Different Frames of Players and the Motivation of Prosocial Behaviors in Digital Games

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ABSTRACT
In digital games, players may behave as they do in the real world. In-game behaviors may have multiple complex motivations, like in the real world, or they may be inspired by the rules of the game. How in-game behaviors are motivated may differ between different players. The current study focuses on the difference between players who interpret the game as a mere rule-based play and players who perceive the game as a world with its own rules and norms. Among different in-game behaviors, this study specifically focuses on players' prosocial behaviors. A survey was conducted to look at the relationship between the attitude toward prosocial behaviors, its motivation, and how each player frames the gameplay. The findings of this study revealed that the different frames of players were significantly related to the motivation of the players' prosocial behavior toward other characters.

Keywords
prosocial behavior, empathy, frame analysis, in-game behaviors, survey

INTRODUCTION
In some genres of digital games, players have the freedom to exhibit their social behaviors. For games that involve social interactions with other characters, although violence may be prevalent (e.g., Thompson & Haninger 2001), prosocial behaviors, like helping or cooperating with others, can also be found. A content analysis of the best-selling games in Japan from 1998 to 2013 (Lim & Sasaki 2017) asserts that, on average, there are 3.59 occurrences of prosocial behaviors in an hour of gameplay.

Studies have been conducted to analyze the effect of the depictions of certain behaviors in digital games on players' behaviors in the real world. Some of these studies use different models, such as the General Aggression Model (Anderson & Bushman 2002) or the General Learning Model (e.g., Gentile et al. 2009), to explain the effect. However, they are limited to explaining the one-way effect of exposure to depictions of violent or prosocial actions on players' internal states. That notwithstanding, many behaviors are acted out by players in digital games, and the motivations of such in-game behaviors may be different from those in the real world. Therefore, it is important to find out why players act in a certain way and how those actions are perceived by players. Are prosocial behaviors in digital games perceived by players in the same way as prosocial behaviors in the real world?

In games, a player's actions may be driven by the rules of the games. However, players are not fully immersed in a game to the extent they lose their identity and be

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controlled by those rules, but they are aware that they are playing games by consciously following the rules. Furthermore, when playing games, players interpret what is going on according to the different identities or frames they adopt. Consequently, the current study focuses on how empathy and other motivations affect prosocial behaviors in digital games with regard to the frames adopted by players.

Prosocial Behaviors and Their Motivation

Prosocial behaviors are "helping, sharing, and other seemingly intentional and voluntary positive behaviors for which the motive is unspecified, unknown, or not altruistic" (Eisenberg 1982, 6). Generally, prosocial behaviors are thought to be motivated by emotional factors, such as empathy toward others. Eisenberg (1986) proposes a model of prosocial behaviors that mainly presents three motivational factors affecting the hierarchy of personal goals in situations where prosocial behavior is needed: personal factors such as preferences, cognitive factors involving gains and losses, and emotional factors such as emotional empathy and personal distress. Emotional factors not only affect the hierarchy of personal goals but also directly affect other factors as well as prosocial intentions in the situation, especially in urgent situations where immediate action is needed.

Empathy is defined as an emotional response based on another individual's emotional experience. Tobari (2003) develops four subscales that can be used to measure empathy: empathic concern, perspective taking, personal distress, and fantasy. Other measurements also adopt a similar multidimensional approach. Davis (1983, 113) broadly defines empathy as "the reactions of one individual to the observed experiences of another." The subscales of Interpersonal Reactivity Index (IRI) are perspective taking, fantasy, empathic concern, and personal distress (Davis 1983). The current study focuses on emotional empathy, cognitive empathy, and personal distress. Emotional empathy is what is referred to as empathic concern or sympathy toward another individual and is often considered to promote prosocial behaviors. Cognitive empathy is perspective taking; it is a cognitive process that directs one's attention to others by looking through someone else's eyes. Personal distress may be experienced when a person encounters a situation for which help is needed; consequently, the individual may decide to help to alleviate their own stress or to run away to avoid the situation.

In digital games, players' behaviors are based on rules and goals designed to drive them to behave in certain ways (Salen & Zimmerman 2004). Players may help or hurt others based on the design of the game. For example, players may help a villager find his lost ring only for them to get the item they have found as their reward. Also, in many urgent situations where immediate help is needed, empathy does not necessarily play a critical role in promoting such behavior. It is inferred that empathy may not play as major a role as in the real world in promoting prosocial behaviors; however, players may still empathize with characters in games.

