Kent Academic Repository

Modelling consumer entertainment software choice: An exploratory examination of key attributes, and differences by gamer segment

3 authors:

Sunita Prugsamatz
Norwegian University of Science and Techno…
11 PUBLICATIONS   55 CITATIONS

SEE PROFILE

Ben Lowe
University of Kent
35 PUBLICATIONS   193 CITATIONS

SEE PROFILE

Frank Alpert
University of Queensland
73 PUBLICATIONS   608 CITATIONS

SEE PROFILE

MODELING CONSUMER ENTERTAINMENT SOFTWARE CHOICE: KEY ATTRIBUTES, AND DIFFERENCES BY GAMER SEGMENT

Sunita Prugsamatz[1], Ben Lowe[2] and Frank Alpert[1]

[1]UQ Business School, University of Queensland, Brisbane QLD, 4072, Australia
[2]Kent Business School, University of Kent, Canterbury, Kent CT2 7PE, UK

Corresponding author, Frank Alpert, f.alpert@business.uq.edu.au
Note: Sunita Prugsamatz is now a Postdoctoral Fellow at NTNU Norway

ABSTRACT

The entertainment software industry is similar in size to other widely researched industries such as the movie industry, and is set to grow substantially in coming years. Yet, to date no academic research has examined an overall model of consumer choice within this industry. Using a widely accepted and robust method, the Theory of Planned Behavior (TPB), this is the first study to systematically examine entertainment software buying behavior. The study elicits salient attributes for the major constructs in the TPB model—attitude, subjective norm, and perceived behavioral control—and finds the theory is robust and holds up in this new context. To avoid aggregation error in analyzing overall market data, this study segments the market and examines differences in perspective by gamer type.

EXTENDED ABSTRACT

From virtually nowhere 20 years ago to sales of US$9.5 billion in 2007, up 28% from the prior year (Entertainment Software Association 2008a), and probably at least double that sales figure if worldwide sales were to be included, the video game industry has now overtaken *movie industry box-office receipts* in terms of annual sales, and blockbuster video games can out perform blockbuster movies for opening-week sales. This dramatic growth is likely to continue in coming years. Yet there has been little scholarly attention to consumers within the industry. The trade literature pays more attention to this dynamic, growing industry, but such articles do not benefit from the systematic rigor of scientific inquiry. This research fills this gap by providing a comprehensive study of consumer behavior in the gaming industry, using the Theory of Planned Behavior; a widely used, robust and reliable instrument with a long tradition in consumer research (Sheppard, Hartwick, and Warshaw 1988).

Using a TPB survey on a sample of consumers from the target population, and following the procedures in the TPB manual by Francis et al (2004), the study, for the first time, elicited salient attributes for the attitude, social norm and perceived behavioral control constructs. Salient attitude attributes that are advantages of purchasing and playing entertainment software were: *fun, uses creative thinking skill, interesting challenges to overcome* (in order to advance in the game and win), *social interaction, can play at any time of my choosing, can be first among my friends to have the latest games, escape from boredom* (something to do). Disadvantages were: *cost, spending too much playing (waste of time), and violence in games*. Potential social influencers were as we would expect: *friends, parents, brothers/sisters, partner* (boyfriend/girlfriend/spouse). Perceived behavioral control factors that enabled or made difficult purchase and playing were: *sufficient income, availability of sales or lower prices for games, sufficient time to play, and whether there are sequels of games that are liked*. The measures identified exhibited high reliability and were used for subsequent testing of the TPB model.

Using multiple regression the data exhibited a statistically significant influence on purchase intentions for each of the summated constructs. It also found that the *attitude* towards behavior construct was the largest influencer of purchase intentions relative to the social norm and perceived behavioral control constructs, consistent with other studies using TPB. This further demonstrates the robustness of the model while highlighting the importance of recognizing the unique Generation Y segment. This study is the first to suggest that gaming marketers should target this segment based on their "ME" and "*MY" attitude* and its influence on purchase intentions. Furthermore, to avoid "aggregation error" the sample was segmented by "gamer type", using MANOVAs to distinguish relative differences between non-gamers, casual gamers and hard-core gamers. Gamer type was found to have a significant influence on almost all weighted attributes. This was particularly prevalent for the *attitude* towards behavior construct, where differences were very large as well as statistically significant. Significant differences by gamer type were also noted for the perceived behavioral control and social norm constructs

As the first systematic study to examine consumer behavior issues in the gaming industry, this study provides useful insights to consumers' behavior in a large, growing industry. Consumer perceptions and behavior toward entertainment software is complex and we do not expect our study to be the final word, but it is the first available empirical evidence and can thus move forward the discussion from speculation to replication, extension, and alternative approaches. For managers in this industry, we demonstrate how a comprehensive model can be applied to entertainment software.

