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The Influence of the Hedonic and Utilitarian Value of Digital Games on Product Recommendation

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ABSTRACT

Grounded in the motivational aspects of product consumption, this study examines the hedonic and utilitarian value of digital games and their influence on product recommendation. The findings of an internet survey conducted among active game players who assessed the hedonic and utilitarian value of eight digital games are presented. The findings suggest that games should be viewed not only as hedonic but also as utilitarian products. Further, the results indicate that knowledge gained from game playing influences both the level of perceived hedonic and utilitarian value and the willingness to recommend a game to others. It is argued that a successful digital game offers both enjoyment and usefulness, with enjoyment being the main source of recommendation of digital games. The results extend both theoretical and empirical perspectives of the concepts of enjoyment and usefulness within information systems research.

Keywords

Hedonic, utilitarian, digital games, product recommendation, word-of-mouth.

INTRODUCTION

This study examines the hedonic (HED) and utilitarian (UT) value of digital games (hence games) and their influence on product recommendation among active game players. The perceived value of products and services, particularly HED and UT value considerations, is a relevant theme in consumer behavior research (Holbrook 1999; Sánchez-Fernández et al. 2007; Zeithaml 1988) and increasingly important in information systems (IS) research with particular relevance to games. Motivated by the importance of the games as a software business (Crandall et al. 2006; ESA 2011), influencing both people's behavior (Cole et al. 2007) and their daily lives in a number of ways such as by diverting much time away from other activities (Kallio et al. 2007), it is surprising that only very limited attention has been paid to the HED and UT value of games from this perspective in IS literature.

The motivational theory by Deci (1975) lays the foundation and basis of understanding how games are chosen and why they are played. From the motivational perspectives of consumption, hedonic goods entail intrinsic value, whereas utilitarian goods entail more extrinsic values. Intrinsic motivation is described as "*the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn, it is performing an activity for the satisfaction of the activity itself*" (Ryan et al. 2000). In contrast, extrinsic motivation leads to the performance of an activity in order to attain a separable and defined outcome (Ryan et al. 2000) and is a means to an end (Sánchez-Fernández et al. 2007). Both intrinsic and extrinsic motivation influence people's attitudes, beliefs and behavior (Brief et al. 1977).

Various studies on consumer goods and services (Dhar et al. 2000; Okada 2005; Turel et al. 2010), information systems (Davis 1989; Hsu et al. 2004; Van der Heijden 2004) and games (Choi et al. 2004; Holbrook et al. 1984; Hsu et al. 2007) have shown that the use of different products and services are driven both by UT and HED considerations. The existing literature on games portrays games as being primarily motivated by their intrinsic elements, such as enjoyment and fun (Chen 2007; Holbrook et al. 1984).

A predominant form of communication active in the games industry is word-of-mouth (WOM). WOM entails either positive or negative commentary about a product to consumers, which can result in product recommendation (Oliver 2006; Park et al. 2008) and is regarded as an effective method of influencing consumers during their product evaluation process (Brown et al. 1987; Chen et al. 2005; Chevalier et al. 2006). Examining HED and UT together with WOM provides an insight into the

motives governing the sources of recommendation to important reference groups in different contexts, such as private conversations and discussions over the internet.

Accordingly, the main research question is as follows: How does the HED and UT value of games influence the likelihood of recommending games? First, in order to answer the research question, it is necessary to study the influences of HED and UT value in games and then relate them to product recommendation. In addition, the importance of the prior game playing experience is acknowledged and the phenomena concerning the differences between experienced and inexperienced consumers are studied. By specifically focusing on HED and UT value it is intended that the sources of product recommendation in the context of games will be determined.

In the next section, the theoretical background of concepts of HED and UT value and product recommendation will briefly be presented together with research hypotheses. They are followed by the presentation of the empirical study and research findings. Finally, discussion and conclusions will complete the paper.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

We use a deductive method of research in which we present our findings by forming hypotheses from research questions and measure them by using various observations (Babbie 1998). Relevant constructs in the context of games are ideas derived from motivational theories (Deci 1975, Ryan and Deci 2000) and from prior research on measuring HED and UT value (Voss et al. 2003).