Studies on players' immersion or engagement explore empathy or similar emotional factors as a part of involvement in the game. De Kort, Iisselsteijn, and Poels (2007) consider empathy as a subscale of the Social Presence in Gaming Questionnaire. Calleja (2007) and Ermi and Mayra (2005), when classifying game engagement, include affective involvement or imaginative immersion, which concerns players' emotional states affecting the gameplay experience with player's empathy toward other characters or players given as an example. The emotional response to the experiences of other characters is important in a player's feelings of presence and involvement in the game. There are comparatively few studies focusing on empathy toward other characters in games and its relationship to prosocial behavior. For example, Happ, Melzer, and Steffgen (2014) examine how empathy provoked prior to

gameplay, by means of a text and a video clip, affects players' behaviors after the gameplay. Although consideration is given to players' behaviors outside the game and not in the game, this study suggests that players' empathy toward a virtual character may affect their behavior.

Players' Selves and Interpretation of Games

Fine (1983) used a frame analysis to observe the analog role-playing gamers in the late 1970s. A frame of a situation is what gives the meaning to the situation, and it is defined by the implicit rules or principles of the situation (Goffman 1974). According to Fine, when gamers talk about games or talk during a game, they frame the game in several different ways. Fine focuses on three main frames of the meaning. First, gamers talk as people referring to incidents in their everyday world. This is the primary state. Second, as players, they may give meaning to what is happening in the game, based on the rules and constraints of the game. Third, they may talk as characters of the game world, acting according to the rules of the fictional world of the game. Gamers may adopt different frames while thinking or talking during gameplay.

Digital game players also adopt different frames of meaning during gameplay. Lim (2018) observes that, in a think-aloud session during gameplay, players adopt different frames, and they switch between different frames easily, even for a short period of time. For example, a participant mentioned that she identified herself as the main character, but when the character died, she immediately distanced herself from the role.

In the context of media studies, identification with the main character is rigorously studied. Cohen (2001, 253) has defined identification with media characters as "an imaginative process invoked as a response to characters presented within mediated texts" with empathy as its basis. According to Cohen, through identification with media characters, the audience experiences "reception and interpretation of what is happening from the inside" (2001, 245). Although this applies to traditional media where the relationship between the media character and the audience is parasocial, it is not enough for games and players. The audience is absorbed in the media until it is interrupted by a ringing phone in real life or a change of scene on the screen. However, it is often an essential part of gameplay to be interrupted by being aware of game interfaces or physical spaces like controllers, and it does not inhibit players from identifying themselves with in-game characters. Also, Cohen's identification assumes that media characters are autonomous, with the characteristic traits adopted by the audience instead of those of his/herself. However, in most cases, the main characters in games do not have characteristics for players to adopt.

Regarding identification with the main characters in games, Klimmt, Hefner, and Vorderer (2009) look at identification in games—based on its interactivity—to address the specificities of games compared with other media. They define identification in games as "a temporal shift of players' self-perception through the adoption of valued properties of the game character" (2009, 351). Valued properties refer to some traits of characters that can be created by the players themselves. Their definition addresses the lack of autonomy of characters in games and also the effect of traits of players on the traits of their characters.

In the earlier works of digital game theory, a multiple layered identification is discussed. Filiciak (2003) discusses the identification of oneself with an avatar in MMORPGs. She considers the avatar as one of the many selves of the player. Filiciak explains that as social interaction in postmodern life becomes complex, people develop liquid identities with multiple selves, and Internet communications,

especially those with mediating avatars or pseudonyms, make it easier to deal with it. The players are themselves in the real world and also themselves in the game world. Filiciak talks of how, when she plays games, she is more of herself in the game world than in the real world. Suler (2002) also regards an avatar as being part of a person's identity, and he discusses the levels of identity in the cyberspace using five dimensions (dissociation and integration, positive and negative, fantasy and reality, conscious awareness, and the media). Rehak (2003) suggests a slightly different view on the identification with an avatar and the player. According to Rehak, an avatar is like a mirror image of the player. He distinguishes an avatar from its player in a way that a glove is different from a hand wearing it (2003, 104). In his argument, an avatar serves a "double duty as self and other" (2003, 106) from the player's perspective. In more recent works, Banks and Bowman (2016) develop a multifactor scale of player–avatar interaction (PAX), which is defined as "the perceived social and functional association between an MMO player and game avatar" (2016, 215). Although the above discussions are mostly on avatars in multiplayer online games, they are very closely related to how players perceive and interpret gameplay.

