A Study of Image for Heroic Characters in Video Games

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ABSTRACT

The purpose of this study was to investigate the factors affecting the image of heroic characters in video games. By using a questionnaire survey, semantic differential method and factor analysis, the researcher examined the perception space and preference of heroic character. The results indicated that (i) video game users preferred virtual heroic characters, and (ii) the perception space of hero was constructed by brave factor, visionary factor and moral factor. These findings can be further applied to assist game designers in controlling the accuracy and effective of the characters' image design.

Keywords: Heroic character, Semantic differential method; Factor analysis

INTRODUCTION

The video games were one of the major family entertainments. According to the American Entertainment Software Association (ESA) report, the consumers spent $21.53billion on video games, hardware, and accessories. They purchases of digital content, including games, add-on content, mobile apps, subscriptions, and social networking games, accounted for 53 percent of game sales in 2013 (ESA, 2013). It meant that we had to care the game design because the game culture would deeply affect the social education and social culture.

Characters were one of the core elements of video games (Lankoski & Heliö, 2002; Yee, 2007). Players immersed and had fun in games through controlling characters (Poole, 2000). Characters were avatars of players who interact with competitors or partners in the games. Heroic characters on a game might just like protagonists on a film. Casting appropriate protagonists paved a shorter way to a successful film. In the same way, to identify the image of heroic characters for a video game was very important.

Youngsters' identifies of heroes' images reflected their value judgment which might be affected by the virtual times and scenario in video games. While young game players immersed in the virtual times and scenario, they would not only have fun but also construct their heroic cognition and identity.

Heroes' images were formed by their heroic history (Carlyle, 1883; Hook, 1943; Dunn, 1991). Joseph Campbell (1949-1997) concluded a basic procedure of constructing a heroic story which was composed of 4 steps: departure, initiation, adventure and return. This procedure was usually found on story scripts. However, the procedure might be used to describe a heroic character in a drama but might not be able to be adopted in describing the scenario of video games. On the other hand, the heroic images in video games were formed by player's social cognition (Bandura, 1986).

From the aspect of Social Learning Psychology, there were three theories: (1) Observational learning theory, (2) Reciprocal Determinism theory, and (3) Self-efficacy theory in the image cognition. These three theories affected people's perspectives, especially in recalling the memory and inspiring the associated capability. For example, words "brave" or "gracious"

were often used in depicting people's personality. It also indicated that various subjects shared the similar or general style. Moreover, the image of users' perception was the most complex sense and emotion of human being (Booratin, 1982). It was called "Kansei (Sensational) Engineering" which has been continually developed in Japan led by Nagamachi (Nagamachi, 1995). Until present, it has been successfully implemented in various product designs such as the cognition of product images (Weng, Lin and Lin, 1993), an office chair (Jindo et al., 1995), a pair of spectacles (Chuang and Shih, 1996), an earth-moving machine (Nakada, 1997) and the depiction of the style of a car (You and Lin, 1997).

In this field of study, various survey techniques and statistical analyses such as semantic difference survey (Osgood et al., 1957), factor analysis (McDonald, 1985), morphological analysis, multiple linear regression, neural network simulation, and so on were applied to establish the correspondence between image database and design database.

Therefore, it was very important to combine the systematic and scientific research, and psychological causes in exploring characters' image of video games. In this study, ideas and techniques were applied to investigate, (i) investigate which type's heroic character be preference, (ii) the expected images in heroic character, (iii) the cognition factors under these expected images, and (iv)the perceptual space of heroes' image.

METHOD

To explore these four issues, two surveys were adopted in this study. The five-point Likert scale and semantic differential (SD) method were used to explore the user's cognition about heroic characters of video game.

Subjects

Subjects in this study were 82 male students (mean age = 18 years; SD = 2.5 years), including 41 senior high school students and 41 college students. Since male teenagers constituted major users of video games, subjects were selected from this population.

Evaluating Players' Preferences for Heroes

The preference of a subject for a heroic character was measured by asking subjects the following questions: "how much do you prefer to the heroic character?" A five-point Likert scale described subject's response: "strongly unlike"; "unlike"; "neutral"; "like"; or "strongly like".

Constructing the Measurement Scale for the Images Study

The attributes of a hero were collected by asking all subjects to describe all the possible personal-traits of a hero, using opposite adjective pairs.