THE ENTERTAINMENT SOFTWARE INDUSTRY

From virtually nowhere 20 years ago to sales of US$9.5 billion in 2007, up 28% from the prior year (Entertainment Software Association 2008a), and probably at least double that sales figure if worldwide sales were to be included,, the video game industry has now overtaken *movie industry box-office receipts* in terms of annual sales, and blockbuster video games can out perform blockbuster movies for opening-week sales. The industry itself is young (about 30 years old) and according to The Entertainment Software Association (2008a) video game revenues contributed about $3.8 billion to US's gross domestic product in 2006 and currently employs more than 25,000 people in the U.S. Furthermore, respected forecasters predict sales will double in the next four years (Price Waterhouse Coopers 2008). Movie industry downstream revenue (TV broadcast, DVD/VHS rentals, DVD/VHS sales) make the total movie industry larger, but the computer and video game industry is expected to surpass total worldwide recorded music industry sales in just a few more years. Any way you look at it, the games industry has become very big business!

The popularity of the computer and video games industry may have caught many managers and researchers by surprise, perhaps because many of the writers of analytical articles are of an earlier generation than that which has grown up with these games. "Has there ever been a cultural sea change as stealthy as the one represented by the rise of interactive entertainment? To anyone who came of age after, say, the introduction of the first Sony Playstation in 1995, video gaming is every bit as central to the pop-entertainment universe as movies or music. No one would think of denying that video games are big, but few grown-ups outside the business have an understanding of just how big they've become." (Dee 2003).

Finally, consider how well games companies are doing financially. Many of the early game companies have shrunk or disappeared (i.e., Infocom, Broderbund games), but the largest modern games company is gigantic by any standard. In 1994 Electronic Arts (EA) was a company with $500 million in worldwide sales. This same company has an estimated worldwide sales for this year of almost US$4 billion (Wall Street Journal 2008). As of 2004, it had become a $3 billion in sales company with a market capitalization of $15 billion. This placed *an exclusively games company as the fourth largest capitalized software maker* in the world, behind Microsoft, Oracle and SAP Corporation (Lowenstein 2004).

We have to beware of some confusing terminology related to industry definition. What is the appropriate name of this industry? It has been popularly called video games, or video and computer games. But these are game platforms, and industry should be defined by benefits not by products, as the article "Marketing Myopia" loudly proclaimed way back in 1960 (Levitt 1960). A few generic terms have been tried: "electronic games," "digital games," (as in the academic study group "Digital Games Research Association," DiGRA) or "interactive software" (as in "Interactive Software Association" in several countries such as Australia, Sweden). However, the main industry group has changed its name from "Interactive Game Development Association," IGDA, to "Entertainment Software Association," ESA, and we propose to follow its lead (except in our questionnaire to use the terms still better understood by consumers of video and computer games). What is a formal definition of entertainment software? The Entertainment Software Association defines its industry as "the companies that publish video and computer games for video game consoles, personal computers, and the Internet" (Entertainment Software Association 2008b). The industry association does not provide in that a definition of entertainment software, but starting with its industry definition and extending that across all

major current and upcoming platforms, entertainment software is defined here as "interactive software games played for entertainment, typically on video game consoles."

What is known about the entertainment software industry? The scholarly literature has paid scant attention to this industry. There has been some focus on using games as a medium for advertising through product placement in games (e.g., Molesworth 2006; Nelson 2002), but the central marketing and consumer behavior issues for the entertainment software industry are yet to be addressed. In particular, there has been no overall model of consumer decision making that examines key attributes and benefits, attitude formation, social influence and situational factors affecting purchase intention. This paper attempts to fill that gap in the literature.

