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Original Paper

Developing a Game-Mediated Communication Scale

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Abstract

This study mainly aims to develop a scale for assessing game-mediated communication (GMC). A total of 320 Japanese female university students participated in the research, with 19 items being evaluated. Initially, exploratory factor analysis was conducted to examine the GMC Scale's factor structure. Subsequently, confirmatory factor analysis was performed to validate the structure. The analysis results revealed that the three-factor model provided the best fit, with the identified factors being chance, connection, and empathy.

Keywords

game-mediated communication, interpersonal relationships, empathy

1. Introduction

Wiklund (2005) explored interpersonal relationships developed through digital gaming and introduced the concept of "game-mediated communication" (GMC). He noted that, as multiplayer games advance in features and accommodate more participants, in-game communication among players also grows (Wiklund, 2005). He also suggested that, with this rise in in-game communication increases, digital games could potentially become the primary medium for computer-based communication overall. Akin (2023) highlighted that video games provide a platform for players to cultivate essential social and emotional abilities, such as anticipating others' actions, providing support, and building connections. Additionally, research indicates that shared experiences in gaming can lead to the formation of deep bonds, with players supporting one another during difficult situations. Online gaming also allows individuals to build strong and meaningful friendships, even without meeting in person.

Building on this evidence, the relationships between different types of digital games and rolefulness were examined by a previous study (Kato, Kato, Futamura, & Tsuruta, 2024). The term "rolefulness"

refers to a sustained feeling of role satisfaction in an individual's everyday life (Kato & Suzuki, 2018). Among the groups studied, those who engaged in competitive gaming scored the highest in rolefulness. This suggests that playing games with others can foster a stronger sense of role and encourage interpersonal communication.

This study aimed to develop a scale that assesses GMC and to examine its validity.

2. Method

2.1 Item Selection

Thirty-six university students were tasked with documenting their experiences related to GMC. These responses served as the foundation for the initial items used in developing the scale.

2.2 Participants

The participants of this study are 320 female university students (Mage = 18.85, SD = 1.05).

2.3 Procedure

To develop the initial version of the GMC scale, we used 19 of the items listed by the initial 36 students. Participants in the study evaluated each item using a 5-point scale ranging from 1 (disagree) to 5 (agree). The factor structure of the GMC scale was initially analyzed through exploratory factor analysis (EFA), followed by confirmatory factor analysis (CFA) to validate the structure. Additionally, Cronbach's alpha (α) was calculated to assess the scale's reliability.

3. Result

The EFA results identified a three-factor model as the best fit, with the factors labeled as "chance", "connection", and "empathy". The factor loadings ranged from 0.434 to 0.994 for chance, 0.436 to 0.878 for connection, and 0.397 to 0.983 for empathy (Table 1). For the next phase, we selected the three suitable items with high loadings in each factor. The CFA result confirmed that the model's fit indices were satisfactory (CFI = 0.984, RMSEA = 0.075), and all item pathways were statistically significant ($p < 0.01$). The Cronbach's α values for the subscales were 0.93 for chance, 0.92 for connection, and 0.88 for empathy. Figure 1 presents the CFA results of the GMC scale.

Table 1. Results of the Exploratory Factor Analysis for the GMC Scale

		F1	F2	F3
F1: Chance				
2	We can talk about common topics.	0.994	0.032	-0.170
3	It's a good conversation starter.	0.963	-0.025	-0.086
6	It's an opportunity to find similarities with others.	0.826	0.075	0.014
8	It broadens my interests.	0.642	-0.223	0.418
9	It's a chance for others to get to know me.	0.515	0.106	0.209