Table 1. Hero attributes

Fifteen Adjective Terms		
Trustworthy-Untrustworthy	Visionary-Short-sighted	Courageous-Fearful
Unbeatable-Tender	Gracious-Barbarian	Ambitious-Chaste
Capable-Shiftless	Daring-Shy	Calm-Irritate
Persevering-Infirm	Cool-Agrestic	Just-Unjust
Unselfish-Selfish	Charismatic-Charmless	Mighty-Weak

A total of 247 terms were collected, although some terms were similar in semantics. The focus group method and cluster analysis was used to reduce the list of terms to 15 polar

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adjective pairs, which were then interpreted as the attributes of a hero (see Table 1).

Survey on the Representative Heroic Characters to the Expected Images

Through interviewing subjects, this study collected 885 heroic roles. A focus group method was utilized to select 35 heroic characters for the study. The selection was based essentially on two criteria: culture and scenario. As shown in Table 2, the classification of culture involved western and eastern culture. The classification of scenario involved modern age, history and virtual world (myth, cartoon and movie characters). These 35 heroic characters selected were intended to cover the whole spectrum of heroes.

Table 2. Sampling heroic characters

Heroic Roles	*Modern Age*	*History*	*Virtual World*	*Total*
Western	7	4	4	15
Eastern	7	7	6	20

SD Survey on Expected Images

To investigate the subjects' perceptual structure of these heroic characters, 82 subjects, including 41 subjects with design background and 41 subjects with non-design background, were asked to sort the 35 heroic characters. Based on the 15 attributes, each subject was requested to describe the personal-traits of each hero. In identifying whether a hero had a particular attribute, a five-point scale SD test was used. The result was then coded for factor analysis. A factor analysis of the collected data was performed to derive the structure of mental feeling in perceiving the expected images.

RESULTS AND DISCUSSION

The Players' Preference for Hero Types

82 players' average of the preference evaluation about three cultural types' heroic character was showed in Table 3. It showed the preference degree was Virtual hero > History hero > Modern hero. The result meant different scenario types' heroic character was the influencing factor of player preference. Specifically, the virtual hero was most preferred, which was followed by the history hero. The modern hero was least preferred.

Table 3. Preference Scores

Hero Types	*Preference*
Modern Hero	3.29
History Hero	3.41
Virtual Hero	3.45

The Image Profile of Heroic Character Types

Figure 1 showed the average score of different heroic characters (modern, history, virtual) in each one adjective pairs. The image profile showed that each type of heroes has no significant differences in all adjective pair except the unbeatable-tender adjective pair.

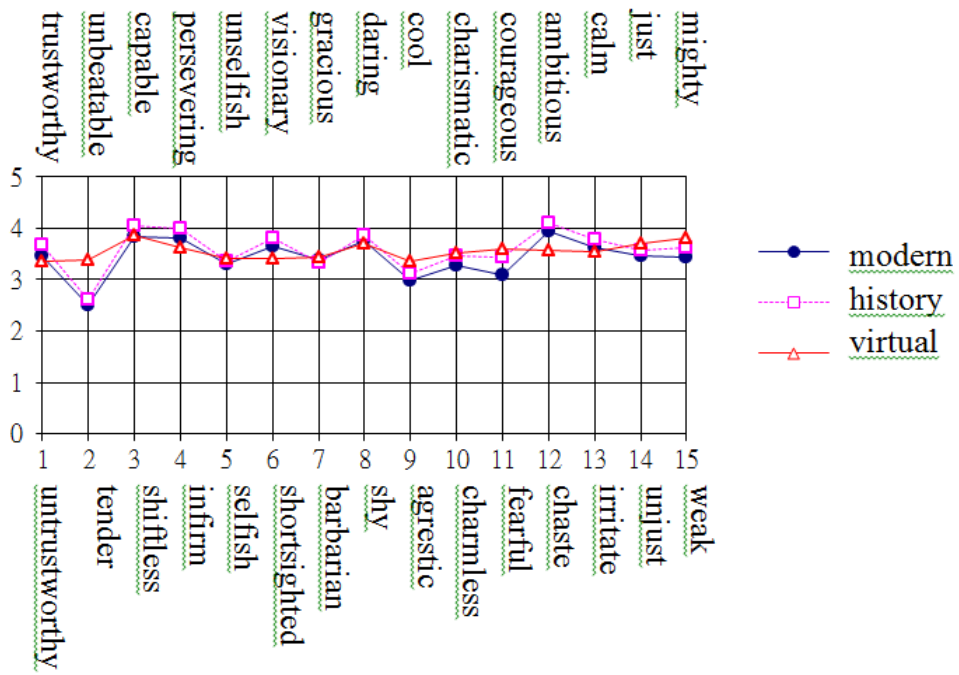

Figure 1. Image Profile

Figure 2 compared two different type players' cognition of virtual hero. The result showed that there was no difference in the trend between player with design background and with non-design background but in degree.

