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DIGITAL PRODUCT ACQUISITION IN THE CONTEXT OF PIRACY: A PROPOSED MODEL AND PRELIMINARY FINDINGS

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Abstract

Ten years after the fall of Napster, digital piracy remains an issue for e-commerce firms. While scholars treat digital piracy as a behaviour that needs to be prevented or punished, the user's decision about how to acquire a digital product involves more than the piracy option, yet the decision between piracy and legal alternatives has received limited attention. Moreover, existing models of piracy emphasize some elements of the acquisition decision, but disregard other important influences. This paper presents a model of digital product acquisition in the context of piracy, integrating elements of previous digital piracy models and expanding upon them to reflect the decision's complexity. We depict the acquisition decision as being influenced by the user's price perceptions, perceived risks, product desire, skills, and internal regulators of behaviour. A preliminary and partial test of the model is conducted for film and music using data collected students in at two Danish universities. The paper concludes with an outline for future research.

Keywords: Digital products, digital piracy, consumer behaviour, music, films, price perceptions, decision-making, internet piracy.

1 INTRODUCTION

The technological advances of the information age have given society an unheralded access to products and services, democratised their distribution, and facilitated their consumption. As products and services increasingly become produced, distributed, and consumed digitally, the piracy of digital products presents a very real challenge for firms producing and distributing digital products (Taylor, Ishida, & Wallace, 2009). Yet for users such changes have expanded the range of options available to acquire what they desire, making it almost as easy to acquire products through piracy as legally.

The piracy of digital products is alarmingly common. Global sales of recorded music fell by around 30 per cent from 2004 to 2009 (IFPI, 2010). This drop is largely attributed to the impact of digital piracy, with past investigations indicating that over half of university students in the US download music without paying for it (e.g., Madden & Rainie, 2005). Piracy rates have begun to undermine the commercial foundations of some of the industries producing digital products, which have struggled to adapt to the digital age. In this paper, digital piracy refers to the unauthorised or illegal acquisition of digital products, where acquisition covers both downloading products and streaming content, in addition to types of acquisition not conducted over the Internet, such as copying files from friends.

Responding to the changing environment, scholars seeking to explain and predict digital piracy applied theories and models from social psychology, criminology, and business ethics, primarily using intention frameworks as foundations for their research. While we acknowledge the importance of this type of research to explain the individual determinants of piracy behaviour, we contend that this body of research limited in two important ways: it is fragmented and it has decontextualised digital piracy.

Fragmentation has occurred as researchers have adopted various theories and models from other disciplines and applied them to study digital piracy, focusing on differing sets of variables. As a result, separate streams of piracy research have emerged, centring on theories and models from the research disciplines mentioned above (i.e., social psychology, criminology, and business ethics). Each stream has revealed important insights into the antecedents of digital piracy, but also omitted important variables necessary to understand the phenomenon covered in the other streams. Currently, it difficult to identify which elements of the different streams are the strongest determinants of piracy behaviours. For example, is it the opinions of significant others (i.e., social norms), the severity of punishment if caught pirating, or the price of legal alternatives that influences piracy behaviours the most?

In terms of decontextualisation, apart from a few exceptions and regardless of the research stream (e.g., Pryor, Dalenberg, McCorkle, Reardon, & Wicks, 2008), most investigations have focused on piracy in isolation and not studied how this behaviour occurs in relation to legal acquisition modes available to the user. This practice has limited our understanding of digital piracy itself as we still do not know why an individual chooses to pirate a product rather than acquire it legally. Despite the insight provided by the existing body of research, its fragmentation and decontextualisation of the problem have left practitioners continuing to struggle with how to respond to digital piracy.

In this paper, we take the above-mentioned limitations as a point of departure and propose a new model that builds on key elements of existing models and introduces new concepts from consumer behaviour. To address fragmentation, our model integrates key elements of existing models and introduces new concepts from consumer behaviour. Elements were included based upon theoretical and empirical evidence indicating their relevance to the acquisition decision. To address decontextualisation, we conceptualise digital piracy as just one option in the user decision about how to acquire a digital product; a decision which also includes the option of legal acquisition and non-acquisition. This is not a decision about the adoption and use of new services or technology, covered appropriately by other models in the IS literature (e.g., TAM, UTAUT), but rather a decision where technology enables an alternative mode of product acquisition.

