



A study on the goal value for massively multiplayer online role-playing games players

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ABSTRACT

This study examines the goal of value sought by players of the massively multiplayer online role playing games (MMORPGs). We drew on the Means-end Chains (MECs) model frequently used in marketing as a theoretical basis. *Soft laddering* method was also adopted as a tool for in-depth interviews. Content analysis was used to analyze the “Attributes–Consequences–Values” for MMORPGs players, then converted into a hierarchical value map (HVM). The study found that *role-playing, interface design, multiplayer gaming, independent play, popularity and virtual pets* were the order of game attributes users took into consideration when playing MMORPGs. The consequences benefits for the users were, in order, *enhanced interaction, more fun, enhanced efficiency, fantasy fulfillment, winning, novelty, more insurance, increased wealth and stress relief*. The value targets sought by players were concluded to be *fun and enjoyment in life, sense of accomplishment, warm relationships with others, sense of belonging and security* in order of importance.

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1. Introduction

The advancement of internet technology has not only enriched the content and format of various online games but also fueled immense growth for the gaming industry. According to the report from DFC Intelligence (2007), the worldwide online game market is predicted to grow from USD 4.5 billion in the year 2006 to over USD 13.1 billion in the year 2012. In such virtual worlds, there are many things a player can do, depending on the story of the game. One popular facet of internet gaming is the massively multiplayer online role playing games (MMORPGs). Most MMORPGs do share some common characteristics. The MMORPG virtual worlds are usually vast and complex. Presently, various online game publishers have developed and distributed a wide variety of titles, including RPG, strategy games, puzzle games, simulation games, racing games and so forth. Among these, MMORPGs is the most common and popular genre. Millions of people from around the globe play online role playing games (MMORPGs), in which a large number of players interact with one another in a virtual world. MMORPGs have become increasingly popular over the past few years.

In the past years, some MMORPGs studies examined player characteristics or behaviors (Ducheneaut, Yee, Nickell, & Moore, 2007; Pittman & Dickey, 2007; Smahel, Blinka, & Ledabyl, 2008;

Yee, 2006). The studies have paid limited attention to the interconnections between the player and games. Although MMORPGs intrigued a substantial number of gamers, the majority of these gamers were uncertain of the experience they were expecting from the games. When designing the systems for MMORPGs, it is necessary to realize that players have varied goals with the gaming activity. And as such, if game publishers could identify the final target value that MMORPGs players pursue, it would give them an edge by allowing them to align their game development and marketing strategies closer to players' target values. Consequently, game publishers would be able to accomplish the goal of increasing profits.

When buying specific gaming products, gamers prioritize the product's functions or features and enjoy the result or benefits they have come to anticipate from their purchase so that they could experience their final target value. Therefore, the Means-end Chains (MECs) model would be a suitable tool to explain the resultant benefits from consequence and final target values for consumers in their selection of product attributes. And as such, MECs has been chosen for the purpose of this study to identify the final target value that MMORPGs players seek and the correlation between Attribute–Consequence–Value (A–C–V) for the target users in order to provide a useful reference for online game publishers in game development and marketing strategy formulation.

The primary purpose of this research is to evaluate the importance of linkages between product attributes and personal values in MMORPGs. This study addresses the following research questions. What are the attributes, consequences, and values associated with in MMORPGs? What are the means-end relationships between the attributes, consequences, and values?

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2. Theoretical background

2.1. MMORPGs

MMORPGs have been studied widely in the recent past for analyzing player characteristics (Ducheneaut et al., 2007; Griffiths, Davies, & Chappell, 2004; Pittman & Dickey, 2007; Smahel et al., 2008), motivations (Yee, 2006), attitudes and feelings of online gamers (Hussain & Griffiths, 2009), cognitive impacts (Bruno, Leonardo, & Antonio, 2010), online gaming addiction (Grusser, Thalemann, & Griffiths, 2007; Mehroof & Griffiths, 2009; Smahel et al., 2008; Wan & Chiou, 2006), and psychological harm (Whitty, Young, & Goodings, 2011; Young & Whitty, 2010).