What does the trade literature tell us about marketing and consumer behavior for entertainment software? There has been more attention, perhaps due to the size of the industry and its bright future, but the depth of analysis is described even by practitioners as still superficial. For example, Michael Gartenberg, Vice President and Research Director, Jupiter Research, gave a presentation at the "IGDA Developer Business Summit 2004 Game Developers Conference" on the topic of "Industry Snapshot: Stats and Metrics." He spoke to the issue of "How is the Gamer Audience "Really" Segmented?...": "Jupiter has done a significant amount of research to re-segment the gaming consumer. Currently game companies use rather simple segmentation schemes to target consumers. Consumers are typically segmented using metrics such as: genre, gender, age, region, and platform. These forms of segmentation do not truly uncover the habits of video gamers." There may be very sophisticated views within industry, but these are not published and readily available, and in particular are not vetted through peer review before publication.

Is entertainment software different from other industries? We argue it is somewhat different. It is closest to other entertainment products, such as the movies, but *still* different. We assert there are five aspects that collectively make it different: 1) Entertainment software is *interactive*. It is not largely passive, as in watching a movie or getting a haircut. 2) The entertainment software consumption experience is *longer* than for just about any other entertainment product. It can take many hours to complete a game, such as over a hundred hours to fully complete Final Fantasy XII or Star Wars: Knights of the Old Republic, not including replay time. 3) Entertainment software is *more expensive* than most other entertainment products. A video game retails for about $50, whereas a movie ticket, video DVD or music CD cost far less. 4) Entertainment software has a *learning curve and skill requirement*. You can lose at a video or computer game! It takes skill to win most games. Losing can be frustrating. It does not take skill to consume a movie or a music album. 5) Entertainment software can be truly *multiplayer*. While you can attend a movie with friends or family, that isn't as intense a multiplayer experience as playing versus games or cooperative games. An example of a versus game is me versus you in Age of Empire III, or me and two of my friends versus you and two of your friends in a 3 versus 3 match of the same game. Similarly, friends can adventure together in World of Warcraft.

In sum, there has been little research on the basic marketing and consumer behavior issues (other than brand placement) for a large and fast-growing industry. In particular, benefits sought and segmentation are not yet understood. In order to address these issues, this research will survey consumers using the Theory of Planned Behavior (Ajzen 1991) to better understand consumer behavior issues in this market. The Theory of Planned Behavior (TPB) is a comprehensive model with a long tradition for modeling choice in marketing and social science.

A meta-analysis in the *Journal of Consumer Research* (Sheppard, Hartwick, and Warshaw 1988) concluded that this framework was robust and useful in consumer studies. Furthermore, we will argue that considering the market as whole leads to an "aggregation error" for scientific and managerial thinking, as different segments of this market have distinctive preferences. This is similar to the car market, movie market, and book market. These are so vast and diverse that it is more useful to think in terms of segments.

METHOD

TPB is now so well established that there is now a manual, "Constructing Questionnaires Based on the Theory of Planned Behavior" (Francis, Eccles, Johnston, Walker, Grimshaw, Foy, Kaner, Smith and Bonetti 2004), available on TPB co-founder Ajzen's own website, setting out the steps for the entire process. We followed this process.

INSTRUMENT DESIGN

Salient Attribute Elicitation. The first step is a qualitative study in the form of a pilot study to identify and effectively extract the accessible behavioral, normative, and control beliefs attributes (Ajzen 1985, 1988, 1991). This process is called salient attribute elicitation. A sample size of 50 was selected for the pilot study. (See discussion of Sample below.) A semi-structured questionnaire was designed based upon a list of open-ended questions as recommended by Ajzen (2002). Respondents were asked open-ended questions about a) the advantages and disadvantages of purchasing video and computer games (attitude attributes), b) who might influence their purchase (subjective norms), and c) what would enable or make it more difficult to purchase video and computer games. The goal is not to prompt or direct responses with a priori attributes. Content analysis was conducted and the responses were converted into themes (beliefs) by two independent raters. The inter-rater reliability was 95% agreement on the first

pass, with agreement reached on the remaining 5% through discussion. The least frequent 20% of attributes were dropped, as per Francis et al's (2004) suggestion, as these were low frequency and idiosyncratic attributes.

