df |
|---|---|---|---|---|---|---|---|
| Z | 0.394 | 130.46[a] | 1,201 | Z | 0.394 | 130.46[a] | 1,199 |
| Z + X | 0.444 | 79.76[a] | 2,200 | X | 0.050 | 18.01[a] | 1,198 |
| Z + X + ZX | 0.444 | 52.92[a] | 3,199 | ZX | 0.000 | 0.03 | 1,197 |

[a]p < .001
Z = attitudes toward downloading pirated games from the Internet
X = Internet time spent

Based on Table 6 Row 1, the results indicate that independent variables provide a significant $R^2$ of 0.394. The results shown in Table 6 row 2 and 3 indicate a higher $R^2$ of 0.444 but the increase in $R^2$ from 0.394 to 0.444 is statistically not significant $\pm$ F = 18.04; p > 0.001. Therefore, there is no significant influence when Internet time spent

(moderation variable) added into attitudes toward downloading pirated games from the Internet (independent variable) because there is no significant change in $R^2$. Therefore, H8b is rejected.

**Table 7:** Hierarchical Moderated Regression Analysis for Internet Speed

| Independent Variables | Cumulative $R^2$ | F | df | Independent Variable Added | $R^2$ Increment | F(step) | df |
|---|---|---|---|---|---|---|---|
| Z | 0.394 | 130.46[a] | 1,201 | Z | 0.394 | 130.46[a] | 1,199 |
| Z + X | 0.396 | 65.69[a] | 2,200 | X | 0.003 | 0.95 | 1,198 |
| Z + X + ZX | 0.397 | 43.61[a] | 3,199 | ZX | 0.000 | 0.57 | 1,197 |

[a]$p < .001$
Z = attitudes toward downloading pirated games from the Internet
X = internet speed

Based on Table 7 Row 1, results indicate that this provides a significant $R^2$ of 0.394. The results shown in Table 7 row 2 and 3 indicate a higher $R^2$ of 0.396 or 0.397 but the increase in $R^2$ from 0.394 to 0.396 or 0.397 is statistically not significant ± F = 1.52; p > 0.001. Therefore, there is no significant influence when internet speed (moderation variable) added into attitudes toward downloading pirated games from the Internet (independent variable) because there is no significant change in $R^2$. Therefore, H8c is rejected.

DISCUSSION

The findings of this study reveal that only three antecedents (affect, moral judgement and self efficacy) have significant influence in "attitudes toward downloading pirated games from the Internet". Conversely, "habits", "facilitating conditions" and "social factors" have not significant influence with "attitudes toward downloading pirated games from the Internet".

**Moral Judgement**

Firstly, "moral judgement" as a personal factor has negative influence on "attitudes towards downloading pirated games from the Internet". This finding is similar from previous research findings (Blasi, 1980; Tan, 2002; Higgins and Makin, 2004; Higgin and Wilson, 2006; Wolfe and Higgins, 2009). It is clear that down-loaders still consider the moral implications before downloading pirated games from the Internet. It shows that down-loaders who download pirated games have low self-control for not

doing illegal activities because they feel that it is not their fault and it does not harm anyone. Additionally, there is an opportunity for down-loaders to download pirated games from the Internet because the society still treats the act of illegally downloading pirated games from the Internet is a "normal" activity.

**Affect**

'Affect" as a personal factor has a positive relationship with "attitudes towards downloading pirated games from the Internet". It is shown that down-loaders feel downloading pirated games from the Internet is valuable, exciting, and wise. Additionally, the results also indicate that downloading pirated games from the Internet is not "wrongdoing" and it is an ethical conduct in down-loaders' perspectives. These findings once again validating the concept of the neutralization theory, especially the claim of normalcy technique (treated an illegal activity as a normal activity).

**Self efficacy**

"Self efficacy" as a personal factor has significant influence with attitudes toward downloading pirated games from the Internet. Clearly, self efficacy also plays an important role as well. Without high level of self efficacy, it is difficult for individuals to download pirated games from the Internet. For instances, if the individuals do not know how to access the websites to download pirated games or do not know how to install and use the software to download the pirated games such as Torrent (Hyman, 2006; Ojeda-Zapata, 2004), it will give a hard time for the "down-loaders" to download pirated games from the Internet. Therefore, individuals who download pirated games from the Internet must have high level of self efficacy to "crack" the games because games developers have done some counter move to fight back the games piracy such as increased copy protection, spoofing, intimidation and capitulation (Ojeda-Zapata, 2004; Myles and Nusser, 2006; Dyer-Witheford and de Peuter, 2009).