Hedonic and Utilitarian Value

Several prior studies indicate that attitudes towards products and behaviors have at least two distinct components, HED and UT (Batra et al. 1990; Davis et al. 1992; Mano et al. 1993; Van der Heijden 2004; Voss et al. 2003). Hirschman and Holbrook's (Hirschman et al. 1982) early outlook of hedonic consumer behavior considered the relationship between the multisensory, fantasy and emotive aspects of consumer behavior and product experience. In other words, motivated by the intrinsic aspects of consumer value, hedonic or pleasure-oriented consumption is expected to be motivated by the desire for pleasure, fantasy and fun (Strahilevitz et al. 1998, p. 436).

Utilitarian consumption is more cognitively driven, instrumental and goal oriented and accomplishes a functional or practical task (Dhar et al. 2000 p. 61; Strahilevitz et al. 1998). This is typically related to efficiency that results from the active use of a product or consumption experience as a means to achieve a self-oriented purpose. In practice it is often utilitarian outcomes that can be measured, time for instance, or the relationship between input and output. The concept is often referred to perceived usefulness, which is the degree to which a person believes that using a particular system would enhance his or her performance (Davis 1989, p. 320).

To experience and appreciate the value of fun or usefulness a consumer has to actively take part in playing a game for fun or to accomplish a work-related task using an office system (Holbrook 1996; Holbrook 1999). Games are most often assumed to be high in hedonic value, and the motives for using hedonic systems, such as games, are different from those for utilitarian systems, such as office information systems (Brown et al. 1987; Van der Heijden 2003). Both hedonic and utilitarian goods offer benefits to the consumer, yet in academic literature on entertainment information systems, games are more often assumed to be high in hedonic value rather than utilitarian value (Hsu et al. 2004; Lin et al. 2010). Therefore, games are considered hedonic information systems and we formulate our first two research hypotheses as follows:

Hypothesis 1 (H1) = Games are high in hedonic value.

Hypothesis 2 (H1) = Games are low in utilitarian value.

Relevant product knowledge and experience, such as game playing experience, significantly influences product evaluation (Bettman et al. 1980; Hong et al. 2010). Whether a particular product is hedonic or utilitarian is based upon a consumer's subjective judgment of the product's value dependent on product knowledge (Park et al. 2003). Entertainment purpose users are motivated by intrinsic motivation whereas perceived usefulness has a significant influence for the work-purpose users (Moon et al. 2001). Most importantly, an experienced user often has a different, probably higher, enjoyment-related expectation than an inexperienced user (Atkinson et al. 1997). Therefore, consumers with extensive prior knowledge, not only from game playing in general but from specific games, exhibit significant differences in perceived value of HED/UT value. In the light of prior consumer experience, we hypothesize that prior game playing experience influences the HED/UT value of games leading to the following hypothesis:

Hypothesis 3 (H3): A consumer's prior experience on a game positively influences the perceived level of HED/UT value of game.

Word of mouth product recommendation

WOM entails either positive or negative commentary about a product to consumers which can result in product recommendation (Oliver 2006; Park et al. 2008). It is regarded as an effective method of influencing consumers in their product evaluation process (Brown et al. 1987) and crucial in creating product awareness (Rossiter et al. 1987). Awareness through word-of-mouth (WOM) in different social networks and game media has a special importance to studios that have no resources to build big marketing campaigns for their games. For instance, publicly available product reviews, by game industry professionals and game players, have been recognized as maintaining a vital role in the commercial success of a digital game, biasing consumers in their game choice (Gamespot 2009). Product reviews generate a complementary effect in addition to general marketing actions, which generate increased sales in consumer goods (Chen et al. 2005; Chevalier et al. 2006).

Two main types of WOM can be identified. First, traditional WOM is based on private conversations between people in which information exchange is proactive and dependent on physical contexts (Gilly et al. 1998). Second, electronic word-of-mouth (eWOM) includes written comments and reviews on a product available on websites, or sharing links to websites (Park et al. 2008). Information from different sources assist consumers in obtaining critical pre-purchase product information (Klein 1998). Intentional or not, these different sources of information act as recommendations which influence a consumer’s product evaluation process positively or negatively, thereby creating awareness of a product’s salient qualities among consumers (Kumar et al. 2006; Smith et al. 2005).

The effects of WOM are stronger when the source of recommendation has high expertise of the product in question (Gilly et al. 1998). In addition, people are more receptive to receive information that they recognize and experience as friendly and relatable (Foxall 2005). Product recommendations made by credible experts in particular influence consumers’ product choices by reducing the amount of information search effort, most notably among less experienced consumers (Smith et al. 2005).