Yee (2006) pointed that MMORPG players, who on average are 26 years old, typically spend 22 h per week in these environments. There are similar findings on Griffiths et al. (2004). The results showed that 81% of online gamers were male and that the mean age of players was 28 years. The highest intensity of playing MMORPGs was found in the group of those aged between 20 and 22 years, reaching almost 30 h per week. It was also found that 4% of players claimed to play for over 70 h a week. This implies that it is a very important leisure activity of some contemporary adolescents and emerging adults. Internet addicts would feel interpersonal relationships in reality are stressful, and they would try to shun others and engage in Internet use as an alternative to relationships in real life (Kim, Namkoong, Ku, & Kim, 2008; Whang & Chang, 2004). Hussain and Griffiths (2009) showed how gamers used MMORPGs to alleviate negative feelings and provided detailed descriptions of personal problems that had arisen due to playing MMORPGs. 41% of gamers played online to escape and 7% of gamers were classified as 'dependent' individuals who were at risk of developing a psychological and behavioral dependence for online gaming using an adapted 'addiction' scale. Excessive online gaming was significantly correlated with psychological and behavioral 'dependence' (Hussain & Griffiths, 2009).

Several fundamental elements may be identified in most MMORPGs: some form of progression, social interaction within the game, in-game culture, system architecture, and character customization. MMORPGs players want communication through text chat the most (Johnsson, 2006). Players' favorite aspect of the game is social interaction (Griffiths, Davies, & Chappell, 2003). 39.4% of male gamers and 53.3% of female gamers felt their MMORPGs friends were comparable or better than their real-life friends (Yee, 2006). Social interaction is also found as a key factor that makes gamers become more engaged and play the game continuously and is a necessary ingredient for success in MMO games (Chen, Duh, Phuah, & Lam, 2006; Cole & Griffiths, 2007). In this work we focus on player progression, as in most games this is the player's primary goal.

2.2. Means-end chain theory

Means-end theory, originally developed for consumer marketing by Gutman (1982), has been used in several studies of consumer purchasing behavior (Baker, Thompson, & Engelken, 2002; Costa, Dekker, & Jongen, 2004; Futopoulos, Krystallis, & Ness, 2003; Grunert & Grunert, 1995; Huber, Herrmann, & Morgan, 2001; Walker & Olson, 1991), investigating the role of personal values in tangibilising services and advertising effectiveness (Hill & Gandhi, 1992; Stafford, 2005; Tripp, 1997) and user goal in social virtual worlds (Jung & Kang, 2010).

The means-end chain is the cognitive representation of the connections between a customer's knowledge about a product attributes (A), consumers' perceived positive consequences (C) and personal values (V). Means-end analysis was used to identify link-

ages among program attributes, outcomes, and values (Gutman, 1982, 1997). Satisfactions of functional and psychosocial consequences lead to the realization of personal values. Consumers are more likely to consume or purchase specific products that satisfy their immediate personal values; that is, the principles that guide their actions and behaviors (Young & O'Neill, 1992).

According to the means-end chain, consumers identify products by their physical or intangible characteristics. Concrete attributes are the tangible, physical characteristics of a product which are measurable in physical units. Abstract attributes represent intangible characteristics that are more subjective in nature related to a product. Peter and Olson (2009) explained that consumers identify both functional consequences (i.e. tangible outcomes of using a product) and psychosocial consequences (i.e. the psychological and social outcomes of product use) related to a product. Satisfactions of functional and psychosocial consequences lead to the realization of personal values. Gutman (1982) incorporated Rokeach's (1973) two levels of values into the means-end chain model: instrumental and terminal values. Instrumental values are modes of conduct to which one adheres in order to reach terminal values, while terminal values are concerned with an end goal, and occupy the dominant role with greatest abstraction in the means-end chain. Both instrumental and terminal values represent the most personal consequences people try to achieve in their lives (Peter & Olson, 2009). In means-end theory, values are defined as the participants' desired end-state. In other words, values are the participants' end destination as they travel up the means-end ladder of abstraction from more concrete attributes to highly abstract value-states (Klenosky, Gengler, & Mulvet, 1993). Kahle (1983) synthesized and developed a short application oriented List of Values (LOV), a typology developed for measuring values in survey research. The LOV has been used in recent years in various market research contexts (Bloemer & Dekker, 2007; Keng, Jung, Juuan, & Wirtz, 2000; Kim, 2005). Nine core values can be identified in LOV, which include a sense of belonging, excitement, warm relationships with others, self-fulfillment, being well respected, fun and enjoyment of life, security, self respect, and a sense of accomplishment (Kahle, 1983; Joubert & Mabunda, 2007). In sum, the LOV was used in this study.