**Habits**

Habits as a personal factor do not have significant influence on "attitudes toward downloading pirated games from the Internet". It is clear that down-loaders are not addicted to download pirated games illegally because it needs high level of self

efficacy to conduct this illegal downloading behaviour. Down-loaders also need to think twice to download pirated games because it needs huge data storage capacity since most of the games file sizes are large size (more than 2 gigabyte) (Ojeda-Zapata, 2004). Therefore, the number of pirated games that respondents have downloaded from the Internet is not high. However, some individuals still download pirated games from the Internet because it is easy to perform and no one is being harmed based on neutralization theory.

**Social Factors**

"Social factors" as a social factor has no significant influence with attitudes toward downloading pirated games from the Internet. It has shown family, colleagues and friends who are likely to influence the act of downloading pirated games from the Internet have no affect at all with "attitudes towards illegally downloading pirated games". This finding indicates that families, colleagues and friends are not the groups of people who can influence down-loaders to do the act of illegally downloading pirated games from the Internet. Therefore, down-loaders found out that the act of illegally downloading pirated games from the Internet is a common practice in the society and the environment support this illegal act. Additionally, individuals who do the act of illegally downloading pirated games from the Internet have low self-control based on self-control theory.

**Facilitating Conditions**

"Facilitating conditions" as a social factor do not have significant influences with "attitudes toward downloading pirated games from the Internet". Clearly, individuals who download pirated games from the Internet do not need "facilitating conditions" to support them. It is shown that down-loaders do not need help from someoneto teach them how to download illegal games. Down-loaders already found out that the act of illegally downloading pirated games from the Internet is a common practice in the society based on neutralization theory. Therefore, inappropriate anti-piracy measure will not affect down-loaders' behaviours. It is clear that down-loaders can download pirated games from the Internet without "facilitating conditions" support. However, this result is contradicting with findings based on TPB as theoretical foundation (Azjen, 1991).

**Attitudes toward downloading pirated games from the Internet**

Another finding of this study indicates "attitudes toward downloading pirated games from the Internet" has significant influence with "intention to download pirated games from the Internet". With the TPB as a theoretical foundation, the linkage between attitudes and intentions has been reconfirmed again, reflecting many studies had been done previously (Morton and Koufterous, 2008; Cronan and Al Rafee, 2008; Peace et al., 2003). In support of previous findings (Cronan and Al Rafee, 2008; Peace et al., 2003), individuals with favorable attitudes toward downloading pirated games from the Internet will also have stronger intentions to download pirated games from the Internet. Furthermore, the individuals who download pirated games from the Internet do not hold negative intentions towards the copyright owners.

From all these findings, the characteristics of "down-loaders" who are likely to download pirated games from the Internet have the affection and low moral judgement to download pirated games from the Internet with high level self efficacy to "crack" the pirated games.

## PRACTICAL IMPLICATIONS

Managers, marketers and policy makers must collaborate to combat the games piracy. Since the issue about downloading pirated games illegally is hard to handle and the piracy rate is always increasing, games industry should use this concern to sell their games through internet with reasonable price as another cheaper alternative. For instances, consumers can download games from legal websites with cheaper price or through mobile phone (i.e. iPhone or Blackberry) with cheaper price as well. Additionally, managers, marketers and policy makers need to improve their technology securities to prevent hackers to download games without paying (Ponte, 2008; Myles and Nusser, 2006) by creating new system where the consumers will receive serial number or key code to access and download the games that they already paid.

Authorities do not have aggressive action to combat the games piracy by catching the illegal down-loaders by tracking their IP address from Internet provider that down-loaders apply for. In support of previous findings (Goel and Nelson, 2009), authorities should be harsher with the punishment to reduce the piracy rate in Australia.

Authorities also need to invoke guilt factor to change the minds of individuals who did digital piracy as suggested by Lysonski and Durvasula (2008) so the down-loaders will change their minds. Authorities should create a campaign to educate individuals in the public by showing the negative impact of piracy to economy and games industry to invoke guilt factor (i.e. reduces available jobs in games industry, lost couple of million of revenue in games industry industry each year and reduces government's tax income).