The attribute set identified here is the first salient attribute set for purchase and play of computer and video games. Salient attitude attributes that are seen as advantages of purchasing and playing entertainment software were: fun, uses creative thinking skill, interesting challenges to overcome (in order to advance in the game and win), social interaction, can play at any time of my choosing, can be first among my friends to have the latest games, escape from boredom (something to do). Disadvantages were: cost, spending too much playing (waste of time), and violence in games. Potential social influencers were as we would expect: friends, parents, brothers/sisters, partner (boyfriend/girlfriend/spouse). Perceived behavioral control factors that enabled or made difficult purchase and playing were: sufficient income, availability of sales or lower prices for games, sufficient time to play, and whether there are sequels of games that are liked.

Measures. The fairly standard TPB questionnaire development procedure from Francis et al (2004) was followed. To save space we only briefly describe measurement procedures here, and refer readers to Francis et al (2004) for further detail. The primary task is to convert the salient attributes, identified by the qualitative research, into expectancy and value questions, reflecting the multiattribute attitude model foundation of TPB.

Salient attitude attributes emerging from the qualitative study were measured as "expectations" on response scales of "extremely unlikely" +1 to "extremely likely" +7 and as "value" on response scales of "extremely bad" +1 to "extremely good" of +7. An example of expectations question structure is "Playing video or computer games will help me escape

boredom" and an example of question structure for value is "For me to escape from boredom by playing video or computer games is". Salient subjective norms were measured as beliefs of others' views on a scale of "extremely unlikely" +1 to "extremely likely" +7 and as social compliance on a scale from "not at all" +1 to "very much" +7. An example of question structure is, respectively, "My friends approve of my purchasing video or computer games" and "Generally speaking, how much do you care what your friends think you should do?". Salient perceived control attributes were measured as likelihoods on a scale of +1 "very rarely" to +7 "very frequently" and as values on a 7-point scale of +1 "strongly disagree" to 7 "strongly agree"). Example question structures are, respectively, "I don't have enough free time to play video or computer games," and "If I do not have sufficient free time, it would make it more difficult for me to purchase video or computer games."

The global measures of attitude, subjective norm, and perceived behavioral were measured with typical TPB evaluative semantic differentials (i.e., for attitude, *For me, purchasing a video or computer game is un/important, bad/good, boring/exciting*). These measures address different types of beliefs (Ajzen and Driver 1992). For instance, instrumental (important vs unimportant), judgmental (good vs bad) and affective (boring vs exciting) consequences for the attitude component, and personal difficulty, perceived environmental opportunity and self efficacy for PBC. Purchase intention was measured using a 10 point Juster scale of likelihood for purchase, from No Chance 0 to Certain +10.

After TPB model measurements, a subsequent set of questions asked about possible segmentation variables. Respondents were asked to classify themselves by degree of involvement/usage: "Which best characterizes the extent you play video or computer games? Non-gamer, Casual gamer, Hard-core gamer." Respondents were also asked to indicate degree of

interest in nine different game genres, using the question "Please rate your interest in the following game genres on a scale of 0 to 5, where 0 = "no interest at all in this genre", and 5 = "I love it". The questionnaire ended with background questions, such as gender and age. All questionnaire items (attitudes, subjective norms and perceived behavioral control) were pre-tested by asking five respondents to answer the questions and to indicate if they had any difficulty answering them. Pre-test respondents indicated the questions were clear and sufficient, except for a few minor improvements to wordings of some questions that were made for the final questionnaire.

SAMPLE

The sample population for the pilot study and the full study were undergraduate students at a large suburban university. The use of undergraduate students was deemed appropriate for the purposes of this study, as young adults constitute a major market for entertainment software. Further, the research purpose is to explain what influences purchase intentions (i.e., for those who play why do they play), not to project frequencies to the general market (i.e., not to try to project that less than 10% are non-gamers). A general population sample at this time would probably have too many older adults with too little experience with the games. The sample fitted the research purpose well, as less than 10% of respondents described themselves as non-gamers.

Questionnaires were distributed in a medium sized undergraduate course. (Pilot study questionnaires were distributed in the same class the prior semester.) Two hundred self-administered surveys were randomly distributed at the end of the lecture. A total of 170 questionnaires were returned for a response rate of 85%. Of these, 123 were males and 47 were females. While this is a skew to males, this sample roughly matches a recent survey that reports entertainment software users are 74% male and 26% female (Brenick, Henning, Killen, O'Connor, and Collins 2007).