The decision about how to acquire a digital product is unique to its technological context, and in contrast to other circumstances, it may be influenced by broad variety of factors, including social, ethical, legal, economic and product considerations. It has been suggested that piracy is often a “defensive and opportunistic consumer strategy applied in order to lessen perceived risk and prevent losses” (Gupta, Gould, & Pola, 2004, p. 268). Given that digital piracy is a form of consumer behaviour, we use insights from that field of research to inform the development of a new model. To capture the influence of social considerations, our model includes desire, social norms and perceived behavioural control from Perugini and Bagozzi’s (2001) model of goal directed behaviour. Concerning ethical considerations, we incorporate ethical judgement from Hunt and Vitell’s (1986) general theory of marketing ethics. Representing legal considerations, we include risks related to illegal activity – punishment certainty and punishment severity – from Becker’s (1968) economic theory of crime. To capture the influence of economic considerations, we include the concept of price perceptions – the difference between expected and reference prices – from Thaler’s (1985) mental accounting. Finally, using concepts from consumer behaviour, we include the concept of performance risk from Jacoby and Kaplan’s (1972) typology of consumer risks to address concerns about product quality. To integrate these concepts, they are grouped according to the way they are theorised to affect decisions.

The rest of the paper is structured as follows. The proposed theoretical model is described in the following section. Then a preliminary examination of the model is presented, which includes the research method and early findings from its application for films and music. The paper concludes with an outline for future research.

2 PROPOSED MODEL

In the proposed model (Figure 1), digital piracy is conceptualised as just one option in the user decision about how to acquire a digital product. As noted above, we integrate elements of theories and models from a variety of disciplines in order to model the multiple factors thought to influence an individual’s acquisition decision for a digital product. Bettman, Luce and Payne’s (1998) choice goals framework, which suggests that consumers engage in decision-making to achieve some sort of goal, serves to integrate the various elements in the model, which are grouped according to the way they are theorised to affect decisions. In the model, each of the peripheral boxes relates to a set of goals that the user is trying to satisfy during his or her acquisition decision. The importance of each goal to the user effectively dictates the influence of the related consideration on his or her acquisition decision, such that more important goals will have more influence over the user’s decision. For example, if obtaining a product for less than his or her reference price is most important to a user, then the price perception will have the strongest influence over his or her acquisition decision.

The model is designed to represent user decisions and behaviour in situations where a user already knows about a specific product (e.g., a film or a song) and decides how to acquire it (i.e., legally or via piracy). We propose that the user’s acquisition behaviour is primarily determined by his or her acquisition decision. This notion, that behaviour is determined by the user’s decision, is common in consumer behaviour research (e.g., Thaler, 1985). In contrast, models from social psychology focus on intentions to perform a behaviour in binary choice situations (i.e., to do something or not). Intentions are not included in the proposed model because the decision is not a binary choice and the behaviour typically occurs quickly after a decision is made. In such circumstances, as noted by Ajzen (1985, p. 22) “it may be neither feasible nor of much practical value to measure the intention in close temporal proximity of the behaviour.”

As noted above, the acquisition decision is influenced by a variety of factors, including social (desire, social norms, and perceived behaviour control), ethical (ethical judgement), legal (punishment certainty and severity), economic (price perceptions), and product (product quality) considerations. In the model these factors are grouped into five categories according to how they were originally theorised to influence the decisions. The categories are as follows: product desire, price perceptions

(reference price difference), regulators (subjective norms and ethical judgement), perceived risks (punishment certainty, punishment severity, quality), and skills (perceived behavioural control).