The influence of product experience can also be observed in the way consumers follow product recommendations. Park et al. (2008) suggest that attribute –centric product judgments have a stronger effect for experts and benefit –centric more for inexperienced consumers. In attribute-centric product recommendation, products are praised by their specific product attributes, often measured and described by exact numbers (500GB hard drive), or benefit -centric where benefits, such as containing a “large” hard drive, which will be able to store “many games”.

Further, hedonic value of consumption of digital goods has been shown to be an important antecedent of behavioral intention to positive WOM intentions (Turel et al. 2010). Similarly, the main purpose of games is to entertain users (Chen 2007; Holbrook et al. 1982) and when a game succeeds in attaining that objective it is then most likely also recommended to other game players. The willingness to recommend a game to another is based on specific games which game players have had experience with. In the context of games, we hypothesize that HED is a better predictor of recommendation than UT.

Hypothesis 4 (H4) = The hedonic value is more important determinant of game recommendation than utilitarian value.

According to Voss et al. (2003) the HED and UT constructs can be reliably observed by using five variables in both latent constructs. We adapted these variables (see Figure 1) for the survey questionnaire. The questionnaire items were translated from English to Finnish. Due to translation issues (e.g., synonyms and overlapping terms) only four of the suggested five terms were used. Semantic differential scaling from -3 to +3 in questionnaire items was used. For improved reliability the option “I cannot answer” – as an option for each psychometric item, was included. Recommendation (RECO) was measured with a single semantic differential question “Would you recommend this game to a friend?” (Reichheld 2006).

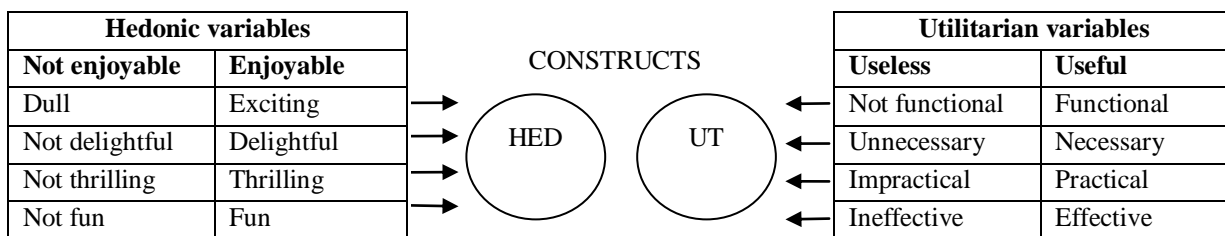


Figure 1. Utilitarian and hedonic variables used in questionnaire.

An internet survey application was used to create and conduct the survey. Before conducting the survey, 71 business school students were asked to categorize the adjectives used in the questionnaire by their perceived meaning as HED or UT words. All used adjectives were correctly grouped under their respective, expected constructs. Then the questionnaire form was commented on and pre-tested by seven colleagues and pilot users. Thereafter, a pilot survey was completed by 14 business school students.

A brief description of the research and a web link to the survey was attached to five Finnish Internet games discussion sites. After answering background questions, the participants assessed digital games without reference to any specific game title. Respondents were then asked to answer questions related to eight well known games (Table 1). Games were published to three gaming platforms, Nintendo Wii, Sony Playstation 3 and Microsoft Xbox 360. However, game platform information was deleted from the cover pictures so as to avoid specific platform related evaluation bias. The empirical set of data was processed using the SAS Enterprise Guide, version 4.1. The questionnaire form was available online for 6 weeks between March and April 2009.

	Type of the game	A brief description
Guitar Hero	Music party game	Player utilizes a guitar-shaped controller to simulate guitar playing.
Half-Life	First Person Shooter (FPS)	A science fiction FPS game where the main character, Dr. Gordon Freeman, has to be rescued out from a research facility.
Halo 3	First Person Shooter (FPS)	A science fiction FPS game where the main character, Master Chief's, task is the save humanity.
Little Big Planet	Platform game	In this game, two characters, Sackboy and Sackgirl, collect and grab objects to progress and complete levels. The player can customize the content of the game, such as level creation and characters.
Sing Star	Music party game	Using a microphone, the player sings songs in order to gain points.
Super Mario Galaxy	Platform game	In this game, Super Mario travels through the galaxy and collects objects.
Wii Fit	Exergame (gameplay requires physical activity)	By using a balance board, on which the game player stands, a number of exercises are performed following the gameplay.
Wii Sports	Exergame (gameplay requires physical activity)	The player's objective is to play simulated real life sports (e.g. tennis, bowling) requiring physical activity.

