Affective and Pleasurable Design, Vol. 164, 2025, 250–254
https://doi.org/10.54941/ahfe1006081

Effects of Motion Speed on the Impressions of Monster Characters Appearing in the Video Game Dragon Quest

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ABSTRACT

Dragon Quest is one of the most popular series of video games. In this series, a player travels the fantasy world, battling with various cute and unique monsters in the itinerary. Not only the appearance of the monsters is designed as cute, but also the motions of them are designated to be perceived as cute in recent titles. The present study focuses on the attack motions of the monsters. The attacking motions included downward swinging of the sword, downward punching motion, filling the power in their body, and so on. The attack motions of 21 monsters that appeared in Dragon Quest Monsters: The Dark Prince were selected, and their speed were varied in seven steps; the speed multiplied by 0.5 to the original speed (x0.5), x0.63, x0.8, 1.0(original speed), x1.26, x1.58 and x2.0, and in total 147 motion stimuli were prepared. Ten participants watched each stimulus presented on a display and were requested to rate the impressions using semantic differential method. The mean values for the 24 seven-step bipolar scales were analyzed by factor analysis. The results of the analysis showed that the impression space for the motions were spanned by quickness, powerfulness and pleasantness. The results showed that the powerfulness and pleasantness largely declined when the speed was faster than the original. The powerfulness was largely determined by the size of the monsters. The results of the present study showed that the speed of the motions was designated at the fastest speed where the monsters were perceived as pleasant and powerful in the game.

Keywords: Perception of motion, Monster design, Semantic differential method, Factor analysis, Multiple-regression analysis

INTRODUCTION

Dragon Quest is one of the series of roll-playing video games. The first title of the series was published in 1986 in Japan, and released in 2005 in North America, previously this title was called Dragon Warrior in North America. The series continue to the present and became very popular all over the world. In this series, a player travels the fantasy worlds, battling with various monsters in the itinerary. The most impacted factor for the popularity of the series is that the characters, including monster characters, were designed as very cute and unique. For example, a small monster called

Slime, which the player first encounters, is designed as very cute. These characters were designed by Akira Toriyama, who is also famous as the manga artist of Dragon Ball. In recent years, not only the appearance but also the motions of the characters are designated as cute in the series, thanks to the developed CG technology. The present study focuses on the attack motions of the monsters and the relation of the speed of the attack motions and the impressions of them were investigated to clarify how the speed of the motions was designated.

EXPERIMENTAL METHOD

Dragon Quest Monsters 3: The Dark Prince, published by Square Enix in 2023, is one of the titles of the Dragon Quest series. In this game, a player recruit monsters and command them to progress through the story. The monsters show attack motions just before they attack an enemy in the game. The attack motions include downward swinging of the sword, downward punching motion, filling the power in their body, and so on. The game includes the function of "Monster Library" which shows the detailed information about each monster. The function shows the attack motions of the monsters in the library. In the present study, the attack motions of 21 monsters were captured to use as materials. Then, the speed of the material motions was changed in seven steps; the speed multiplied by 0.5 to the original speed ($\times 0.5$), $\times 0.63$, $\times 0.8$, $\times 1.0$ (original speed), $\times 1.26$, $\times 1.58$ and $\times 2.0$, and in total 147 motion stimuli were prepared. Each of the motion stimuli was presented on the LCD display of Eizo Flex Scan SX2462W. Ten participants from Kanazawa Institute of Technology watched the motion stimulus, then were requested to rate their impressions for it, using semantic differential method (Osgood, Suci and Tannenbaum, 1957). Twenty-four bipolar seven-step scales listed in Table 1 were used in the present study. Moreover, the participants also rated the degrees of preference, coolness and cuteness for each stimulus. The experiment was conducted in a dark room. The order of the stimuli was randomized for each participant to minimize the effects of the order.

RESULTS AND DISCUSSION

The rated scores of were averaged over the participants for each stimulus and each scale. The mean scores for the 24 semantic scales were used for factor analysis with principal factor method and Varimax rotation. The results of the analysis showed a tree-factor solution with the cumulative contribution rate of 0.72. Table 1 shows the factor loadings. The three factors were labelled as quickness, powerfulness and pleasantness, respectively, after the scales which showed large loadings for the factors.

Figure 1 shows the examples of the impressions for three monsters, Slime Knight, Flamethrower and Knight abhorrent. Slime Knight is a small-size, Flamethrower is a middle-size and Knight abhorrent is a large-size monster. A large size mark indicates the original speed and the arrowheads show the faster speeds. Figure 1 shows that the quickness increases as the speed

increases, but the powerfulness and the pleasantness steeply decline when the speed over the original ones.

Table 1: Semantic differential scales and their factor loadings.

Scale			Factor		
−		+	Quickness	Powerfulness	Pleasantness
Unsophisticated	-	Sophisticated	.917	−.037	.203
Loose	-	Tight	.913	.251	.016
Dull	-	Sharp	.913	−.217	−.059
Slow	-	Fast	.846	−.352	−.108
Round	-	Sharp	.762	.232	−.282
Light	-	Heavy	−.498	.843	.068
Delicate	-	Robust	−.228	.843	−.032
Inresponsible	-	Responsible	.097	.936	−.100
Powerless	-	Powerful	.132	.906	−.112
Weak	-	Strong	.286	.937	−.113
Unpleasant	-	Pleasant	.159	.147	.946
Unfriendly	-	Friendly	−.148	−.243	.927
Turbulent	-	Peacefull	−.145	−.265	.924
Unpleasant	-	Pleasant	.087	−.235	.907
Ugly	-	Beautiful	.422	.209	.759
Sordid	-	Fresh	.615	−.416	.537
Neat	-	Mixed	.418	−.042	.478
Cold	-	Warm	−.311	.048	.438
Gloomy	-	Cheerful	.447	−.233	.207
Lethargic	-	Enegetic	.569	.148	.080
Sober	-	Flamboyant	.657	.250	.055
Shabby	-	Vivid	.537	.457	−.080
Ubiquitous	-	Unique	.311	−.167	−.242
Calm	-	Aggressive	.493	.519	−.529
Cumulative contribution rate			.279	.502	.723

Then, the stimuli were divided into three groups according to the size of the monsters, large-size, middle-size and small-size monsters. Figure 2 shows the centroids of the impressions for the different sizes. Figure 2 shows the powerfulness is largely affected by the size: Large monsters are perceived as powerful and small monsters are perceived as powerless.