Therefore, an advantage of the means-end chain model is that it provides a deeper understanding of consumers' product knowledge and their motivation to consume a certain product, compared to studies focusing only on a product's attributes or benefits. Additionally, Peter and Olson (2009) argued that the means-end chain represents the consumer-product relationship, illustrating how consumers relate certain product attributes to specific aspects of their self-related personal values. The indication here is that it is crucial for managers to identify product attributes and positive consequences important to consumers, in order to develop specific marketing strategies targeted at stimulating consumers' perceived personal relevance of the product in fulfilling their desired end-goals.

The implication matrix summarizes the number of times each concept is associated with each of the other concepts in the means-end ladders, determining the dominant connections between the key attributes, consequences, and values. The HVM represents only the common themes emerging from the data; it does not represent every link made in every means-end ladders. When creating an HVM there are two important considerations that will determine the content and design; the concepts and links addressed by the HVM, and where the concepts should be located relative to the other items of the HVM (Goldenberg, Klenosky, O'Leary, & Templin, 2000).

The lower the cutoff value the higher percentage of associations between the concepts will be displayed by the HVM. Gengler and Reynolds (1995) stated that the cutoff value needs to strike a

balance between the aesthetic quality of the HVM and the quantitative validity of the data being presented. In other words, the HVM needs enough of the associations between the concepts displayed to represent the majority of the means-end data collected but not have so much data that the HVM is rendered incomprehensible. However, if all connections were treated as valid connections, the resulting perceptual value map would be too sophisticated. When creating a HVM, a specific cutoff value was chosen. The cutoff value refers to the number of times concepts were associated together in the implication matrix.

3. Methodology

3.1. Laddering technique

Laddering is a specific approach used to identify Means-end Chains. The aim of the technique is to determine the links between attributes, consequences and values (Reynolds & Gutman, 1988). The laddering technique refers to a semi-structure in-depth and one-on-one interviewing technique. Laddering involve a tailored interviewing format using a series of probing question beginning with distinction between product attributes and leading to different consequences and values. Laddering primarily using a series of directed probes, typified by the “why is this important to you?” question, with the express goal of determining sets of linkages between the key conceptual elements across the range of attributes, consequences, and values (Reynolds & Gutman, 1988). Each response is similar to a rung on a ladder, eventually leading the researcher to the value level of the participants. The analysis of laddering data involves summarizing the key elements of the interviews by means of a standard content analysis procedure into a diagram displaying the dominant connections among attributes, consequences and values.

Laddering can take different forms, i.e. hard laddering or soft laddering (Grunert, Beckmann, & Sorensen, 2001). Hard laddering pre-assumes a hierarchical structure and therefore produces a series of straightforward ladders one by one. Soft laddering allows people to go back and forth within the hierarchy with as few constraints as possible. Semi-structured open-ended in-depth interviews allowed the researcher control over the line of questioning but also provided participants with enough reign for rich descriptions. It allows for a more natural speech, and in the analysis one can choose to focus only on direct relationships, or take indirect relationships into account in addition. In view of the exploratory nature of the aims and the complexity of the stimuli under study, the soft-laddering technique was selected to conduct the interviews (Grunert & Grunert, 1995; Olson & Reynolds, 2001; Russel et al., 2004).

Using a soft-laddering technique, respondents attended individual interview sessions, of between 45 min and 1 h. It was explained to respondents that the interviews will be recorded on a writing pad to ensure that the primary data is not lost. An effort was made to establish a relaxed environment with the respondents. In laddering technique, respondents are first asked questions intended to elicit the attributes of the product (MMORPGs) in question that influenced their choice and/or buying behavior. Follow-up questions are then asked in order to learn why specific attributes are important. The series of questions continues until the respondent mentions a value or cannot respond any further (Klenosky & Saunders, 2005).

3.2. Sample and data collection

There are many means-end studies that have sample sizes of 30 informants. Reynolds and Gutman (1988) recognize that a pool of

50–60 informants provides the opportunity to address the research questions by evaluating several different solutions during the generation of the hierarchical value map. Minimum sample size for laddering research is a function of sample criteria. As a general rule of thumb, a mini of 20 respondents should be included in any single subgroup. Also, 20 respondents can provide the full range of attributes, consequences, and valued associated with the key brands in the category, when the respondents are carefully specified and screened (Reynolds, Dethloff, & Westberg, 2001). Hence, 60 MMORPGs player were invited in this study.