RESULTS AND DISCUSSION

Data analysis followed the recommended procedures by Francis et al (2004), with the extensions of adding MANOVA to assist with segmenting consumers. First, reliability of the multi-item measures of global attitude, global subjective norm, and global perceived behavioral control was assessed with Cronbach's Alpha. The alphas for the measures of attitude (0.818) and subjective norm (0.830) were large and well above the threshold for acceptability (Nunnally and Bernstein 1994). The alpha for perceived behavioral control was lower at 0.472, however, this is not uncommon for the measurement of this construct, which is the least well understood of the three. For example, the alpha for perceived behavioral control in several prior studies was around 0.50 (Ajzen and Driver 1992; Ajzen and Madden 1986; Gibson and Becker 1998). Also for exploratory studies a lower threshold is sometimes used and this is the first study of its kind for the gaming industry.

To examine the influence on purchase intentions of global attitudes, global subjective norms and global perceived behavioral control, a multiple regression was conducted. The results of the regression analysis are presented in Table 1 below:

TABLE 1: THEORY OF PLANNED BEHAVIOR REGRESSION RESULTS FOR THE GAMING INDUSTRY

	β	SE	Standardized β	t	*p*
Constant	16.66	1.14		14.61	.000
Attitude	0.04	0.00	0.67	11.70	.000
Subjective Norm	0.02	0.01	0.13	2.379	.019
Perceived Behavioral Control	0.03	0.01	0.23	4.151	.000
R^2=0.494, *F*=53.998 (*p*=0.000)					

The overall model fits well with an acceptable R^2 and a statistically significant *F* value suggesting a valid and useful model for the study of purchase intentions in the gaming industry. Attitude is the best predictor of purchase intentions, followed by perceived behavioral control

and subjective norms and each of these constructs are statistically significant. These findings suggest that *external constraints such as subjective norms and perceived behavioral control are relatively minor determinants* of intention to purchase computer games, consistent with past research on other types of products (Cheng, Lam, and Hsu, 2005; Kelly, and Breinglinger 1995; Patch, Tapsell, and Williams 2006; Voorhees, Fogel, Houston, Cooper, Wang, and Ford 2005). Games marketers should focus on internal attitudinal components such as having fun, escaping from boredom, the use of creative skills whilst playing games etc., rather than worrying too much about subjective norms and perceived behavioral control. These findings also provide evidence of the applicability of the TPB model in this new and different context (that of entertainment software).

This result seems very representative of the group of consumers that the games industry is dealing with: the Generation Y consumers (sometimes called the Digital Generation). According to Howe and Strauss (2000) Generation Y consumers are "more ambitious and optimistic than Generation X, perceive their learning environment as boundless and view technology as an integral part of their lives" (Gardner and Eng 2005, pg. 405). This helps explain why attitudes might be the strongest influence upon purchase intentions for this group of consumers. Game marketers would need to think of Generation Y gaming consumers in terms of their "MY" attitudes (i.e., MY need for more fun and excitement, MY time and what I do with it).

Extending the regression results, to determine if there are attribute differences by segment, three separate MANOVAs were conducted with the weighted attitude attributes as the dependent variables and "gamer type" as the independent variable. Multiplying the belief score by the relevant evaluation score for each attitude attribute provides the weighted attribute. As per expectancy-value theory, it is more meaningful to combine these attributes than just use belief or

evaluation alone, as the belief/expectancy may be high but the evaluation value low, or vice versa (Francis et al 2004). Gamer type is a behavioral/frequency segmentation often used to describe the games market, which can be divided up into non-gamers, casual gamers, and hard-core gamers. Gamer type was a self-reported measure in the questionnaire, as described above. Most respondents described themselves as casual gamers (123 of 170), perhaps representing a tendency toward a moderate response. However, this leaves those who described themselves as nongamers (16) or hard-core gamers (31) as probably clearly and strongly of these types.

For each of the three MANOVAs the assumptions underlying their validity were met (e.g., equality of the variance-covariance matrices, multivariate normality). As such further multivariate testing was undertaken. The results of the three MANOVAs are shown in Table 2.