The current study focuses on the two modes or frames of gameplay: *player* frame and *character* frame. On the one hand, *players* make interpretations based on the rules of the game, and they may be goal-driven (i.e., they may be more focused on achieving their goals rather than role-playing). On the other hand, *characters* identify themselves with the character in the game and make interpretations as the habitants of the fictional world of the game. These frames that players adopt may affect how other characters in the game are perceived by the player. For example, in the analog role-playing game, a character may be one's best friend in the game world but a stranger in the real world. Furthermore, emotional and cognitive reactions toward other characters in a certain situation in the game may depend on how the player perceives the other characters.

This study aims to clarify the relationship between the frames that players base their interpretations on and the motives of their prosocial behaviors toward other characters in the game. Consequently, this study conducts a survey to look at the motives of prosocial behaviors in games in relation to the frames of meaning players adopt when playing games. It specifically focuses on the role of empathy, which is considered one of the main motives of prosocial behaviors, to compare how it works differently for those who adopt the *player* frame and those who adopt the *character* frame.

Hypotheses

This study attempts to clarify how the different frames of meaning relate to the players' motivation of prosocial behaviors in games. In addition, it investigates differences in prosocial behaviors toward non-player characters (NPCs) and player characters (PCs) to see how the situation is interpreted differently for those who adopt the *character* frame and the *player* frame. The following hypotheses are proposed for the purpose of this study.

First, because players who adopt the *character* frame (which will be referred to as *character–players*) base their interpretation of games on the game world, they perceive NPCs as social agents. However, those who adopt a *player* frame (which will be referred to as *player–players*) perceive NPCs as virtual beings in the game. The level of empathy toward NPCs would, therefore, differ between the two groups of players. Specifically, character–players would be more empathetic toward NPCs than player–players. For PCs, character–players would perceive PCs in the same way as NPCs in the game. However, for player–players, whereas NPCs would be virtual beings in the game, PCs would be the other players who are human beings in the real world. For players in both groups, PCs would be "others" in terms of social agents.

Therefore, the level of empathy toward PCs would not differ between character–players and player–players.

Comparing the types of recipients of prosocial behaviors in terms of the frames of meaning, because character–players perceive both NPCs and PCs in a similar manner, the level of empathy toward NPCs and PCs would not differ. However, for player–players, they would perceive NPCs and PCs differently. NPCs would be perceived as virtual beings and PCs as human beings by player–players. Therefore, the level of empathy and the motives of prosocial behaviors would differ between those expressed toward NPCs and PCs. Specifically, player–players would be more empathetic toward PCs than NPCs.

H1-1: The level of empathy of character–players toward NPCs will be higher than that of player–players, but the level of empathy toward PCs will not differ between character–players and player–players.

H1-2: The level of empathy of character–players toward NPCs and PCs cannot differ, but the level of empathy of player–players toward PCs will be higher than the one toward NPCs.

Second, regarding the motives of prosocial behaviors, some prosocial behaviors in games can be related to empathy. However, character–players are more likely to consider empathy as the motive for helping other characters in games because they are more aware of what is going on in the gaming world than the game rules compared with player–players. On the other hand, player–players are more likely to consider goal orientation as the motive for helping characters in games because they are more aware of the game rules than the game world.

H2-1: Some prosocial behaviors in games can be motivated by empathy.

H2-2: The motives of prosocial behaviors can differ between character–players and player–players in both situations with NPCs and PCs.

Third, the occurrence of prosocial behaviors cannot differ whether the characters whom players help are NPCs or PCs, nor the frames of meaning that players adopt. Owing to the fact that prosocial behaviors in games can also be motivated by factors, such as game design and gameplay, in addition to empathy, the occurrence of prosocial behaviors cannot differ.

H3: The frequencies of prosocial behaviors in games cannot differ between different types of recipients of prosocial behaviors or between different frames of meaning that players adopt.

METHODS

A survey was conducted to look at the relationship between how players interpret a game and their motives of prosocial behaviors in the game. The survey was conducted online using Google Forms, and the participants were recruited through a crowdsourcing platform called Lancers (https://www.lancers.jp) and CrowdWorks (http://crowdworks.jp). Conducting a survey on a crowdsourcing platform is considered as reliable as conducting it in a university classroom (Miura & Kobayashi 2016). For the purposes of this study, crowdsourcing was used because it allows researchers to collect responses from participants with a wide age range compared with a university classroom. According to a CESA (2018) report, people in late 20s and 30s play games as much as university students, and over 50% of men and 40% of women in their 40s play games. Informed consent was obtained from each participant

before the participation. The survey was conducted in Japanese, and it took about 10 min to complete. Each participant was paid 40 Japanese Yen (about 0.40 American dollars) for incentives.

