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Gamers' Behavior Via Avatars In Online Games

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ABSTRACT

Gamers use avatars to represent themselves to interact with others in online games. However, gamers' behavior via avatars has received insufficiently attention by electronic commerce scholars, warranting further study on this issue. Positive interactions among online gamers should foster their loyalty to the game. Therefore, this study investigated how avatar design affects gamers' behavior via avatars. This study obtained responses from more than one thousand online gamers that were used for further analyses. Criteria were set to exclude some invalid responses, so as to increase data validity. Moreover, reliability and validity were checked by using six tests, demonstrating the adequate performance in psychometric properties. Structural equation modeling was conducted for analyses. This study found that avatar design has an important impact on gamers' behavior via avatars. Specifically, positive perceptions on avatar design motivate the gamers to exhibit positive behavior via avatars. Findings of this study provide feasible means for electronic commerce managers to encourage gamers' positive interactions and thus should create strong virtual communities and subsequently loyal gamers.

Keywords: Online game; avatar; avatar design; positive behavior; structural equation modeling.

INTRODUCTION

Avatars (user representations in virtual environments) have been among of the recent foci of communication studies [12]. However, gamers' behavior via avatar, especially friendly user behavior has received insufficient attention by electronic commerce scholars, indicating a research gap.

Research filling this gap should assist game providers in designing gaming elements enabling gamers to create their avatars to encourage favorable interaction among gamers, which can foster gamers' loyalty. Therefore, the purpose of this study is to fill the aforementioned gap by identifying and examining the antecedents of friendly behavior expressed through gamers' avatars.

LITERATURE REVIEW AND HYPOTHESES

Friendly Behavior in Online Games

Helping behavior is defined as an intentional action of one person that could bring the benefit to the involved person in that action [3]. In virtual environment and online gaming contexts, avatar appearance and characteristics are common elements contributing to friendly behavior [4] [5] [7] [12] [17] [21]. Specifically, avatar attractiveness impacts female users' behavior toward other users [16]; the virtual human skin color can affect frequency of help provision [5]; avatar gender influences seeking independent of physical sex [7]. In online gaming contexts, friendly behavior also plays an important role because of two reasons. First, online gamers' misbehavior (i.e., behavior that violates generally accepted norms) hinders other gamers' continuance intention [14], degrading the sustainability of game providers. Second, online gamers experience a lower level of loneliness and social anxiety when online than in the real world [9], supporting the importance of friendly behavior among online gamers.

Avatar Agreeableness

Avatar agreeableness indicates that the avatar looks agreeable (i.e., kind and warm) [18]. When the gamers use an agreeable avatar inferring that his/her behavior should be kind and warm. Such observations should fuel their motivation to actually engage in friendly behavior, creating a positive link between avatar appearance agreeableness and friendly behavior. Thus, this study hypothesizes:

H1: Avatar appearance agreeableness is positively related to friendly behavior.

Avatar Attractiveness

Avatar attractiveness indicates that the avatar is good-looking [16]. When an avatar looks good to the users, the user perceives the expectation he/she should behave in a likeable manner, encouraging them to engage in friendly behavior. Therefore, this study hypothesizes:

H2: Avatar attractiveness is positively related to friendly behavior.

Avatar Height

Avatar height has been shown to be related to overt confidence in negotiation [19] [20] and provision and acceptance of offers that strongly favor oneself [19]. Such behavior is contrary to being friendly, or being warm and kind. When a user perceives his/her avatar as tall they should perceive others' expectation that he/she should behave in an *unfriendly* manner. Therefore, this study hypothesizes:

H3: Perceived avatar height is negatively related to friendly behavior.

METHODS

Sample and Data Collection Process

This study obtained responses from more than one thousand online gamers that were used for further analyses. Criteria were set to exclude some invalid responses such as not play online games in the previous months, nominating non-existent online games, nominating non-existent avatar role/race/occupation, etc.,.... , so as to increase data validity. The detail criteria were listed in table 1.

This study also collected the information on participants' gender, age, education level, and monthly income. Those data were used as control variables which increasing the analytical rigor.

The five-points Likert scale was used. Higher scores represent high levels in the measured construct.

Table 1: Criteria for Identifying and Excluding Invalid Responses

Criterion	Number
Had not played online games in the previous month	3
Had played online games where avatars were not visible	2
Had nominated non-existent online games	21
Had nominated non-existent avatar role/race/occupation	37
Had played the nominated game for zero years	1
Had played the nominated game for zero hours per week	2
Duplicative participation (submitted duplicate email addresses)	4
Total	70

Measurement

Items measuring the constructs in the study came from the literature. The four items measuring avatar appearance agreeableness were adapted from [2]; the three measuring avatar attractiveness were adapted from [3]; the three measuring avatar height were developed based on the associated descriptions by [11]; and the three measuring friendly behavior were adapted from [6].