TABLE 2: MULTIVARIATE TESTS FOR ATTITUDE ATTRIBUTES BY GAMER TYPE

Dependent Variables	Wilks' Lambda
Attitude: Fun, creative, challenges, social interaction, can play at any time of my choosing, first among friends with latest games, escape from boredom, price, takes too much time, violence	*Wilks' Lambda* = 0.41 (p= 0.000)
Perceived behavioral control: Lack of sales, lack of time, lack of income, lack of sequels	*Wilks' Lambda* = 0.71 (p = 0.000)
Subjective norms: Friends, relatives, parents, partners	*Wilks' Lambda* = 0.78 (p = 0.000)

All three of the multivariate tests are statistically significant, suggesting differences in means for each of the dependent variables by gamer type. As such further univariate testing is necessary to ascertain where these differences lie. Table 3 shows the means of each dependent variable by gamer type and the univariate tests to examine their statistical differences.

TABLE 3: MEAN ATTITUDE ATTRIBUTES BY GAMER TYPE

		Non-Gamer	**Casual Gamer**	**Hard-core Gamer**	*F(p)*
Attitude	**Fun playing games**	18.75	28.94	39.97	25.37 (.000)
	Creativity while gaming	22.00	22.00	31.16	6.74 (.002)
	Challenges from gaming	18.75	27.24	36.00	10.55 (.000)
	Social interaction from gaming	11.00	16.43	19.13	2.17 (.118)
	Can play at any time of my choosing	24.38	23.69	33.55	9.49 (.000)
	First among friends with latest games	1.88	11.07	30.84	39.49 (.000)
	Escape from boredom	11.50	24.81	43.03	39.05 (.000)
	Price of games	10.88	11.61	19.32	7.65 (.001)
	Takes too much time	1.44	11.21	31.23	45.91 (.000)
	Violence in games	10.69	20.23	25.84	8.14 (.000)
Perceived Behavioral Control	**Lack of sales**	5.31	12.56	12.87	4.70 (.010)
	Lack of time	36.38	22.92	11.90	19.24 (.000)
	Lack of income	20.31	28.41	26.94	2.13 (.025)
	Lack of sequels	6.31	13.77	15.16	3.07 (.049)
Subjective norms	**Friends**	17.25	16.17	20.54	1.96 (.144)
	Relatives	19.00	15.38	11.03	3.79 (.025)
	Parents	9.06	15.30	12.58	4.41 (.014)
	Partner	16.00	18.93	11.35	6.60 (.002)

The results in Table 3 are that 16 of 18 weighted attributes are significantly different by gamer type. The high proportion (89%) of significant differences and large size of some differences here (for example, 43.03 - 11.50 = 31.53 difference in means) suggests gamer type is a useful segmentation variable.

For attitude, hard-core gamers were more extreme on all weighted attributes, both positive ones and negative ones. That is, they were influenced more than other gamer types by positive

attributes such as fun, but also by negative attributes such as it takes too much time. The hard-core gamers have a more intense experience with gaming. We would expect they would be higher on the positives, but it is also interesting that they are higher on the negatives as well. Attitude, after all, is a multi-attribute result, and higher positives more than offset higher negatives in support of a higher overall attitude. The one exception is attitude towards social interaction, where there was no significant difference, though the direction of results was consistent with the above. Perhaps this is because hard-core gamer gaming is often single-player, though note they are not the anti-social geeks some may stereotype them as, since they still are most influenced by social interaction. Perhaps also casual gamers feel they get social interaction through simple games, such as the multiplayer card game hearts online, or the popular multiplayer game Scrabulous online in Facebook (though the owners of Scrabble were threatening the owners of Scrabulous as of this writing). The weighted attitude attributes have the largest range from highest mean to lowest mean than social norm or perceived behavioral control. Of the weighted attitude attributes, the ones with the biggest difference in means (a difference of around 30) are to be first among friends with the latest games, games as an escape from boredom, and games take too much time. The weighted attitude attributes with the second largest difference in means (a difference of 15 to 20) are the fun of games, the challenge of games, and violence in games. The remaining weighted attitude attributes have a smaller range of means in Table 3.

For perceived behavioral control, gamer type was a significant influence over each of the dependent variables. As expected, non-gamers seem to exhibit the biggest differences relative to casual gamers and hard-core gamers (i.e., in general the means for the non gamers are significantly different to the other two groups, except for the lack of time attribute). Again, this

suggests perceived behavioral control is a useful segmentation variable, though the biggest differences emerge between non-gamers and the two other groups. Perhaps the non-gamers are more aware of their limitations, such as lack of time, than the casual and hard-core gamers.