Participants

There were 544 participants (Male = 293, Female = 250, Other = 1), with a mean age of 35.5 (*SD* = 9.27), ranging from 17 to 75. Among the 544 participants, 20 answered that they had never played digital games before. Their responses were not included in the analysis.

Instruments

The survey included questions about participants' experiences with games. The participants were asked to recall a game with the strongest impressions in their memories, preferably role-playing games or action games that featured NPCs and/or PCs. Some of the examples of the games given were *Dragon Quest* Series (Square Enix 1986-; N = 64), *Final Fantasy* Series (Square Enix 1987-; N = 48), *Pokémon* Series (Game Freak 1996-; N = 28), *Monster Hunter* Series (Capcom 2004-; N = 19), *Super Mario Bros.* (Nintendo 1985; N = 15), *Resident Devil* Series (Capcom 1996-; N = 15), *The Legend of Zelda* Series (Nintendo 1986-; N = 14), and *Mario Kart* Series (Nintendo 1992-; N = 12).

Next, the participants were instructed to recall how they played the game and the interaction between different characters in the game. They were asked to answer the questions by following the instructions describing a hypothetical situation in the game. Two situations were given, and the participants were asked to imagine each situation happening in the game they had recalled. The order effect was controlled by counterbalancing. The situations were as follows:

1) You witness a non-player character (NPC) who is neither your ally nor your enemy about to be attacked by an enemy NPC.

2) You witness a player character (PC) who is neither your ally nor your enemy about to be attacked by an enemy NPC.

The survey asked how participants felt toward the victim of the situation described in terms of empathy, what they would do in each situation, and why. There were six questions regarding empathy toward the victim—two items each on cognitive empathy, emotional empathy, and personal distress over the situation described. Each question was to be answered using a 5-point Likert scale. The questions were based on Tobari's (2003) measure of empathy, the wording of which was adapted to each situation. The items on empathy were presented in a random order for each situation. The survey then asked what the participants would do for each situation. It was a multiple-choice question with two choices: "I would help," and "I would not help." The reasons for helping or not helping were to be provided in written responses.

In the next section of the survey, participants were asked to recall how they had played the game in terms of frames. There were four choices: 1) "if anything, I played the game as a character in the game distanced from the real world the most of the time," 2) "if anything, I played the game as a player who controlled the character in the game the most of time," 3) "if anything, I played the game as a person who is different from the previous two, distanced from the game the most of time," and 4) "I had never been aware of how I played."."

ANALYSIS AND RESULTS

For the frames of meaning, 147 out of the 524 participants answered they played as characters, 235 participants answered they played as players, 14 participants answered they played as persons, and 128 participants answered that they were never aware of how they played the game. In accordance with the previous study (Lim, 2018), the person frame was rarely adopted.

For the analysis of the relationship between the level of empathy and a prosocial behavior, logistic regression was used to predict one's helping behavior, with levels of emotional empathy, cognitive empathy, and personal distress as independent variables and frames of meaning as dummy variables.

In addition, a correspondence analysis was conducted on the written responses to look at the motives of prosocial behaviors in each situation and the difference between the motives of character–players and player–players. The analysis was only conducted on the responses of those who indicated they would help in each situation. In addition, because the presentation of the first situation may have an effect on the response to the second situation, only the responses to the first situation were used. Words that appeared more than two times were used for the analysis. For the text segmentation, MeCab, an open-source library, was used. R and FactoMineR, an R package for a multivariate exploratory data analysis, were used for correspondence analysis. For the analysis, only nouns, verbs, and adjectives were used. Also, numbers, symbols, and words with high frequency in all kinds of responses (e.g., "game," "NPC," "PC," "thing") were eliminated from the analysis.

H1-1 and H1-2, on the levels of empathy, were not supported. It was expected that the level of empathy of character–players toward NPCs would be higher than that of player–players and the level of empathy toward PCs would not differ between character–players and player–players. Also, it was expected that the level of empathy of character–players toward NPCs and PCs would not differ and the level of empathy of player–players toward PCs would be higher than the one toward NPCs. However, the levels of all the three types of empathy toward NPCs and PCs were not different between character–players and player–players. Comparing between the types of recipients of prosocial behaviors, the levels of empathy differed between that toward NPCs and PCs for both character–players and player–players. The levels of emotional empathy and cognitive empathy of both character–players and player–players toward PCs were significantly higher than those toward NPCs. The level of personal distress was significantly higher toward PCs than toward NPCs for character–players, and it was marginally higher toward PCs than toward NPCs for player–players (Table 1).