After collection of the demographical data, the researcher asked each player to identify motives of their MMORPGs experience that they felt were most meaningful. In this study, researchers applied a laddering technique to analyze how player perceive the outcomes of MMORPGs use by asking them the following questions: (1) Which attributes influence your MMORPGs purchase? (2) Why are these attributes important to you? (3) What benefits or consequences do these attributes provide after you play the MMORPGs? (4) What value do you obtain from these benefits, and why? The researcher then repeatedly asks the participant why each subsequent response is important until the participant eventually gives an answer reflecting a value state or can no longer give a response. The same questions are used to discover consequences and personal values.

Regular players of MMORPGs were chosen as the subjects for this study. A total of 60 subjects were interviewed with a male–female ratio at roughly 1:1. 53.33% ($n = 32$) of the subjects were undergraduate students and 45% ($n = 27$) were graduate students (as shown in Table 1). In order to ensure accurate interpretation of the A–C–V path structure that respondents are primarily concerned with, the interview samples must demonstrate their ability to clearly express abstract thoughts. This explains why the author has chosen subjects who are university or master’s students.

3.3. Coding and intercoder reliability

The goal of coding was to identify groups of elements. Content analysis and laddering technique were performed to code all collected data as attributes, consequences or values links were then formed and referred to as MECs according with the relevant literature (Kassarjian, 1977; Reynolds & Gutman, 1988). Content analysis on the laddering data was conducted to facilitate the aggregation of findings and generalizations across respondents. The content analysis results in idiosyncratic concepts, which are categorized under codes. After conducting the interviews the raw material had to be analyzed in order to introduce so called content codes. Each code is identified as an attribute, consequence, or value, which means that all data are categorized into elements. Respondents’ individual verbatim were then grouped together around a similar theme and assigned to a corresponding element code.

Table 1
Demographics of participants.

Item		Frequency	Percent
Gender	Male	31	51.67
	Female	29	48.33
Education	Graduate	27	45
	Undergraduate	32	53.33
	High school	1	1.67
Age	18 or younger	1	1.67
	19–25	53	88.33
	26–30	6	10
Playing time (everyday)	Below 1 h	10	16.67
	2–5 h	29	48.33
	More than 5 h	21	35.00

After coding, the reliability should be test. Inter-rater reliability addresses the consistency of the implementation of a rating system. The data collected from the interview were coded and categorized independently by three researchers who have experience of using MMORPGs. The index of reliability was 0.93 (as shown in Table 2), exceeding the recommended guideline (inter-rater reliability = 0.70) (Perreault & Leigh, 1989). Once initial intercoder reliability was determined, researchers worked together to resolve differences in coding of the data. All disagreements were resolved by discussion.

4. Results and analysis

The laddering data were analyzed using a three step method (Reynolds & Gutman, 1988). First, the ladders were coded by the researchers and involved the development of meaningful categories. The second step in data analysis was the development of an implication matrix. The third and final step in the data analysis was the development of hierarchical value maps (HVMs).

4.1. Coding

The means-end analysis began when a list of attributes, consequences, and values was created based on phrases and key words that emerged from the respondents. Coding was an iterative exercise of recoding data, splitting, combining categories, generating new or dropping existing categories. Results of the analysis showed 10 attributes (*role playing, leveling up, multiplayer gaming, interface design, story, independent play, virtual pets, marketing campaign, popularity, virtual items*), 11 consequences (*enhanced efficiency, more insurance, time planning, increased wealth, enhanced interaction, more fun, novelty, stress relief, continued playing, winning, fantasy fulfillment*) and 9 values (*self-fulfillment, excitement, fun and enjoyment of life, self respect, being well respected, sense of belonging, warm relationships with others, sense of accomplishment, security*).

Among the 60 respondents, the mean frequency for each respondent to mention the value ladder came to 2.68, contributing to a total of 161 value ladders. Results of the implication matrix analysis revealed that the respondents made a total of 333 connections, with a mean of 5.55 connections for each respondent.