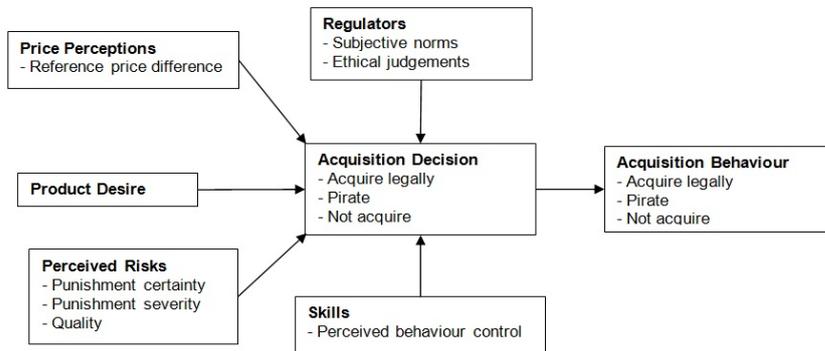


Figure 1. A Model of Digital Product Acquisition

2.1 Product Desire

Product desire is identified as the primary motivation to acquire a product, a contention which has both theoretical and empirical support. Desires drive intentions to act in the model of goal-directed behaviour (Perugini & Bagozzi, 2001), where desires are treated as general, reflecting beliefs about the outcomes of behaviour. Using MGDB as a framework for their investigation of music and film piracy in the US, Taylor et al. (2009) found that piracy intentions were positively associated with product desire. Ouellet (2007), using a sample from Canada, found that the desire to re-experience a piece of music was positively related to decision to acquire it, but subsequent to this decision, only positive evaluations of the piece's performer(s) were related to the purchase of that piece of music rather than acquiring it using piracy. In the proposed model product desire captures the individual's motivation to acquire a specific digital product. Thus, we propose:

Proposition¹: Product desire is positively associated with the decision to acquire the product.

2.2 Price Perceptions

Considerations of price play an important role in many models of consumer behaviour, and reference price in particular. "The concept of a reference price is that it is an internal standard against which observed prices are compared.... individuals make judgments and choices based on the comparison of observed phenomena to an internal reference point" (Kalyanaram & Winer, 1995, p. 161). We focus on price perceptions, the difference between one's reference price for a product and its expected price. This conceptualisation is similar to Thaler's (1985) concept of transaction utility. While price perceptions, according to our conceptualisation, have not been investigated in relation to piracy, prices have. Researchers such as Bhattacharjee, Gopal and Sanders (2003) found that price increases are positively related to piracy behaviours in a US sample. Among peer-to-peer (p2p) users in Spain, the price of CDs was positively related to the proportion of p2p songs illegally downloaded relative to the number of albums purchased legally (Sandulli, 2007). Though these findings are not specifically related to price perceptions, a price increase typically moves the price of a product further from an individual's reference price, and thus makes it less likely that an individual will choose to pay for it. Thus, we propose:

Proposition²: Favourable price perceptions are negatively associated with the decision to pirate a digital product.

2.3 Perceived Risks

Digital piracy typically involves some degree of risk. Generally, two broad categories of risk can be associated with piracy: that associated with the consumption of the product and that associated with the acquisition mode. Our knowledge of consumption risk comes from Jacoby and Kaplan (1972), who identified five types of risk: financial, performance, physical, social and psychological risk. Physical risks are not relevant for digital products. However, performance risk, termed quality risk in the model, is especially important as digital products acquired through piracy may be of lower quality than originals and viruses can cause problems with the operating systems of physical devices. The influences of financial, social and psychological risks are also important, though are captured in the model by the contributions of price perceptions, social norms, and ethical judgement (discussed above and below, respectively). Our understanding of how individuals respond to the perceived risk associated with illegal activities comes from criminology. Becker's (1968) economic theory of crime posits that criminal activities are inversely related to an individual's perception of the probability of arrest (punishment certainty) and the likely punishment if apprehended (punishment severity). In the case of digital piracy, these risks can also come from companies who seek to identify users who pirate digital products and seek compensation for copyright infringement. Evidence that considerations of risk are related to acquisition decisions can be found in the existing literature. Chiou, Huang, and Lee (2005) found in Taiwan that perceived punishment certainty and punishment severity were negatively associated with digital music piracy behaviours. Moreover, Pryor et al. (2008) found in a US sample that the perceived punishment certainty was negatively associated with the likelihood of an individual's previous music acquisition being illegal. Thus, we propose:

Proposition³: Perceived (a) quality risks and punishment (b) severity and (c) certainty associated with digital piracy are negatively associated with the decision to pirate a digital product.