For subjective norm variables, differences existed also, but were less pronounced. The influence of "friends" was not statistically different but the other three social norm variables were. Again, this seems to suggest that the influence of subjective norms is a useful segmentation variable, though, based on the means, there is no consistent pattern across gamer type and the differences are smaller. This result links back to the Generation Y "MY" concept whereby their attitudes overpowers their need to conform to their perceptions of social pressure from friends and family. In other words, these gaming consumers are thinking: "MY" own thoughts/beliefs/choice rather than "others'" thoughts/beliefs/choice when going through their decision-making process. Hard-core gamers are not significantly most influenced by others. They do not let others' views affect their choice of this hobby interest. Non-gamers also seem to have lower influence by others' views, as perhaps they will not play these games no matter what anyone else says. Interestingly, casual gamers actually seem most influenced by others' views on three of the four measures; perhaps that is why some of them play at all.

CONCLUSIONS

In sum, this was the first empirical study of entertainment software attitude and choice using a comprehensive model. A list of salient attributes for attitude, social norm, and perceived behavioral control was elicited. Consumer perceptions and behavior toward entertainment software is complex and we do not expect our study to be the final word, but it is the first

available empirical evidence and can thus move forward the discussion from speculation to replication, extension, and alternative approaches.

For managers in this industry, we demonstrate how a comprehensive model can be applied to entertainment software. A major lesson for managers is the need for segmentation in marketing analysis in this industry, by gamer type. Additionally games marketers need to understand the unique Generation Y segment with their strong "MY" attitudes when designing marketing strategies and implementing them.

Marketing towards Generation Y's attitudes is *key* to being successful in changing intentions of this segment. Hardcore gamers seem to enjoy very complex games with impressive graphics, technical options (multiplayer options, can TV support the graphics), and detailed storylines. However, these factors seem to not be of the highest priority for the more casual gamer.

The non-gamers did not believe that gaming and games helped alleviate boredom or provide social interaction. Additionally they were not intimidated by the gaming culture/sub-culture or their peers. It just didn't fit their "style" ("MY" style). One current trend is games being designed for casual and non-gamers such as Konami's "Guitar Hero", "Dance Revolution," "Buzz!" (a quiz game that included sports, general and music editions) and "Brain Training." This trend (along with demographic trends) may over time shrink the number of non-gamers and improve casual and non-gamer views of gaming.

However, marketers perhaps also try to should look into enhancing Generation Y's non-gamers' attitudes (enhancing fun, perception of challenge,) to conventional games (such as real-time strategy, first person shooter, and sports games), because continued development of conventional games sustains the high demand from hard core gamers (including the attributes of

being first to get the latest and most advanced/exciting games) and meeting the criteria of the casual gamers (gaming as a means of alleviating boredom).

A key step for future research is to link objective game design attributes to game benefits such as used in this study, for example what is it about games that makes them more fun from the perspective of the overall market and of each segment.

REFERENCES

Ajzen, Icek (1985), "From Intentions to Actions: A Theory of Planned Behavior," in *Action Control: From Cognition to Behavior*, eds. J. Kuhl and J. Beckman, Heidelberg: Springer, 22-39.

Ajzen, Icek (1988), *Attitudes, Personality and Behavior*, Chicago: Dorsey Press.

Ajzen, Icek (1991), "The Theory of Planned Behavior," in *Organizational Behavior and Human Decision Processes*, ed. E. A. Locke, Vol. 50, 179-211.

Ajzen, Icek (2002), "Constructing a TPB questionnaire: Conceptual and Methodological Considerations", http://www.unix.oit.umass.edu/~aizen/pdf/tpb.measurement.pdf

Ajzen, Icek and Driver, B. L. (1992), "Application of the Theory of Planned Behavior to Leisure Choice," *Journal of Leisure Research*, 23 (3), 207-224.

Ajzen, Icek and Madden, Thomas (1986), "Prediction of Goal-Directed Behavior: Attitudes, Intentions, and Perceived Behavioral control," *Journal of Experimental Social Psychology*, 22, 453-474.

Becker, Ellen and Gibson, Chere (1998), "Fishbein and Ajzen's theory of reasoned action: Accurate prediction of behavioral intentions for enrolling in distance education courses". *Adult Education Quarterly*, 49 (1), 43-56.