Authorities especially policy makers should take much further steps to create appropriate anti-piracy measure in Australia by creating internet gatekeeper to block all websites that have access to free pirated games. Authorities also need to collaborate with internet provider to aggressively catch all illegal down-loaders by tracking their IP address. Additionally, awareness campaign about the punishments and ethical concern for downloading pirated games from the Internet are also recommended to invoke guilt factor into down-loaders. By doing these actions, it will create a new environment that does not support the act of downloading pirated games from the Internet so "facilitating conditions" is not exist in the new environment.

## CONCEPTUAL IMPLICATION

This study is expanding current digital piracy literature and developing a more robust measure by measuring the relationship between six antecedents (habits, affect, facilitating conditions, social factors, moral judgement and self efficacy) and attitudes toward downloading pirated games from the Internet based on Theory of Planned Behavior (TPB). Additionally, it also specifically measures the relationship between attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet based on TPB.

## CONCLUSION

In summary, this study presents the following conclusion: It is evident that individual's attitudes toward downloading pirated games from the Internet has significant influence in affecting intention to download pirated games from the internet. Self efficacy, affect and moral judgement also play an important role in

affecting the individuals' attitudes toward downloading pirated games from the Internet. Conversely, habits, social factors and facilitating conditions have not significant influence with "attitudes toward downloading pirated games from the Internet". Additionally, there are significant difference behavior between downloaders and non-downloaders.

Although this study shows that the attitudes toward downloading pirated games from the Internet play a role in affecting intention to download pirated games, they might differ in downloading other product categories such as music or movies. This study purely focuses on downloading pirated games through the Internet.

Some implications for marketers, the internet gatekeeper, and policy marketers on how to develop effective measures to deal with games piracy through Internet need to be considered from this study. For instances, marketers and policy makers are creating ad campaigns to invoke guilt factor and providing another cheaper alternatives for consumers on the Internet. Additionally, the punishment should be harsher and anti-piracy agencies should be more aggressive in catching all illegal "down-loaders" by tracking their IP address from the Internet provider that they used.

## LIMITATION OF THE STUDY

There are a number of limitations that can be improved in the future research. First, the scope of this study is limited to convenient samples that involve students' participation from a large university which are found to be the majority of illegal down-loaders. The data does not represent Western Australia population. Additionally, quantitative approaches are very commonly used and the understanding derived may still be limited. For instances, there are possibilities that the respondents are under reporting on their actual downloading behaviour due to the sensitivity of the topic. Each respondent also has difference perspectives about the definition of downloading. Further research is needed with a random sample of consumers and clarify downloading definition.

The study only focuses on personal factors and social factors that influence attitudes toward downloading pirated games from the Internet and intention to download pirated games from the Internet. The study can explore more in technology and economic factors to understand consumer behavior with digital piracy.

This study is engage only in Western Australia. However, generalizing to other states in Australia (i.e. Queensland, South Australia, New South Wales or Victoria) is needed to because the results that obtained in Western Australia can not be used to generalize other states.

Further exploration using qualitative approaches also needed to investigate the difference between down-loaders' behaviour and non-down-loaders behaviour that may provide deeper insights.

## FUTURE RESEARCH DIRECTION

The study should contain economic factors (price) and compare the downloading behavior (online) with purchasing original DVD or CDs (offline). Additionally, the quality of downloaded pirated games and the sources of the downloaded pirated games also need to be researched to provide more useful information for games industry. Technology factors (i.e. internet speed, computer features and software features) also needed to be researched to understand how down-loaders conduct their illegal downloading behavior.

The study should expand into cross country or cross cultural studies as every country has different cultural background and different technology development.

Further research for ethical concern in the society and self control for individuals about downloading behaviors are needed to get deeper insight of these issues. Additionally, further research about piracy also needs to explore more in the comparison among music, video and software digital piracy to find out the similarities and the difference in individuals' behavior toward digital piracy.

REFERENCES

AFACT, 2007. Internet piracy. http://www.afact.org.au/moviethieves_internet.html (Retrieved at November 4, 2009).

Aiken, L.S. and S. G. West. 1991. Multiple Regression: Testing and Interpreting Interactions, Sage, London.