2.4 Regulators

In addition to perceptions of external constraints faced by individuals, internal regulators of behaviour are also likely to impact the mode chosen to acquire digital products, specifically, subjective norms and ethical judgements. A key component in the model of goal-directed behaviour (Perugini & Bagozzi, 2001) is subjective norms, which are an individual's perception of the social pressures to perform or not perform a behaviour. The influence of social norms has often been examined by researchers in relation to digital piracy and have been found to be related to piracy intentions in investigations into music in Canada (d'Astous, Colbert, & Montpetit, 2005) and digital products in general in the US (Al-Rafee & Cronan, 2006). However, there have also been cases where subjective norms were not related to piracy intentions in samples from the US (Cronan & Al-Rafee, 2008; A. Graham Peace & Galletta, 1996). Thus, we propose:

Proposition⁴: Favourable subjective norms about piracy are positively associated with the decision to pirate a digital product.

Ethical judgements are also likely to influence acquisition decisions, as individuals are motivated to act in accordance with their ethical beliefs (Hunt & Vitell, 2006). As digital piracy tends to be construed as unethical by investigators, a sizeable amount of research has examined the influence of ethical judgements. Using a sample of Taiwanese high school and university students, Shang, Chen and Chen (2008) found that intentions to engage in p2p music piracy were positively related to positive ethical judgements of the behaviour. Similarly, Gopal (2004) found in a sample from the US that positive ethical judgements about music-sharing behaviours were positively related to attitudes towards sharing music, and that these attitudes were related to the money saved by the individual by downloading mp3s. Thus, we propose:

Proposition⁵: Ethical judgements in support of piracy are positively associated with the decision to pirate a digital product.

2.5 Skills

An individual's ability to utilise skills at his or her disposal are also likely to influence acquisition decisions, especially the knowledge and ability necessary to obtain digital products without paying for them. The variable of perceived behaviour control is an important component in the model of goal-directed behaviour (Perugini & Bagozzi, 2001), where the user's perception of his or her ability to perform a behaviour is an important predictor of his or her intention to engage in it. As certain skills are necessary to obtain digital products illegally, individuals may consider whether or not they have the skills to conduct digital piracy when making acquisition decisions. Perceived behaviour control has been found to be related to piracy intentions the study by d'Astous et al. (2005). Thus, we propose

Proposition⁶: Perceived behaviour control is positively associated with the decision to pirate a digital product.

2.6 Acquisition Decision and Acquisition Behaviour

In the case of digital products, a user is faced with the decision among legal acquisition, piracy, and non-acquisition. As noted earlier, the notion that behaviour is determined by the user's decision is common in consumer behaviour research (e.g., Thaler, 1985). We extend this notion to the context of digital product acquisition, and propose that the user's acquisition behaviour is primarily determined by his or her acquisition decision. For example, if a user decides to acquire a film using piracy, he or she is likely to do so. Thus, we propose:

Proposition⁷: The acquisition decision determines the acquisition behaviour.

3 PRELIMINARY RESULTS

To conduct a preliminary and partial test of the model concerning the acquisition decision, data were gathered from students from two Danish universities.

3.1 Method

Data were obtained using an English-language self-report questionnaire, which had separate sections for film and music. The measures used to assess the constructs outlined in the model were drawn from previous research, which had established their reliability and validity and were slightly modified to suit the context. The measures were further modified following a pilot study of 29 individuals and feedback from three other academics. Within each of the sections of the survey dedicated to film or music, one page asked questions about generalised perceptions and beliefs (i.e., price perception, perceived risks, regulators, skills), and another asked respondents to identify a film or song/album, evaluate their desire for it and how they were likely to acquire it.