The most frequently mentioned attributes were *role playing* ($n = 37$), *interface design* ($n = 32$), and *multiplayer gaming* ($n = 31$); consequences were *enhanced interaction* ($n = 39$), *more fun* ($n = 26$), and *improved efficiency* ($n = 25$). The values identified were *fun and enjoyment of life* ($n = 55$), *sense of accomplishment* ($n = 39$), and *warm relationship with others* ($n = 23$) (as shown in Table 3).

4.2. Implications matrix

An implications matrix is developed that summarizes the ACV linkages among the categories (Klenosky, Frauman, Norman, & Gengler, 1998; Klenosky et al., 1993). The implication matrix is a tool that helps identify the number of times concepts are linked in the means-end ladders. The study constructed a summary implication matrix that recorded the number of direct linkages between attributes and consequences, between consequences and consequences, between attributes and values, and between

consequences and values. After the paths constructed based on respondents' data were coded with the correlations of connections identified, the data was mapped into a systematic and integrated implications matrix (as shown in Appendix A).

4.3. Goal structure

To provide insight into the position that individual goals have in the goal structure, Pieters, Baumgartner, and Allen (1995) derived several indices using information about the out-degrees² and in-degrees³ of goals as indicated. Abstractness of a goal is the ratio of in-degrees over in-degrees plus out-degrees of the goal. Elements with high abstractness scores are regarded mainly as ends, while ones with low abstractness scores are thought of primarily as means. Additionally, in order for informative analysis, this study calculated centrality of each element, which represents the degree to which the element has a central role in the structure (Knoke & Burt, 1982). Centrality of a goal is the ratio of in-degree plus out-degree of a particular goal over the sum of all active cells in the implication matrix. Meanwhile, prestige of a goal is the ratio of in-degrees of a particular goal over the sum of all cell-entries in the implication matrix. Three indices (abstractness, centrality, prestige) all range from 0 to 1. Centrality and prestige are indices of the importance, prominence, or salience of individual goals in the goal structure; the higher the score on these indices, the more often the goal is involved in connections with other goals in the goal structure, wither as a source of destination (centrality) or as a destination only (prestige). On the other hand, abstractness is an index of the level of individual goals in the goal structure, not of their importance (Pieters et al., 1995).

As shown in Table 4, the abstractness index for MMORPGs came between 0.5 and 0.538, with *stress relief* ranking no. 1, followed by *increased wealth* and *more insurance*. The higher the index, the larger the proportion of a goal's is the destination rather than the source. Goals with a high abstractness score are predominantly ends, while goals with low abstractness scores are predominantly means. The centrality index came between 0.018 and 0.23 with a total of 11 consequence variables, including *enhanced interaction, more fun, enhanced efficiency* and *fantasy fulfillment* having the four highest focal competence values and link frequencies. The higher the index, the larger the proportion of connections in the goal structure than run through the particular goal. The prestige indicator were between 0.009 and 0.117. The higher the ratio, the more the particular goal is the destination of connections with other goals. Table 4 shows that the four values, *enhanced interaction, more fun, enhanced efficiency* and *fantasy fulfillment*, had frequencies higher than the remaining seven consequence variable. This means the MMORPGs attribute variables would be connected to the target values through these four consequences. In both the centrality and prestige indices, four consequences had higher frequencies compared to the remaining seven items, and they were *enhanced interaction, more fun, enhanced efficiency* and *fantasy fulfillment*. This suggests the four consequences to carry importance for the respondents in their choice of MMORPGs titles.

4.4. Hierarchical value maps

Once the implication matrix has been completed, the data can then be converted to construct HVMs that aggregated MECs were

Table 2
Intercoder reliability.

Researcher	A	B	C
B	0.73		
C	0.7	0.83	
D	0.77	0.83	0.77

Average of agreement = $(0.73 + 0.7 + 0.77 + 0.83 + 0.83 + 0.77) \div 6 = 0.77$.

Reliability = $(4 \times 0.77) \div (1 + (4 - 1) \times 0.77) = 0.93$.

² The out-degree of a particular goal is the number of times that the goal is the source or origin of a connection with other goals, aggregated across subjects and ladders.

³ The in-degree of a goal is the number of times that the goal is the destination or receiver of a connection with other goals, aggregated across subjects and ladders.