Aiken, M., Vanjani, M., Ray, B., and J. Martin. 2003. College Student Internet Use. *Campus-Wide Information Systems* 20(5): 182–185.

Al-Rafee, S., and T. P. Cronan. 2006. Digital Piracy: Factors that Influence Attitude towards Behavior. *Journal of Business Ethics* 63: 237-259.

Altschuller, S., and R. Benbunan-Fich. 2009. Is Music Downloading the New Prohibition? What Students Reveal Through an Ethical Dilemma. *Ethics and Information Technology* 11(1): 49–56.

Ang, S. H., Cheng, P. S., Lim, A. C., and S. K. Tambyah. 2001. Spot the difference: Consumer responses towards counterfeits. Journal of Consumer Marketing, 18(3): 219-235.

Australian Copyright Council, 2009. Copyright information. http://www.copyright.org.au/information/cit014/wp0125 (Retrieved at November 4, 2009).

Azjen, I. 1991. The theory of planned behaviour. *Organizational behaviour and Human Decision Processes* 50: 179-201.

Azjen, I. 1985. "*From Intentions to Actions: A Theory of Planned Behavior", Action-Control: From Cognition to Behavior*. Heidelberg: Springer.

Azjen, I., and M. Fishbein. 1977. Attitude-behaviour relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5): 888-918, 18(3): 219-235.

Bandura, A., 1998. Health promotion from the perspective of social cognitive theory. Psychology and Health, 13, 623-649.

Banerjee, D. and T.P. Cronan, et al.: 1998, "Modelling IT Ethics: A study in situational ethics', MIS Quarterly, 22(1), 31-60.

Blasi, A. 1980. Bridging moral cognition and moral action: a critical review of the literature. *Psychological Bulletin*, Vol. 88 No. 1, pp. 1-45.

Caruana, A., Money, A.H., and P. R. Berthon. 2002. Service quality and satisfcation-- the moderating role of value. *Measuring Business Excellence* 6, no. 1, (January 1): 45.

Chalkiti, K., and M. Sigala. 2008. Information Sharing and Idea Generation in Peer to Peer Online Communities: The Case of 'DIALOGOI'. *Journal of Vacation Marketing* 14(2): 121–132.

Chen, Y. C., Shang, R. A., and A. K. Lin. 2008. The intention to download music files in a P2P environment: Consumption value, fashion, and ethical decision perspectives. *Electronic Commerce Research and Applications* 7 (4): 411-422.

Cheng, H. K., Sims, R. R., and H. Teegen. 1997. To purchase or pitate software: an empirical study," Journal Management Information System, vol. 13, no. 4, pp. 49-60.

Commonwealth Consolidated Acts, 2009. Copyright Act 1968. http://www.austlii.edu.au/au/legis/cth/consol_act/ca1968133/ (Retrieved at November 4, 2009).

Cronan, T. P., and S. Al-Rafee. 2008. Factors that Influence the Intention to Pirate Software and Media. *Journal of Business Ethics* 78: 527-545.

Das, S.. 2008. Timing Movie Release on the Internet in the Context of Piracy. Journal of Organizational Computing and Electronic Commerce 18, no. 4, (October 1): 307.

Dejean, S.. 2009. What Can We Learn from Empirical Studies About Piracy? CESifo Economic Studies 55, no. 2, (June 1): 326-352.

Dyer-Witherford, N., and G. de Peuter. 2009. Empire@Play: Virtual Games and Global Capitalism. CTheory.Net. http://www.ctheory.net/articles.aspx?id=608.

Facts about Video & Computer game piracy. 2009. Interactive Games & Entertainment Association (IGEA). http://www.igea.net/2009/08/facts-about-video-computer-game-piracy/ (Retrieved at November 9, 2009).

Fed: Consumers risk criminal record over pirated games :[1]. 2005. AAP General News Wire April 4   1.

GI: Game Industry Biz. 2008. "Industry revenue $57 billion in 2009, says DFC" http://www.gamesindustry.biz/articles/industry-revenue-57-billion-in-2009-says-dfc.

Glass, R. S., and W. A. Wood. 1996. Situational determinants of software piracy: An equity theory perspective. *Journal of Business Ethics* 15: 1189-1198.

Goel, R. K., and M. A. Nelson. 2009. Determinants of Software Piracy: Economics, Institutions, and Technology. *Journal of Technology Transfer* 34 (6): 637-658.