Table 1. Game recommendation.

RESULTS

Descriptive statistics

In total 171 responses were usable of which 11 were female. The females were removed from the sample to represent only men because traditional gender roles in game playing preferences are still in existence (Cassell et al. 2000; Haines 2004; Royse et al. 2007). The respondents were between 12-43 years of age, 23 years being both the average and median age. All respondents were relatively active game players with a weekly playing time of 15.8 hours on average and 12.5 hours in median.

A correlation analysis was produced and reliability scores calculated for both HED and UT variables in general digital game and subcategory levels. All the used variables corresponded well with responding latent factor variables (Cronbach’s Alpha, HED 0.87-0.95 and UT 0.70-0.90). A single composite summated measure of both HED and UT was then formed by combining their respective variables (Hair et al. 1984-2004). In order to ensure that there were no issues due to multicollinearity within the data, calculated tolerance and variance inflation factor (VIF) values for the data were calculated. The tolerance values were all within a range of 0.21-0.86, which is well above the suggested lower limit of 0.10 and the VIF values were all close to 1.16-4.70 which were below the acceptable threshold of 10 (Hair et al. 1984-2004).

HED/UT value and experience

It was hypothesized that games are high in hedonic value and low in utilitarian value. In order to test the hypotheses, and following the similar procedure of Voss et al. (2003), a summated scatter plot that presented the HED/UT value for each game between experienced and inexperienced respondents (Figure 2) was created. Further, a t-test (α -risk at 0.05 level) was conducted between experienced and inexperienced consumers separately in all games.

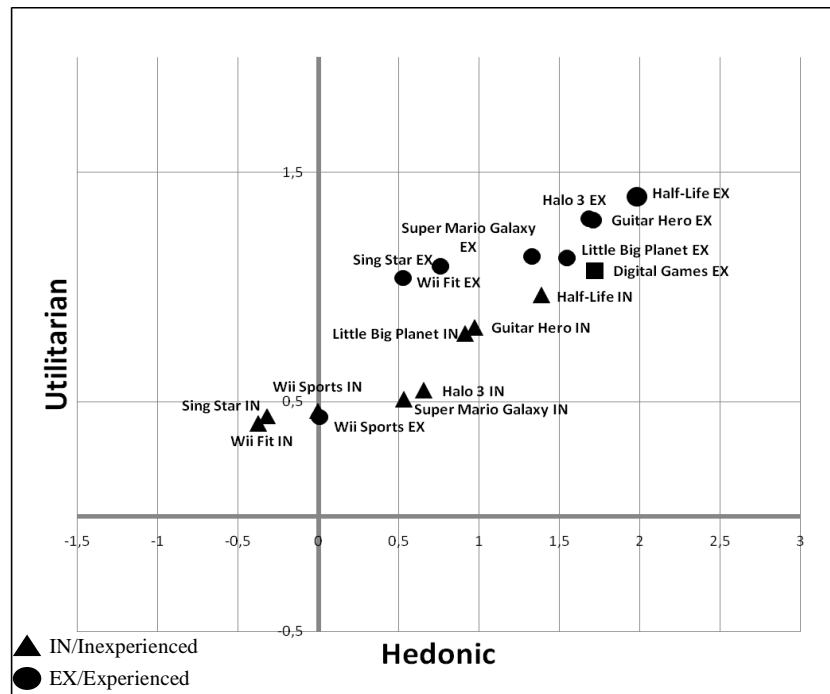


Figure 2. The hedonic and utilitarian value of digital game products on a scatter plot.

In a semantic differential scale, zero is neutral, plus denotes a positive, and minus a negative point of attitude towards game playing. The highest evaluations for both HED and UT value was given by experienced gamers to Half-Life, Guitar Hero and Halo 3 and lowest evaluations were linked to WiiSports, WiiFit and Singstar. Inexperienced gamers ranked Half-life, Guitar hero and Little Big Planet highest in HED value and lowest WiiFit, Singstar and Wiisports. All games but two (WiiFit and SingStar), were rated high in HED value by inexperienced consumers, yet not far from being positive. Therefore, we accept H1 and discuss results. Most interestingly, all games were evaluated with high UT value in both groups and thus H2 was rejected.