In total, 244 out of 307 surveys were returned by participants, at response rate of approximately 79 percent. Participants were advised to skip a section if they would not typically acquire a product within a year and only complete responses were kept. This yielded a usable sample of 160, of which 126 and 101 were complete for films and music, respectively, with an overlap of 67 respondents. The mean age of participants was 22.04 years (SD = 2.96). The sample consisted of 86 females (57.3%), 64 males (42.7%), and 10 individuals who did not reveal their gender. By nationality, the sample was comprised of 119 Danes (74.4%), 31 foreign nationals, and 10 who did not reveal their nationality.

All the constructs were measured using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree), except for price perceptions. Reliability tests were conducted and with the exception of punishment certainty, the Cronbach's alphas for each of the measures were above 0.70, indicating acceptable levels of internal reliability. Table 1 presents the descriptive statistics. Principle

components factor analyses using a varimax rotation were conducted separately for film and music scales, with all items loading on their expected factors. Price perception was assessed by subtracting participants' entries of the expected purchase or rental prices for products (i.e., their expected prices) from their indications of what they would be prepared to pay (i.e., their reference prices). This difference was then converted into a score indicating the percentage of the purchase price that subjects were prepared to pay to buy or rent a product. Relevant reference prices were used in the calculation. For film, the reference price depended on whether the individual preferred to rent or buy films. For music, it depended on whether the individual listed a song or album.

Construct	Source	Films			Music		
		Mean	SD	Alpha	Mean	SD	Alpha
Product Desire (1 item)	Hsee and Rottenstreich (2004)	5.43	1.09	N/A	5.56	1.16	N/A
Reference price difference (%) (2 items)	Thaler (1985)	-22.53	43.56	N/A	-28.27	37.80	N/A
Punishment Severity (2 items)	Peace, Galletta and Thong (2003)	4.66	1.68	0.95	4.68	1.78	0.96
Punishment Certainty (2 items)	Peace et al. (2003)	1.88	0.95	0.68	2.06	1.11	0.63
Quality (5 items)	Liao, Lin and Liu (2010)	3.44	1.27	0.83	2.74	1.35	0.89
Subjective Norms (3 items)	Morton and Koufteros (2008)	4.59	1.44	0.87	4.68	1.53	0.90
Ethical Judgement (3 items)	Miyazaki, Rodriguez and Langenderfer (2009)	2.85	1.32	0.90	2.57	1.28	0.90
Perceived Behaviour Control (3 items)	Peace et al. (2003)	5.42	1.88	0.93	6.00	1.56	0.94

Table 1. Constructs, Sources and Descriptive Statistics

Respondents' acquisition decisions were derived from their answers to three questions about acquisition options for film and music. Respondents were asked to indicate the likelihood that they would acquire the film or song/album legally, using piracy, or not acquire the product on a scale ranging from 1 (Very Low) to 7 (Very High). If an individual indicated that the likelihood for one acquisition mode was above the neutral point on the scale (4), and that this option was higher than their two other responses, they were coded as having decided to have used that mode. For example, if an individual responded with a 6 to legal acquisition, but 3 and 2 for acquisition through piracy and not acquiring the product, he or she would be coded as having chosen legal acquisition. Contradictory responses were excluded from the analysis.

3.2 Findings

As a preliminary test, two multinomial logistic regression analyses were conducted to evaluate model's propositions concerning the acquisition decision. The dependent variable was the decision to use piracy or not to acquire the product, where legal acquisition was the reference category. The regression models for films ($X^2(16, N = 126) = 57.48, p < .000$) and music ($X^2(16, N = 101) = 88.19, p < .000$) predicted 65.08% of cases to their correct 'type' for films, and 79.21% of cases to their correct 'type' for music. The initial findings provide support for most elements of the model and indicate that the influence of constructs varies according to product type. Tables 2 and 3 display the regressions' results for film and music, respectively.