Gottfredson, M. R., and T. Hirschi. 1990. *A general theory of crime*. Stanford, CA: Stanford University Press.

Henry, S. 1990. *Degrees of deviance: Student accounts of their deviant behavior*. Salem, WI: Sheffield.

Higgins, G. E. 2005. Can self-control theory help understand the software piracy problem? *Deviant Behavior* 26: 1-24.

Higgins, G. E., Fell, B. D., and A. L. Wilson. 2007. Low Self-Control and Social Learning in Understanding Students' Intentions to Pirate Movies in the United States. *Social Science Computer Review* 25:339-357.

Higgins, G. E., and D. A. Makin. 2004. Does social learning theory condition the effects of low self-control on college students' software piracy? *Journal of Economic Crime Management* 2(2): 1-22.

Higgins, G., Wolfe, S., and M. Ricketts. 2009. Digital Piracy: A Latent Class Analysis. *Social Science Computer Review* 27(1): 24.

Higgins, G. E., Fell, B. D., and A. L. Wilson. 2006. Digital Piracy: Assessing the Contributions of an Integrated Self-Control Theory and Social Learning Theory Using Structural Equation Modeling. *Criminal Justice Studies* 19:3-22.

Hinduja, S. 2006. Neutralization theory and online software piracy: An empirical analysis. *Ethics and Information Technology* 9(3): 187-204.

Hunt, B. 2003. "Companies warn of music piracy risk". Financial Times.

Hyman, P. 2006. State Of The Industry: Video Game Piracy. Game Developer, December 1, 13-18.

Ingram, J. R., and S. Hinduja. 2008. Neutralizing music piracy: An empirical examination. *Deviant Behavior* 29: 334-366.

Klockars, C. B. 1974. *The professional fence.* New York: Free Press.

Krueger, N. Jr., and Dickson, P.R., 1994. How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Science*, 25(3), pp. 385-400.

Kwok, S. H. 2004. File sharing activities over BT networks: Pirated movies, Computers in Entertainment, 2(1), 1-7.

Lewis, J. 2007. "If you can't protect what you own, you don't own anything": Piracy, privacy, and public relations in 21st century Hollywood. *Cinema Journal*, 46(2), 145-150.

Limayem, M., Khalifa, M., and W. W. Chin. 2004. Factors Motivating Software Piracy: A Longitudinal Study. *IEEE Transactions on Engineering Management* 51(4): 414-425.

Lyonski, S., and S. Durvasula. 2008. Digital Piracy of MP3s: Consumer and Ethical Predispositions. *Journal Of Consumer Marketing* 25 (3): 167-178.

Minor, W. W. 1980. Techniques of neutralization: A reconceptualization and empirical examination. *Journal of Research in Crime and Delinquency,* 18: 295-318.

Morris, R., and G. Higgins. 2009. Neutralizing Potential and Self-Reported Digital Piracy: A Multitheoretical Exploration Among College Undergraduates. *Criminal Justice Review* 34(2): 173.

Morton, N., and X. Koufteros. 2008. Intention to Commit Online Music Piracy and Its Antecedents: An Empirical Investigation. *Structural Equation Modeling* 15(3): 491.

Myles, G. and S. Nusser. 2006. Content protection for games. *IBM Systems Journal*, 45(1), p. 119-143.

Nunally, J. 1978. Psychometric Theory, 2nd edition, New York: McGraw-Hill.

Ojeda-Zapata, J. 2004. Computer Game Makers Lose Increasing Number of Sales to Online Piracy. Knight Ridder Tribune Business News February 5, pp. 1.

Parameswaran, M., Susarla, A., and A. B. Whinston. 2001. P2P Networking: An Information-Sharing Alternative. *Computer* 34(7): 31-38.

Peace, A. G. 1997. Software piracy and computer-using professional: A survey. *Journal of Computer Information Systems* 37(3): 94-99.

Peace, A., Galleta, D., and J. Thong. 2003. Software Piracy in the Workplace: A Model and Empirical Test. *Journal of Management Information Systems* 20(1): 153-177.

Pouwelse, J., Garbacki, P., Epema. D., and H. Sips. 2005. The Bittorrent P2P File-Sharing System: Measurements and Analysis. *Lecture Notes in Computer Science* 3640, 205– 216.