Table 3

Item codes of the MMORPGs data and frequency.

Attributes	Frequency	Consequences	Frequency	Values	Frequency
A01 role playing	37	C01 enhanced efficiency	25	V01 self-fulfillment	10
A02 leveling up	3	C02 more insurance	12	V02 excitement	10
A03 multiplayer gaming	31	C03 time planning	5	V03 fun and enjoyment of life	55
A04 interface design	32	C04 increased wealth	9	V04 self respect	5
A05 story	11	C05 enhanced interaction	39	V05 being well respected	5
A06 independent play	17	C06 more fun	26	V06 sense of belonging	7
A07 virtual pets	1	C07 novelty	13	V07 warm relationships with others	23
A08 marketing campaign	2	C08 stress relief	7	V08 sense of accomplishment	39
A09 popularity	15	C09 continued playing	3	V09 security	7
A10 virtual items	12	C10 winning	16		
		C11 fantasy fulfillment	17		

Table 4

Indices of MMORPGs.

Consequences	In-degree	Out-degree	Abstractness	Centrality	Prestige
C01 Enhanced efficiency	25	25	0.5	0.15	0.075
C02 More insurance	12	11	0.522	0.069	0.036
C03 Time planning	5	5	0.5	0.03	0.015
C04 Increased wealth	9	8	0.529	0.051	0.027
C05 Enhanced interaction	39	37	0.513	0.23	0.117
C06 More fun	26	25	0.51	0.153	0.078
C07 Novelty	13	13	0.5	0.078	0.039
C08 Stress relief	7	6	0.538	0.039	0.021
C09 Continued playing	3	3	0.5	0.018	0.009
C10 Winning	16	16	0.5	0.096	0.048
C11 Fantasy fulfillment	17	16	0.515	0.099	0.051

graphically represented in a tree-like network diagram. HVM visually illustrate the relationships between concepts by showing the links between the attributes, consequences, and values. This study adopted a cutoff of four relations to construct the HVM, to comply with the methodological advice provided by Grunert, Beckmann, and Sorensen (2001) who indicate that the cutoff level should be at least three when the number of samples is between 30 and 60. The cut-off is usually 5% of participants (Gengler, Klenosky, & Mulvey, 1995) although Frauman, Norman, and Klenosky (1998) suggest using 70% of relations in the implication matrix. In practice, these two approaches seem to yield similar results. We would unable to identify the connections that mattered the most to the users. And as such, a cut off level that has relatively lower number of actives cells in the implication matrix and higher linkage percentages has been adopted to delete path structures with connection frequencies below the cutoff path structures to make the perceptual value map more representative. As shown in Table 5, if the frequency of connection between variables turned out to be 4 or higher, 25 valid grids would constitute 21.37% of the total number of valid grids and the 197 connections would make up 59.16% of the total connections. Therefore, cutoff level 4 has been adopted as the basis in the screening of the perceptual value map.

With paths below cutoff level 4 removed from the implication matrix, the perceptual value map that represents the most crucial levels for MMORPGs players is shown in Fig. 1. The specific findings are summarized below.

From the 10 attribute levels constructed by the respondents, subjects identified *role playing*, *interface design*, *multiplayer gaming*, *independent play* and *popularity* (ranked in descending order of frequency and importance). These five attributes have been identified as key attributes for users in their selection of MMORPGs titles. Based on the structure of the major connections, this research will offer an analysis of the experiences relating to the five target values.

Firstly, *role playing* games allow gamers to take on fictional characters such as fighters, policemen, villains, racers, elves, wiz-

Table 5

Statistics of determining a cutoff level.

Cutoff	No. of active cells in the implication matrix	Percentage of active cells at or above the cutoff level (%)	No. of active linkages	Percentage of active linkages at or above the cutoff level (%)
1	117	100.00	333	100.00
2	62	52.99	278	83.48
3	35	29.91	224	67.27
4	25	21.37	197	59.16
5	23	19.66	185	55.56

ards, orcs and so forth. This attribute is what gamers valued the most because many respondents felt that the characters they play in the game could realize their *fantasies* ($n = 9$) by being masters of powerful martial arts, capable of performing incredible feats and doing things that are impossible in real life, which would allow them to experience a *sense of accomplishment* ($n = 6$).