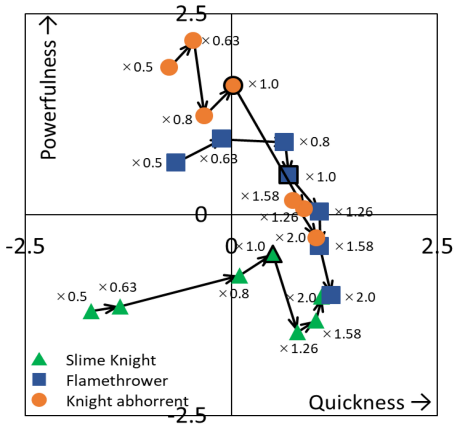
Finally, multiple-regression analyses were performed using the each of the degrees of preference, coolness and cuteness as dependent variable and the factor scores of the stimuli in the quickness, powerfulness and pleasantness as independent valuables. The results are shown in Table 2. The coefficient of determination, R^2 showed as high as over 0.73. Figure 2 indicates the preference, cuteness coolness and cuteness as vectors in the impression space. The vectors of the cuteness and preference are almost along with the pleasantness. This implies that a pleasant monster was perceived as cute and preferable. The vector of the coolness depends on all factors, quickness,

powerfulness and pleasantness. Then the stimuli which showed high values on the coolness scale were observed. It was found that there were two types of coolness in the attack motion. One was the type where a stylish monster moves quickly and the other is the type where monster moves slowly. The stimuli in both types were perceived as cool.

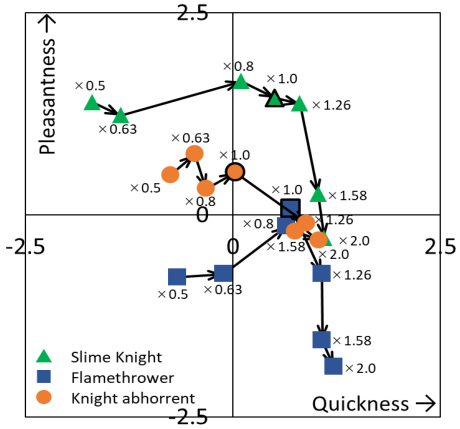
The results of the present study showed that the original speed used was designated at the fastest speed which is perceived as pleasant and powerful in Dragon Quest Monsters 3: The Dark Prince.

Table 2: Results of the multiple-regression analyses.

	Coefficent of Determination	Standard Partial Regression Coefficent		
		Quickness	Powerfulness	Pleasantness
Preference	.857	.157	.209	.886
Coolness	.733	.417	.687	.290
Cuteness	.819	−.072	−.443	.791

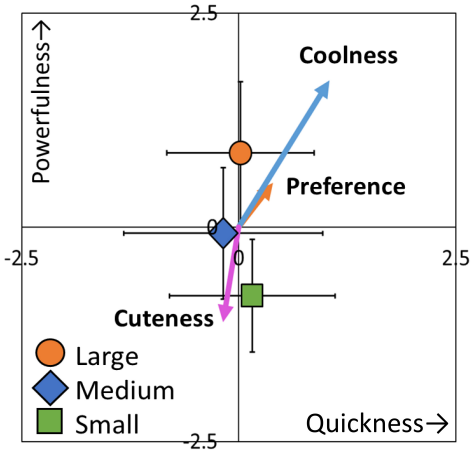


(a) Quickness – Powerfulness plane

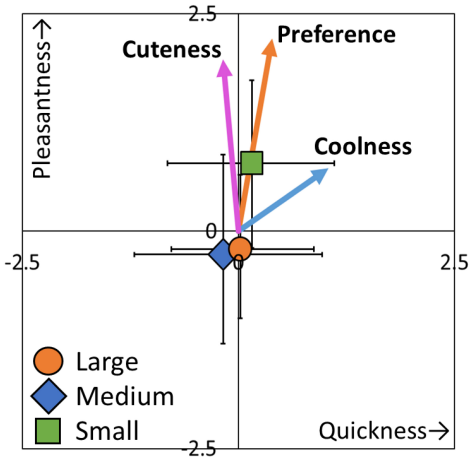


(b) Quickness – Pleasantness plane

Figure 1: Examples of the impression changes as a function of motion speed.



(a) Quickness – Powerfulness plane



(b) Quickness – Pleasantness plane

Figure 2: Impressions of different body size of the monsters. The vectors show the results of the multiple-regression analyses.

CONCLUSION

In the present study, attack motions of the monsters appearing in Dragon Quest Monsters 3: The Dark Prince were focused on. The speed of the attack motions was varied and used as stimuli in a perceptual experiment, using semantic differential method. The results showed that the impression space of the motions was spanned by three factors, quickness, powerfulness and pleasantness. The results showed that the original motion speed was designated as the fastest speed which does not decline the powerfulness and pleasantness in the game.

REFERENCE

Osgood, C. E., Suci, G. J., Tannenbaum, P. H. (1957) *The measurement of meaning*, Urbana, IL, University of Illinois Press.