Ponte, L. M. 2008. Coming Attractions: Opportunities and Challenges in Thwarting Global Movie Piracy. *American Business Law Journal* 45(2): 331-369.

Shin, S. K., Gopal, R. D., Sanders, G. L., and A. B. Whinston. 2004. Global software piracy revisited. *Communication of the ACM* 47: 103-7.

Sykes, G., and D. Matza. 1957. Techniques of neutralization: A theory of delinquency. *American Sociological Review* 22: 664-670.

Tan, B. 2002. Understanding consumer ethical decision making with respect to purchase of pirated software. *The Journal of Consumer Marketing* 19(2/3): 96.

Teo, T.S.H., 2001. Demographic and motivation variables associated with Internet usage activities. Internet Research 11, no. 2, (January 1): 125-137.

Terrell, K. and S. Rosen. 2003. A Nation of Pirates Panicked by Digital Plunder, the Entertainment Industry Fights Back. *U.S. News and World Report* 135(1): 40–42.

Tjew, A., and N. Malle. 2004. Modeling a system to deliver electronic enterntainment over a broadband connection. *The Electronic Library*, 22(1). pp. 23-31.

Triandis, C. H. 1980. Values, attitudes and interpersonal behaviour, in Proc. Nebraska Symp. Motivation, 1979: Beliefs, Attitudes and Values, Lincoln, NE, 1980, pp. 159-295.

Videogame Piracy – An Overview. 2009. Interactive Games & Entertainment Association (IGEA). http://www.igea.net/2009/08/background-information/ (Retrieved at November 9, 2009).

Wall, D. S. 2006. *Surveillant Internet Technologies and the Growth in Information Capitalism: Spams and Public Trust in the Information Society*. Pp. 340-362 in The New Politics of Surveillance and Visibility, edited by K. Haggerty and R. Ericson. Toronto, Canada: University of Toronto Press.

Wolfe, S., and G. Higgins. 2009. Explaining Deviant Peer Associations: An Examination of Low Self-Control, Ethical Predispositions, Definitions, and Digital Piracy. *Western Criminology Review* 10(1): 43-55.

Zentner, A. 2008. Online Sales, Internet Use, File Sharing, and the Decline of Retail Music Specialty Stores. *Information Economics and Policy* 20(3): 288–300.

Zhang, L., Smith, W., and W. C. McDowell. 2009. Examining Digital Piracy: Self-Control, Punishment, and Self-Efficacy. *Information Resources Management Journal* 22(1): 24-44.

**Habits** – Five items were used to measure the extent to which the act of illegally downloading pirated games from the Internet became automatic for the respondent. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Habit 1. Downloading pirated games from the Internet is a habit for me.

Habit 2. I am addicted to downloading pirated games from the Internet.

Habit 3. I always like to download pirated games from the Internet.

Habit 4. I don't even think twice before downloading pirated games from the Internet.

Habit 5. The number of pirated games that I have downloaded from the Internet is high.

**Affect** – Six items were used to measure respondents' feeling regarding the act of illegally download pirated games from the Internet. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed to obtain the extent to which the respondents felt that games piracy is wrong, exciting, unethical, amusing, wise and valuable.

Affect 1. It is wrong to download pirated games from the Internet. (reversed score)

Affect 2. It is exciting to download pirated games from the Internet.

Affect 3. It is unethical to download pirated games from the Internet. (reversed score)

Affect 4. It is amusing to download pirated games from the Internet.

Affect 5. It is wise to download pirated games from the Internet.

Affect 6. It is valuable to download pirated games from the Internet.

**Moral Judgement** – Four items were used to measure respondents' ethical concern with the act of illegally downloading pirated games. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed. Questions for moral judgement 1 and 2 are measuring cognitive judgement. Questions for moral judgement 3 and 4 are measuring moral reasoning.

Moral judgement 1. The act of downloading pirated games from the Internet rather than buying the original one is wrong.

Moral judgement 2. It is morally wrong to download pirated games from the Internet.

Moral judgement 3. One should always consider the moral implications before downloading pirated games from the Internet.

Moral judgement 4. There are moral reasons against downloading pirated games from the Internet.

**Self Efficacy** – Four items were used to measure the respondents' capabilities to engage in the act of illegally downloading pirated games. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Self efficacy 1. It is easy to find the access to download pirated games from the Internet.