Third, it was hypothesized (H3) that game player's prior experience positively influences the perceived level of HED/UT value of games. The largest difference between experienced and inexperienced consumers was measured both in HED and UT between Halo 3, SingStar and WiiFit. Experienced game players evaluated all games systematically and significantly higher than inexperienced game players in both values except in the case of WiiSports, where the differences on both values were minimal, and Little Big Planet, where a significant difference between UT was recorded. HED/UT values are, on a large scale, both positively influenced by game playing experience. Results regarding WiiSports are viewed as an exception, which further clarifies and enhances the indication that H3 can be accepted.

Product recommendation and experience

It was hypothesized (H4) that HED value is a more important determinant of game recommendation than UT value. Table 2 denotes the differences measured between inexperienced (IN) and experienced (EX) game players with reference to recommendation variables. In all cases, except for one (WiiSports), a statistically significant difference (t-test, α -risk at 0.05 level) in recommendation between experienced and inexperienced game players was observed. Similarly, as in the case of H3, WiiSports seem to differ from other game applications.

The highest likelihood of recommendation is given for games playing in general (1.93 in scale of -3 to +3). Half-life and Guitar Hero have the highest recommendation measures for both experienced and inexperienced consumers. The least likelihood of game recommendation are for WiiFit and WiiSports for experienced consumers and SingStar and WiiFit for inexperienced. The highest differences are present in Halo3, Sing Star followed by Guitar Hero and lowest WiiSports and WiiFit.

	RECO	RECO	RECO	Significant difference	n
	EX	IN	Mean Difference	α -risk controlled at 0.05 level	EX/IN
Digital Games	1.93				
Halo 3	1.60	0.18	1.42	YES	62/96
Sing Star	0.96	-0.42	1.38	YES	56/104
Guitar Hero	1.74	0.42	1.32	YES	84/71
Half-Life	1.87	0.63	1.24	YES	108/46
Little Big Planet	1.56	0.35	1.21	YES	32/124
Super Mario Galaxy	1.24	0.23	1.01	YES	37/121
Wii Fit	0.63	-0.08	0.71	YES	29/128
Wii Sports	0.31	0.05	0.26	NO	80/78

Table 2. Game recommendation.

To test H4, the influence of HED and UT summated variables on recommendation was measured with a multiple linear regression model: $Recommendation_{ex/in} = constant_{ex/in} + HED_{ex/in} + UT_{ex/in} + error_{ex/in}$. Specifically, the proportion that HED and UT explain recommendation was of interest (Table 3). The explanatory power R^2 is high (0.46-0.75), implying that HED and UT have a substantial influence on recommendation, except in the case of games in general (R^2 0.15). In all cases HED was a statistically significant interacting variable and four where UT was not significant against a p-value of ≤ 0.05 . Second, the number of respondents that responded as not having the capability of answering is higher among the inexperienced than experienced consumers. The influence of the lack of experience can be observed in the results. Criteria for a relevant minimum difference to detect a 10% difference between HED and UT was set. HED value explains (MIV %) the recommendation better than UT and for that reason accept H4. The case of WiiSports differs from the general pattern by experienced game players who recommended it more by UT value than inexperienced game players who based recommendation on HED value.