The reason as to why there were no differences in the scores of empathy between character–players and player–players may be because emotional or cognitive responses are likely to be influenced by factors other than players' interpretations of the situation, such as the level of socio-cognitive development, as indicated in Eisenberg (1986, 190).

H2-1, which stated prosocial behaviors in games can be motivated by empathy, was supported. For prosocial behaviors toward NPCs, all types of empathy were predictor variables, and for prosocial behaviors toward PCs, emotional empathy and personal distress were predictor variables, but not cognitive empathy (Table 2).

H2-2 was supported. It was expected that the motives of prosocial behaviors would differ between character–players and player–players. Figure 4-1 shows the results of the correspondence analysis of four different categories of the responses: 1) the responses of character–players in an NPC situation marked as "NPC-character," 2)

player–players in an NPC situation marked as "NPC-player," 3) character–players in a PC situation marked as "PC-character," and 4) player–players in a PC situation marked as "PC-player." These results were compared based on the frequencies of the words used. The words are marked as circles, and the categories of responses are marked using orange triangles. For the points of the same variables, their distance indicates the similarity between them; the closer they are, the similar they are considered to be. For the points of different variables, the similarity of the direction of their origin indicates the similarity between them. The association between the categories and the words is significant ($\chi^2 = 271.39$, $p < .05$). From the figure, it is evident that the responses of character–players and player–players, and the responses in different situations are different. The two axes divide the different types of the recipient's prosocial behavior and the different frames of meaning. The first axis (Dimension 1) appears to separate the situations where the recipient of prosocial behavior is a NPC (on the left) from where the recipient is a PC (on the right). The second axis (Dimension 2) separates character–players (on the top) from player–players (on the bottom).

		Toward NPC (a)		Toward PC (b)		(a) – (b)	
		Character-players	Player-players	Character-players	Player-players	Ch-players	Pl-players
	N	147	235	147	235		
Emotional empathy	*M*	2.74	2.66	3.01	3.02	**	**
	SD	1.14	1.00	1.02	0.96		
Cognitive empathy	*M*	2.67	2.62	3.01	3.02	**	**
	SD	1.14	1.05	1.08	1.03		
Personal distress	*M*	1.80	1.75	1.91	1.84	*	†
	SD	0.83	0.79	0.80	0.77		
†$p < .10$, *$p < .05$, **$p < .01$.							

Table 1: Mean scores of empathy toward NPCs and PCs

	Helping NPC		Helping PC	
N = 524	*β*	Odds Ratio [95% CI]	*β*	Odds Ratio [95% CI]
Intercept	-0.96**	0.38	-0.18	0.84
	(0.31)	[0.20, 0.70]	(0.37)	[0.40, 1.73]
Emotional empathy	0.93**	2.53	0.76**	2.14
	(0.14)	[1.93, 3.39]	(0.13)	[1.66, 2.77]
Cognitive empathy	0.25*	1.28	-0.04	0.96
	(0.12)	[1.02, 1.62]	(0.11)	[0.77, 1.21]
Personal distress	-0.76**	0.47	-0.51**	0.60
	(0.14)	[0.35, 0.61]	(0.12)	[0.47, 0.76]
Nagelkerke R^2	.24		.14	
AIC	582.99		589.87	
Chi-square	101.78**		56.27**	
Note Inside the brackets are standard errors. †$p < .10$, *$p < .05$, **$p < .01$.				