Self efficacy 2. It is easy to install the software to download pirated games from the Internet.

Self efficacy 3. It is easy to use the software to download pirated games from the Internet.

Self efficacy 4. It is easy to download the pirated games from the Internet.

**Social Factors** – Three items were used to measure how three specific groups of people (family, colleagues and friends) who are likely to influence the act of illegally downloading pirated games. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Social factor 1. My family encourages me to download pirated games from the Internet.

Social factor 2. My colleagues encourage me to download pirated games from the Internet.

Social factor 3. My friends encourage me to download pirated games from the Internet.

**Facilitating Conditions** – Five items were used to measure how objective environmental factors that make an act of illegally downloading pirated games easier to do (Triandis, 1980) according to the respondents. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Facilitating condition 1. There are inappropriate anti-piracy measures for downloading pirated games in Australia.

Facilitating condition 2. There is insufficient copyright protection for games in Australia.

Facilitating condition 3. There is a lack of awareness campaign on illegal downloading of pirated games in Australia.

Facilitating condition 4. I know people who can help me to download pirated games from the Internet.

Facilitating condition 5. I know how to access pirated games that can be downloaded from the Internet.

**Attitudes toward downloading pirated games from the Internet** – Ten items were used to measure the respondents' attitudes towards illegally downloading pirated games. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Attitude 1. It is quite risky to download pirated games from the Internet.

Attitude 2. Pirated games on the Internet are not worth downloading.

Attitude 3. Downloading pirated games from the Internet is not fair to the producers because it robs them of their royalties.

Attitude 4. Downloading pirated games from the Internet helps the games industry.

Attitude 5. Downloading pirated games from the Internet helps to make the games more popular.

Attitude 6. People who download pirated games from the Internet have no moral.

Attitude 7. Only unethical people download pirated games from the Internet.

Attitude 8. Downloading pirated games from the Internet benefits society.

Attitude 9. Without downloading pirated games from the Internet, many people will not be able to enjoy playing games.

Attitude 10. It is OK to download pirated games from the Internet.

**Intentions to download pirated games from the Internet** – Four items were used to measure the respondents' intention to illegally download pirated games. A Likert scale with 7 levels (1=Strongly disagree to 7=Strongly Agree) was employed.

Intention 1. I intend to download pirated games from the Internet in the future.

Intention 2. All things considered, it is *likely* that I will download pirated games from the Internet in the future.

Intention 3. All things considered, I *expect* to download pirated games from the Internet in the future.

Intention 4. I will download pirated games from the Internet in the future.

**Internet usage** – Four items were used to measure the respondents' level of internet usage. A Likert scale with 7 levels (1=Never to 7=Very often) was employed.

Internet usage 1. On the average, how often do you use the Internet for <u>messaging</u> (*e.g. e-mailing, discussion group, chat line, etc.*) activity?

Internet usage 2. On the average, how often do you use the Internet for <u>browsing</u> (*surfing the Internet*) activity?

Internet usage 3. On the average, how often do you use the Internet for <u>downloading</u> (*copying files from the Internet such as images, shareware, etc.*) activity?

Internet usage 4. On the average, how often do you use the Internet for <u>purchasing</u> (*ordering products through the Internet*) activity?

**Internet time spent** - Internet usage – Four items were used to measure the respondents' internet time spent. A Likert scale with 7 levels (1=Never, 2=Less than ½ hour, 3= ½ - 1hour, 4=1-2 hours, 5=2-3 hours, 6=3-4hours and 7=More than 4 hours) was employed.

Internet time spent 1. On the average per day, how much time do you spend on the Internet for <u>messaging</u> (*e.g. e-mailing, discussion group, chat line, etc.*) activity?

Internet time spent 2. On the average per day, how much time do you spend on the Internet for <u>browsing</u> (*surfing the Internet*) activity?

Internet time spent 3. On the average per day, how much time do you spend on the Internet for <u>downloading</u> (*copying files from the Internet such as images, shareware, etc.*) activity?

Internet time spent 4. On the average per day, how much time do you spend on the Internet for <u>purchasing</u> (*ordering products through the Internet*) activity?

**Internet speed** – There are four options (1= Dial-up, 2=ADSL 1, 3=ADSL 2+ and 4=Other) to measure the internet speed that the respondents had.

Internet speed 1. What is your Internet speed?