TITLE		r ² adj.	n	n M *	HED SE**	UT SE**	HED i %	UT i %	MIV ***	F-value	Pr > F	VIF	HED stnd error	UT stnd error	TVa ****
Digital Games in general	EX	0.15	160	1	0.24	0.20	55 %	45%		15.06	<0.0001	1.69	0.10	0.11	0.59
Halo 3	EX	0.70	62	0	0.81	0.05	94 %	6 %	HED	73.25	<0.0001	2.60	0.13	0.16	0.09
	IN	0.63	74	22	0.54	0.31	64 %	36 %	HED	63.79	<0.0001	2.36	0.10	0.12	0.38
Half-Life	EX	0.67	106	2	0.51	0.36	59 %	41 %	HED	107.43	<0.0001	2.28	0.09	0.10	0.43
	IN	0.56	35	11	0.48	0.33	59 %	41 %	HED	22.82	<0.0001	2.51	0.22	0.27	0.40
Wii Fit	EX	0.64	27	2	0.76	0.07	92 %	8 %	HED	24.43	<0.0001	3.25	0.24	0.25	0.44
	IN	0.66	75	53	0.43	0.47	48 %	52 %		73.73	<0.0001	1.83	0.10	0.11	0.40
Wii Sports	EX	0.60	75	5	0.34	0.49	41 %	59 %	UT	57.37	<0.0001	2.38	0.15	0.19	0.42
	IN	0.48	57	21	0.43	0.35	55 %	45 %	HED	26.8	<0.0001	1.84	0.13	0.17	0.54
Sing Star	EX	0.64	56	0	0.50	0.35	59 %	41 %	HED	49.2	<0.0001	2.47	0.15	0.19	0.40
	IN	0.53	74	30	0.60	0.19	76 %	24 %	HED	42.31	<0.0001	1.74	0.10	0.40	0.57
Guitar Hero	EX	0.52	83	1	0.60	0.21	74 %	26 %	HED	45.46	<0.0001	1.30	0.09	0.13	0.76
	IN	0.67	57	14	0.70	0.15	82 %	18 %	HED	58.05	<0.0001	3.57	0.14	0.18	0.28
Super Mario Galaxy	EX	0.46	35	2	0.53	0.20	73 %	27 %	HED	15.5	<0.0001	2.84	0.20	0.28	0.35
	IN	0.61	77	44	0.90	-0.17	85 %	15 %	HED	60.39	<0.0001	2.25	0.11	0.13	0.44
Little Big Planet	EX	0.75	32	0	0.49	0.42	54 %	46 %		46.59	<0.0001	3.27	0.19	0.23	0.30
	IN	0.60	63	61	0.51	0.30	63 %	37 %	HED	48.23	<0.0001	4.70	0.19	0.22	0.21

bold not statistically significant, *italic* significant at 0.10 level, * n Missing, ** SE Standardized Estimate, *** MIV (Main Interacting Variable) **** TVa Tolerance Value

Table 3. Sources of games recommendation.

DISCUSSION AND CONCLUSIONS

In summary, the findings suggest that selected games are viewed not only as hedonic but also as utilitarian products by both experienced and inexperienced game players (H1 and H2). Second, knowledge gained from game playing influences perceived HED and UT value (H3). Finally, the HED value of games plays a more important role in game recommendation than UT value (H4).

WiiSports varied from the other games used in this study. In this case, the HED/UT levels were rather low among both experienced and inexperienced groups and less of a likelihood of recommending WiiSports than other games existed. This could be explained by a possible fault with the experience of WiiSports compared to the other games. The design aspects of games aim to develop elements of gameplay that motivate the player to continue playing without experiencing anxiety or boredom (Chen 2007; Csikszentmihalyi 1975; Hackbarth et al. 2003). It can be suggested that the reason why experienced gamers assessed the HED and UT almost equally to inexperienced consumers is based on disappointing experience. WiiSports had been criticized as too easy or too difficult, thus leading to poor stimulation among players and resulting in frustration and boredom (Mano et al. 1993). The relatively low value of HED and UT among experienced game players, perceived from their experiences, modifies the source of recommendation from HED towards UT. Further, WiiSports is a game delivered together with a game console (Nintendo Wii) and there is no need to buy it separately. Thus, players do not choose the game from many other available alternatives. Therefore, playing experience of WiiSports does not fully represent gaming preferences, which are usually important in the decision making process before a choice is made (Ajzen 2005).

Consumers use and experience a product and by consuming it, modify their attitudes towards it. It is agreed that games are primarily considered as hedonic products, as most of the literature on games suggests. However, such a generalization is problematic because many active game players consider games as something more. Players utilize games not only for the satisfaction derived during the experience but also as a tool, a means to an end, that allows for the player to pursue and achieve something extrinsic, tangible and self-actualizing. Game players often expect a certain game to function as a tool to achieve goals such as learning (Hoffmann 2009) or gain greater achievements, points and promotions which are common objectives in game playing.

By taking into account the results of this study it is proposed that managers focus their attention on how they plan marketing strategies toward different consumer groups, both inexperienced and experienced. It is vital for managers to be able to optimally express the main benefits of their products to their customers in order to create WOM and enhance positive product recommendations within different media. A successful game provides both enjoyment and usefulness, with enjoyment as the main source of recommendation of games. It is important, however, to keep in mind that the perceived value of products and services are complex and multidimensional concepts of which only a limited proportion was studied in this paper and further in-depth study is required.

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