Secondly, *interface design* refers to the fact that many MMORPGs titles have unique art/graphic styles (i.e. being "cute", in 3D or having a unique back story or simply user-friendly). When choosing MMORPGs, respondents would make their selection based on their preferred interface styles in order to have *more fun* ($n = 13$) and *enjoy life* ($n = 10$) from the gaming experience.

Thirdly, with regards to the attribute variable of *multiplayer gaming*, *team cooperation mode* and the establishment of *virtual families* could *enhance interaction* ($n = 17$) for many gamers by creating more topics, fostering teamwork and creating more opportunities for social interaction. These benefits allow users to fulfill their target value of having *warm relationships* with others ($n = 16$).

Fourthly, with regards to *independent play*, most respondents did not like titles that offered consistent playing styles and they preferred titles that offered more variety to play in ways they preferred. A portion of the respondents favored the consequence of *winning* ($n = 6$) by means of winning matches/tournaments, being superior to their opponents or becoming more skilled in different

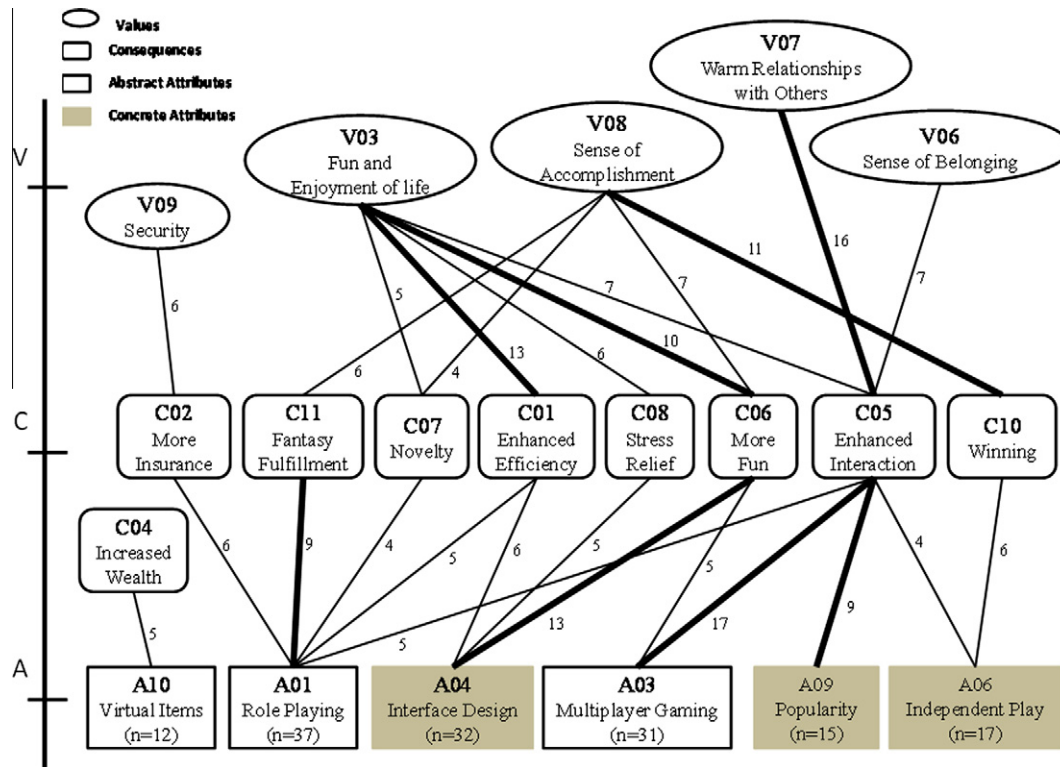


Fig. 1. The hierarchical value map (HVM).

ways to ultimately fulfill their target value of getting a *sense of accomplishment* (n = 11).

Lastly, most respondents perceived the popularity of well-known titles with a vast population of subscribers to be an important attribute for MMORPGs titles. Driven by word-of-mouth-marketing by their friends or families, respondents would be more inclined to play the MMORPGs title and *enhance interaction* (n = 9) by playing together, thus connecting and having *warm relationships with others* (n = 16).