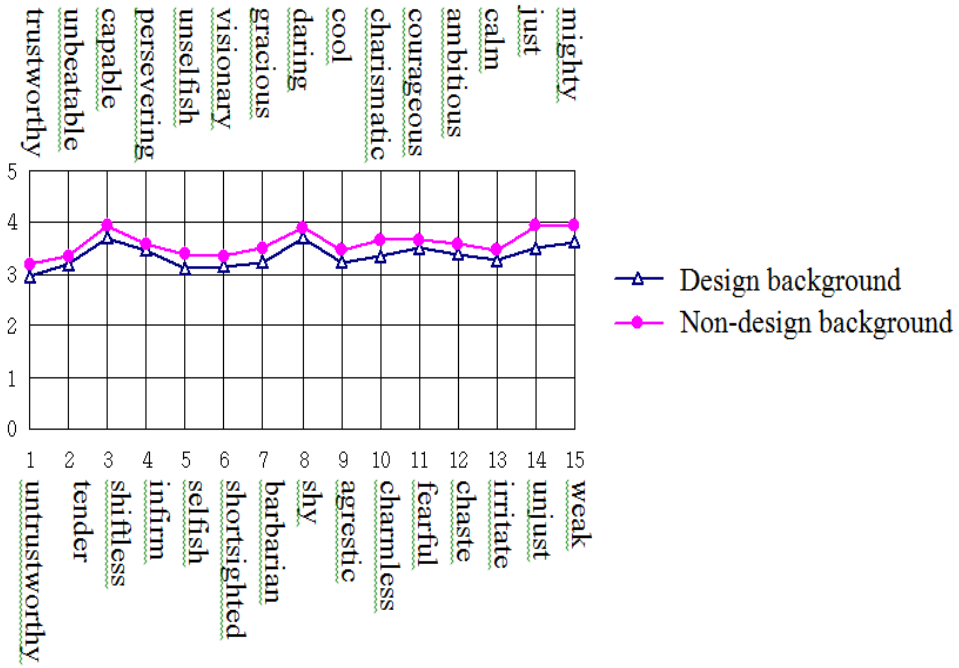

Figure 2. Image Profile

The Cognition Factors under these Expected Images

The data collected from the SD test was processed by factor analysis (Principal Components Factoring). According to Kaiser's criterion, factor analysis extracted three factors whose Eigenvalue > 1. Also, the scree plot (Figure 3) proved that the third factor was an elbow point so that three factors were adapted.

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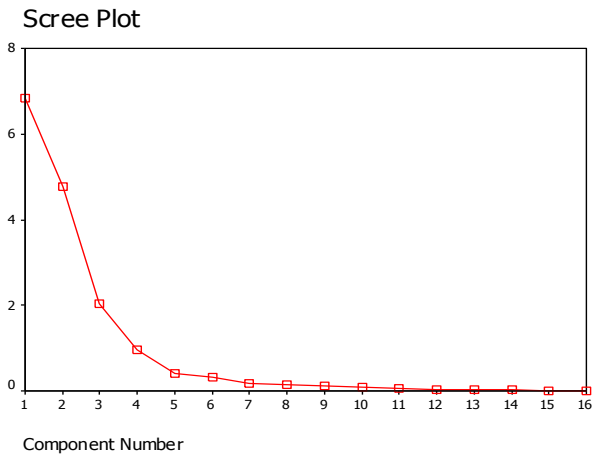

Figure 3. Scree Plot

As shown in Table 4, the results revealed that the 15 polar adjective pairs which are used to configure the structure of feeling under the expected images could be classified into three main factors with 83.4% of variance explained. Three types of factors were classified. First, factor 1 was composed of brave adjective pairs which included courageous-fearful, cool-agrestic, mighty-weak, charismatic-charmless, unbeatable-tender and daring-shy.

Table 4. The factor loading of the 15 adjective pairs

Adjective	*Factor 1*	*Factor 2*	*Factor 3*
courageous-fearful	0.963	-0.0451	0.0398
cool-agrestic	0.962	0.0907	0.0053
mighty-weak	0.959	-0.0466	0.0707
charismatic-charmless	0.918	0.137	0.160
unbeatable-tender	0.887	-0.257	0.163
daring-shy	0.856	0.389	-0.120
ambitious-chaste	-0.0908	0.948	0.0177
persevering-infirm	0.272	0.883	0.178
visionary-shortsighted	-0.277	0.840	0.218
calm-irritate	-0.0163	0.782	0.430
capable-shiftless	0.512	0.728	0.0149
trustworthy-untrustworthy	0.109	0.716	0.592
gracious-barbarian	-0.107	0.145	0.954
unselfish-selfish	0.108	0.298	0.932
just-unjust	0.585	0.133	0.767
Eigenvalue	6.74	4.66	1.99
Percentage	44.94	31.1	13.3
Cumulative percentage	44.94	76.05	83.35