This study used response options ranging from 1 (strongly disagreeable) to 5 (strongly agreeable). High scores represent high levels in the measured construct. Items measuring any one construct were averaged to represent the level of that construct. No items in the aforementioned were dropped during the analytical process.

Psychometric Properties

Confirmatory factor analysis was conducted to assess the psychometric properties of the study measurement. Reliability and validity were checked by using six tests, demonstrating the adequate performance in psychometric properties. Structural equation modeling was conducted for analyses.

RESULTS

Sample Profile

Table 2 summarizes the demographic distribution of the participants. To retain the information in the responses to the study items, those who provided incomplete demographic were retained as valid responses (3.3%). Therefore, the numbers in table 2 do not match the number of total valid responses. Among the participants, most of the participants were male (86.5%), age between 11 to 20 years old (63.3%). Most of them attended high school or below (48.3%) and college or university (48.2%). The monthly income is no more than US\$400 (69.1). The information about the demographic is consistent with recent online gaming literature (e.g., [10] [1] [8]).

The proportion of male participants in this study is consistent with recent online gaming literature (i.e., 80.3% male in [10]; 83.7% male in [1]). Moreover, the age range was also in line with the pertinent literature (i.e., mean age of 23.2 years old in [1]; mean age of 21 years old in [9]). Also, the substantial proportion of participants who had attended college/university was in concordance with the recent literature (e.g., [8]). Such conformance to the demographic features of online gamers in the recent literature supports the sample representativeness of the participants recruited to the present study.

Table 2: Summary of the participant profile

Variable	Category	Number	Percentage
Gender	Male	1,123	86.5
	Female	175	13.5
Age	11-20 years old	817	63.3
	21-30 years old	440	34.1

Variable	Category	Number	Percentage
Education	31-54 years old	34	2.6
	High school or below	627	48.3
	College or university	626	48.2
	Graduate institute	45	3.5
Monthly income	US\$ 400.00 or less	868	69.1
	US\$ 401.00-800.00	152	12.1
	US\$ 801.00 or more	237	18.8

Hypothesis Testing

As predicted, avatar appearance agreeableness and avatar attractiveness were positively related to friendly behavior ($\beta = .66, p < .05$; $\beta = .09, p < .05$), supporting H1 and H2. Perceived avatar height was negatively related to friendly behavior ($\beta = -.03, p < .05$), supporting H3. Table 3 summarizes the testing results.

Table 1: Sources of Friendly Behavior among Online Gamers

	β
Gender	.02
Age	.02
Education level	-.01
Monthly income	.00
User agreeableness	.14*
Avatar appearance agreeableness	.66*
Avatar attractiveness	.09*
Perceived avatar height	-.03*

Note. * denotes $p < .05$.

DISCUSSIONS

Main Findings and Contributions

Avatar agreeableness and avatar attractiveness were positively related to friendly behavior. Avatar height was negatively related to friendly behavior. This study contributes insights for game providers to encourage friendly behavior among gamers. These results should facilitate emotional cohesion among gamers, and assist game providers to form strong and tightly connected virtual communities.

This study found that avatar attractiveness is positively related to friendly behavior. Therefore, game providers are encouraged to investigate/survey/interview the gamers to seek the ways to improve the avatar attractiveness. This study also found that avatar agreeableness is positively related to friendly behavior. Thus, game providers could provide more avatars that have agreeable appearances to encourage the gamers to adopt such avatars. Avatar height is in contrast which is negatively related to friendly behavior. Therefore, game providers can add the elements that can help to alleviate the link between avatar height and friendly behavior.

Limitations and Future Research Directions

This study adopted a cross-sectional design, which is adequate since such a design deals with how current perceptions impact

current responses. This design was also found acceptable in recent literature (e.g., [13]). However, cross-sectional designs are known for their limited ability to directly confirm causality. Therefore, future studies could conduct experiments to replicate the present study, providing further and more robust evidence supporting causality among the study constructs herein. This study collected self-rated responses. Such an approach was deemed acceptable in recent communication literature (e.g., [13] [15]). However, future studies may adopt a big-data approach by using software to collect enormous amounts of behavioral data.

CONCLUSIONS

This study contributes to the literature by identifying the antecedents of friendly behavior among gamers. Via those antecedents, the game providers can manipulate the design and applicability to retain that behavior to increase the gaming loyalty. Further research may investigate how avatars impact human communication.

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