12	I can communicate with others across age, gender, and culture.	0.464	0.378	0.027
13	It's a chance for me to learn new values.	0.434	0.034	0.429
F2: Connection				
15	I gain a sense of trust with others.	-0.192	0.878	0.216
14	I gain a sense of unity with others.	0.035	0.859	-0.019
16	It strengthens the bonds with friends.	-0.018	0.828	0.099
4	I can cooperate with others.	0.360	0.583	-0.076
5	I can share my sense of accomplishment with others.	0.330	0.525	-0.007
17	I can be aware that I am not alone.	0.043	0.522	0.248
11	I can know the personality of others.	0.113	0.487	0.251
1	I can make new friends.	0.373	0.436	-0.086
F3: Empathy				
18	I can think from the other person's point of view.	-0.096	0.028	0.983
19	I can understand the feelings of others.	-0.158	0.142	0.917
7	It enriches my sensitivity.	0.217	0.163	0.451
10	I can tell my thoughts to others.	0.133	0.308	0.397
	F1		0.771	0.699
	F2			0.757

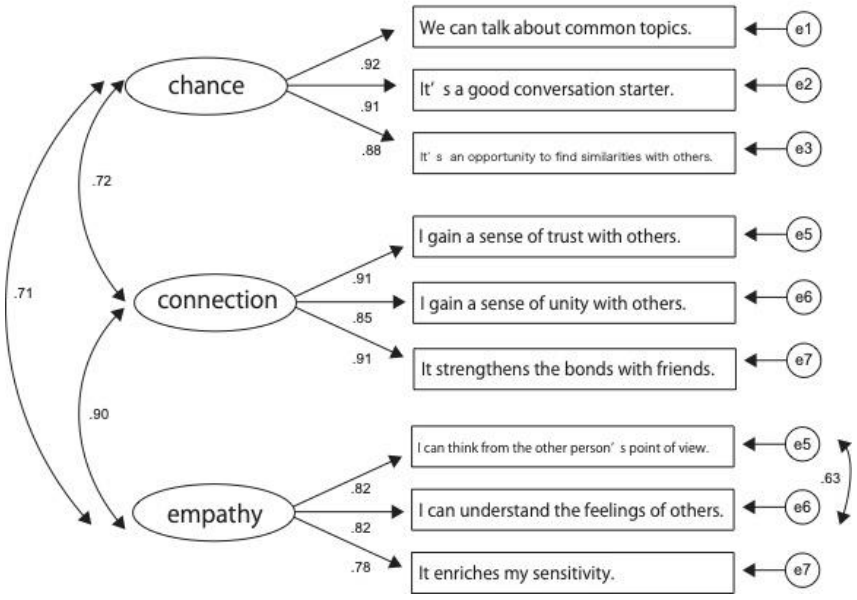

Figure 1. Results of the Confirmatory Factor Analysis for the GMC Scale

4. Discussion

The findings of this study revealed that the GMC scale consists of three subscales: "chance", "connection", and "empathy". The CFA process validated the scale, paving the way for its application in future studies.

The "chance" factor encompasses items such as "We can talk about common topics", "It's a good conversation starter", and "It's an opportunity to find similarities with others". Playing the same games helps foster a sense of familiarity among people, offering a chance to enjoy conversations together. The shared topic of games plays a key role in facilitating communication and interaction.

The "connection" factor includes items such as "I gain a sense of trust with others", "I gain a sense of unity with others", and "It strengthens the bonds with friends". These elements highlight the trust and unity developed through shared gaming experiences. Kato et al. (2024) emphasized that competitive games, in particular, significantly enhance rolefulness. The shared objective and collective achievement in gameplay may positively impact mutual trust among players.

The "empathy" factor includes items such as "I can think from the other person's point of view", "I can understand the feelings of others", and "It enriches my sensitivity". Papoutsi (2023) highlighted how gaming can foster empathy, particularly in the healthcare sector. Evidence suggests that playing games positively influences the development of empathy, establishing it as a vital aspect of GMC. Additionally, Ohno (2023) introduced the esportsmanship scale, which comprises two subscales: "enjoyable" and "normative". The study also indicated that the enjoyable subscale contributed to increased empathy. These findings underscore the significance of empathy in understanding the effect of GMC.

Overall, the findings of this study revealed the factor structure of GMC scale and confirmed its validity. The scale holds potential for advancing future studies in GMC and inclusive esports psychology.

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