Second, factor 2 was composed of a series of visionary adjective pairs included ambitious-chaste, persevering-infirm, visionary-shortsighted, calm-irritate, capable-shiftless and

trustworthy-untrustworthy. Third, factor 3 which was composed of moral adjective pairs which included gracious-barbarian, unselfish-selfish and just-unjust the explainable percentages of each factor were 44.94%**:** 31.1%**:** 13.3% show in Table 3.

The Perceptual Space of Heroes' Image

These three factors (brave, visionary, moral) can be adopted to construct a `mental space' in interpreting individuals' feeling under the expected images. The factor scores (table 5) of the three hero types in these three factors could then be treated as the coordinates in this space. Fig. 4 depicted the factor scores and the locations of the three hero type images in this space with 2 two-dimensional plots.

Table 5. The factor scores

Hero Types	*Factor Scores*		
	Factor 1	*Factor 2*	*Factor 3*
Modern Hero	-0.44835	0.003637	-0.13448
History Hero	-0.06439	0.668919	-0.19765
Virtual Hero	0.69852	-0.74091	0.40569

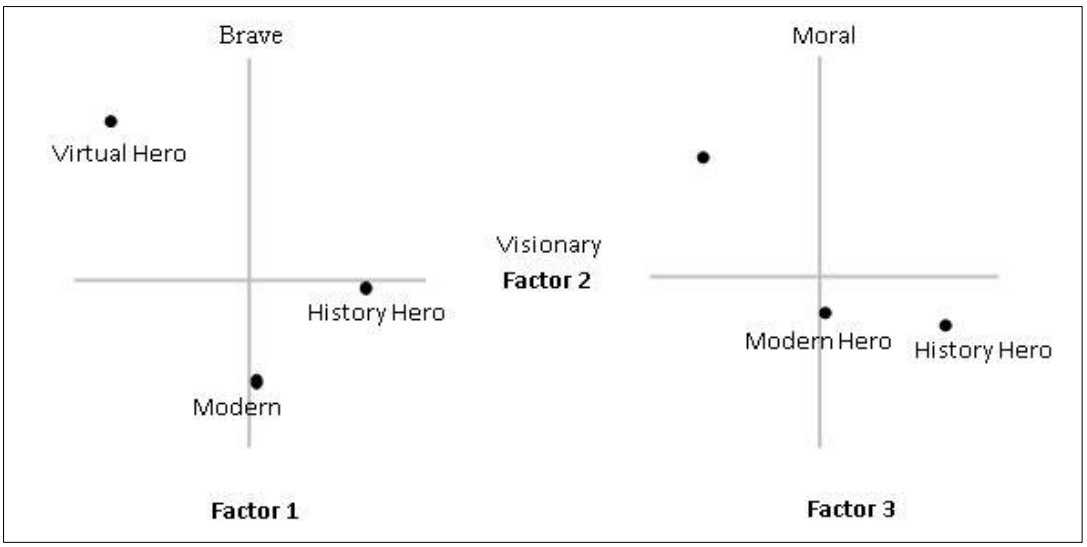

Figure 4. The locations of the three types' hero in the mental space

The first plot was construct by factor 1 (brave factor) and factor 2(visionary factor). The second plot was construct by factor 3 (moral factor) and factor 2(visionary factor). From these plots, it could be deduced that the image of `modern hero type' and `history hero type' were similar because all of them were located in the fourth quadrants on two plots. The image of `virtual hero type' was located in the second quadrants on two plots. In particular, the points of `virtual hero type' of brave factor and moral factor coordinates were all in positive location. The `modern hero type' and `history hero type' were negative in brave and moral factors but it was positive in visionary factor.

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CONCLUSION

Derived from above results and discussions, the image of each type of heroes has its own images. If a character designer defines a character's perceptual space without a systematic understanding in the beginning design process, it will affect the accuracy of perceptual space. It may cause that final result of character design cannot agree with the original expectation. Through investigating the factors of players' cognition, the players' feeling about the heroic character of video games, the conclusion of this study are as followed.

1. The preference degree about heroic character types is Virtual hero > History hero > Modern hero.
2. The affected factors of heroic character imagery include three factors: the brave factor, visionary factor, and moral factor.
3. The players think that virtual hero is brave and moral and that modern hero and history hero is more visionary.

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