5. Conclusions and discussions

The first objective of this study was to gain a better understanding of the attributes, consequences, and personal values that individuals retained from plays in MMORPGs. The study found that *role-playing, interface design, multiplayer gaming, independent play, popularity and virtual pets* were the order of game attributes users took into consideration when playing MMORPGs. The Consequences benefits for the players were, in order, *enhanced interaction, more fun, enhanced efficiency, fantasy fulfillment, winning, novelty, more insurance, increased wealth and stress relief*. The value targets sought by players were concluded to be *fun and enjoyment in life, sense of accomplishment, warm relationships with others, sense of belonging and security in order of importance*.

Results from the study also revealed a relatively low number of connections made to three attributes, *leveling up, virtual pets and marketing campaigns*, for MMORPGs. This is probably due to the fact that despite being a core component of the MMORPGs experience, the aspect of *leveling up* is perceived by most gamers to be dry and boring. And as such, fewer connections would be made to this specific attribute. Although a *virtual pet* is a selling feature for MMORPGs where gamers could play the role of pet owners, most respondents felt that it is just a small part of the overall game design and it is more likely to be overlooked compared to other

attributes, thus accounting for its low connection. As for the *marketing campaign*, most respondents have been accustomed to acquiring game content for free or at a low price. Consequently, it received few mentions during the interviews.

With regards to the value variables, *fun and enjoyment of life, a sense of belonging, warm relationships with others, and a sense of accomplishment* have been identified as target values that gamers prioritize and should therefore be incorporated as the basis of MMORPGs title development. In addition, results also showed that for the value of *fun and enjoyment of life*, five associated consequences turned out to be *enhanced efficiency, more fun, enhanced interaction, stress relief and novelty* (ranked in descending order based on frequency). In other words, joy, happiness, a sense of fulfillment, hope for the future, the energy to move on and fun and enjoyment of life are target values that gamers prioritize in MMORPGs titles.

Although results of this work could help game publishers identify the goal value of MMORPG players. The results could give game publishers an edge by allowing them to align their game development and marketing strategies closer to players' values. However, there are following limitations in this study. First, the study's samples may be biased in that the study surveyed players mostly University students in short term, and based on highly-motivated players' responses. Future researches may choose other groups to compare the finding. Second, since the study did not conduct group interviews based on MMORPGs genres, future researches could perform a differential comparison for MMORPGs titles with different characteristics to complement the findings from this study. In addition, MECs with a soft laddering approach was chosen to engage target MMORPGs players for in-depth interviews as part of this research. Fellow researchers with interests in this area could refer to the framework presented in this study and conduct a large-scale, quantification empirical study to validate the final target values that MMORPGs players pursue in their choice of titles.

Appendix A. Implications matrix of MMORPGs

		C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	V01	V02	V03	V04	V05	V06	V07	V08	V09	(Out-degrees)
A01	Role playing	5	6	1	1	5	2	4	1	1	2	9										37
A02	Leveling up	1	1								1											3
A03	Multiplayer gaming	2	1	1	1	17	5				2	2										31
A04	Interface design	6	1			1	13	2	5	2		2										32
A05	Story	2		1	1	1	3	2				1										11
A06	Independent play	2	1			4	1	2			6	1										17
A07	Virtual pets											1										1
A08	Marketing campaign			1	1																	2
A09	Popularity	1	1			9	2	2														15
A10	Virtual items	2	1		5						3	1										12
C01	Enhanced efficiency					1							(2)	(2)	(13)	(1)	(1)	(1)		(3)	(1)	1(24)
C02	More insurance	1													(3)		(1)			(1)	(6)	1(11)
C03	Time planning													(1)	(1)					(2)	(1)	(5)
C04	Increased wealth					1							(2)		(3)					(1)	(2)	1(8)
C05	Enhanced interaction	1									1			(2)	(7)	(1)	(1)	(7)	(16)	(3)		2(37)
C06	More fun	1						1					(2)	(2)	(10)					(3)	(7)	2(24)
C07	Novelty												(2)	(1)	(5)					(1)	(4)	(13)
C08	Stress relief	1													(6)							1(6)
C09	Continued playing			1											(1)							1(2)
C10	Winning														(3)	(1)	(1)				(11)	(16)
C11	Fantasy fulfillment								1		1		(2)	(2)	(3)	(2)					(6)	2(15)
In-degrees		25	12	5	9	39	26	13	7	3	16	17	(10)	(10)	(55)	(5)	(4)	(8)	(23)	(39)	(7)	172(161)

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