Brenick, Alaina, Alexandra Henning, Melanie Killen, Alexander O'Connor, and Michael Collins (2007), "Social Evaluations of Stereotypic Images in Video Games,Youth and Society", *Youth Society*, 38 (4), 395-419.

Chambers, Jason (2006), "The Sponsored Avatar: Examining the Present Reality and Future Possibilities of Advertising in Digital Games," http://ir.lib.sfu.ca/retrieve/1630/8878e0c3d9c0a0bc67670b8d9a0f.doc

Cheng, Jacqui (2007), "Report: Video game spending to surpass music spending this year," http://arstechnica.com/news.ars/post/20070623-report-video-game-spending-to-surpass-music-spending-this-year.html.

Cheng, Simone; Lam, Terry and Hsu, Cathy (2005), "Testing the sufficiency of the theory of planned behavior: a case of customer dissatisfaction responses in restaurants," *International Journal of Hospitality Management*, Vol.24, Iss4, Pages 475-492.

Dee, Jonathan (2003), "Playing Mogul", *New York Times Magazine*, December 21, A36.

Entertainment Software Association (2008a), "Computer and Video Game Industry Reaches $18.85 Billion in 2007," http://www.theesa.com/archives/2008/01/computer_and_vi_1.php

Entertainment Software Association (2008b), "Facts and Research," http://www.theesa.com/facts/index.php

Francis, Jillian J., Martin P. Eccles, Marie Johnston, Anne Walker, Jeremy Grimshaw, Robbie Foy, Eileen F. S. Kaner, Liz Smith and Debbie Bonetti (2004), "Constructing Questionnaires Based on the Theory of Planned Behaviour: A Manual for Health Services Researchers", http://www.rebeqi.org/?pageID=40&ItemID=86

Gardner, Susan and Eng, Susanna (2005), "What Students Want: Generation Y and the Changing Function of the Academic Library," *Academic Research Library*, 5 (3), 405.

Howe, Neil and William Strauss (2000*), Millennials Rising: The Next Great Generation*, New York: Vintage Books.

Kelly, Caroline and Breinglinger, Sara (1995)," Attitudes, Intentions, and Behavior: A Study of Women's Participation in Collective Action," *Journal of Applied Social Psychology*, Vol 25, (16), 1430-1445.

Levitt, Theodore (1960), "Marketing Myopia", *Harvard Business Review*, Vol 38 (4), July-August, 45-56.

Lowenstein, Douglas (2004),"E3 2004 State of the Industry Address", Entertainment Software Association 2008, http://www.theesa.com/archives/2004/05/e3_2004_state_o_1.php.

Molesworth, Mike (2006), "Real Brands in Imaginary Worlds: Investigating Players' Experiences of Brand Placement in Digital Games," *Journal of Consumer Behavior*, 5 (July/August), 355-367.

Nelson, Michelle R. (2002), "Recall of Brand Placements in Computer/Video Games," *Journal of Advertising Research*, 42 (2), 80-92

Nunnally, Jum C. and Ira Bernstein, I. H. (1994), Psychometric Theory, 3rd Edition, New York: McGraw-Hill.

Patch, Craig; Tapsell, Linda and Williams, Peter (2006), "Attitudes and Intentions toward Purchasing Novel Foods Enriched with Omega-3 Fatty Acids," *Journal of Nutrition Education and Behavior*, Vol 37 (5), 235-241

Price Waterhouse Coopers (2008), "The Entertainment and Media Industry Outlook Segment" http://www.pwc.com/extweb/pwcpublications.nsf/docid/5AC172F2C9DED8F5852570210044EEA7.

Sheppard, Blair, Jon Hartwick and Paul Warshaw (1988), "The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research", *Journal of Consumer Research*, 15 (3), 325-343.

Voorhees, Benjamin, Fogel, Joshua; Houston, Thomas; Cooper, Lisa; Wang, Nae-Yuh and Ford, Daniel (2005), "Beliefs and Attitudes Associated With the Intention to Not Accept the Diagnosis of Depression Among Young Adults," *Annals of Family Medicine*, Vol 3 (1) January.

Wall Street Journal (2008), "Electronic Arts Sees Its Revenue Growing by Half," Feb 13, 2008, pg. B.3