The preliminary results indicate that the decision to pirate a film is positively associated with positive ethical judgments and perceived behavioral control, while it is negatively associated with price perceptions (reference price difference) and product desire. Turning to music, the decision to pirate a song or album is positively associated with positive subjective norms, while it is negatively associated with risk of punishment's severity, quality risk, product desire and price perceptions (reference price difference). Interestingly enough, for films and music, product desire is negatively associated with

piracy. The factors associated with acquisition decision for film and music were similar, but not identical. Further research is warranted to shed light on these preliminary findings.

	Likelihood ratio tests	Parameter Estimates:			Parameter Estimates:		
		Acquire by Piracy			Not Acquire		
Independent Variable	Chi-Square	B	Wald	Odds Ratio	B	Wald	Odds Ratio
Model Intercept	3.94	-4.53	3.59		-2.59	1.14	
Product Desire	6.60*	-0.59	6.11*	0.55	-0.23	0.83	0.79
Reference Price Difference (%)	7.88*	-0.02	5.79*	0.98	-0.01	2.33	0.99
Punishment Severity	4.48	0.31	3.48	1.36	-0.02	0.02	0.98
Punishment Certainty	2.90	0.48	2.40	1.62	0.35	1.37	1.42
Quality	6.28*	-0.52	5.26*	0.59	-0.02	0.01	0.98
Subjective Norms	4.52	0.40	3.59	1.49	-0.01	0.00	0.99
Ethical judgement	12.32**	0.72	10.41**	2.06	0.29	1.54	1.34
Perceived Behaviour Control	5.67	0.38	4.61*	1.46	0.24	1.99	1.27

Note: * p < .05, ** p<.01, *** p<.001

Table 2. *Multinomial Regression Models for Film Acquisition Decision, Reference Category is Acquire Legally*

	Likelihood Ratio tests	Parameter Estimates:			Parameter Estimates:		
		Acquire by Piracy			Not Acquire		
Independent Variable	Chi-Square	B	Wald	Odds Ratio	B	Wald	Odds Ratio
Model Intercept	2.24	2.60	0.72		-3.99	0.90	
Product Desire	13.92**	-1.22	10.18**	0.30	-0.14	0.09	0.87
Reference Price Difference (%)	12.07**	-0.03	7.30**	0.97	-0.06	4.17*	0.97
Punishment Severity	4.56	-0.51	3.86*	0.60	-0.17	0.27	0.84
Punishment Certainty	6.84*	-0.48	1.54	0.62	0.60	2.10	1.82
Quality	10.83**	-0.95	7.92**	0.39	-0.16	0.20	0.86
Subjective Norms	17.53***	1.02	9.30**	2.77	-0.38	1.36	0.69
Ethical judgement	1.15	0.23	0.51	1.26	0.46	0.85	1.59
Perceived Behaviour Control	4.61	0.50	3.60	1.64	0.34	0.84	1.41

Note: * p < .05, ** p<.01, *** p<.001

Table 3. *Multinomial Regression Models for Music Acquisition, Reference Category is Acquire Legally*

4 FUTURE RESEARCH

By conceptualising piracy as just one option available to acquire digital products, this paper offers an agenda for future empirical research on digital piracy and digital product acquisition. It is important to note that the findings reported in this paper are preliminary and only offer a partial test of the model. Intended future research will use a quantitative daily-diary study (e.g., Tidwell, Reis, & Shaver, 1996) to evaluate the model. Daily-diaries are part of a body of research methodologies called event-sampling methods, which aim to measure behaviour in its natural environment, rather than in a laboratory. To reduce recall bias, such methods encourage participants to record details of their own

behaviour soon after it occurs. The more-stable factors of the model that are not product specific (i.e., perceived risks, regulators, skills, etc.) will be measured before the daily-diary period, while values for the less-stable variables that are product specific (i.e., product desire, acquisition decision, acquisition behaviour) will be recorded by participants for each instance of digital product acquisition over a limited duration. In future research we will also investigate the influences of the demographic characteristics in the decision to acquire a digital product, through a sampling process which will cover the general population.

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