Table 2: Coefficients of logistic regression on helping in games

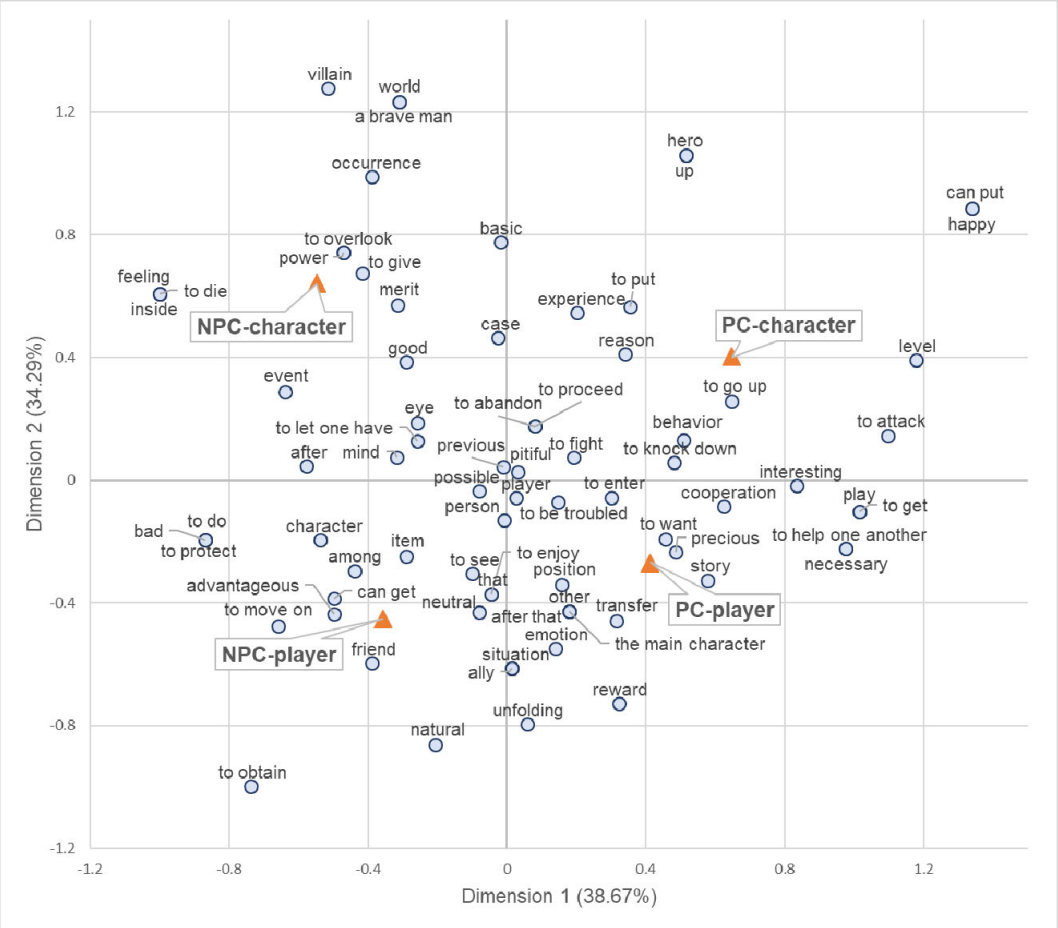

Figure 1: The results of the correspondence analysis on players' motivation of prosocial behaviors in games.

Tables 3 and 4 show the contributions of some words and all categories, respectively, to Dimensions 1 and 2. The words with high values contribute the most to the definition of the dimensions. For example, "play," "cooperation," "can put," and "happy" are the words that contribute the most to Dimension 1, which separates the situation of helping PCs (coordinates on the positive x-axis) and NPCs (coordinates on the negative x-axis). "Villain," "occurrence," "world," and "a brave man" are the words that contribute the most to Dimension 2, which separates character–players (positive y-axis) and player–players (negative y-axis). Figure 2 shows the quality of representation of each word in each dimension. It is evident that some words, such as "pitiful," "player," and "to fight," are not well represented in the two-dimensional space.

For the actual usage of the words, in the situation of helping NPCs, the responses of character–players included words such as "event" as in "if I help, it is possible that some event may occur," which indicates that a significant event or a reward was expected, and "pitiful" as in "I don't know why but I can't help feeling pitiful," which indicates an emotional response. Also, it is noticeable that "a brave man (*yūsha*; the main character in Japanese RPG)" appears as in "because my character is a brave man. If he is the brave man, he must help." In the situation where players help PCs, the motives of character–players included words such as "cooperation" as in "cooperation with other people is what is fun about games," which indicates a prosocial attitude, and "happy" as in "if it was me, I would be happy if someone helped me," which indicates that reciprocity was expected. When player–players chose to help NPCs,

their motives included phrases such as “to move on” as in “it may be necessary to help the character to move on,” which indicates that player–players were concerned about advancing the game; however, in the situation where players helped PCs, the responses of player–players included phrases such as “pitiful,” and “person” as in “because I feel pitiful imagining the person behind the game being in trouble,” which indicates that they were concerned about the other players.

Contribution of rows to Dimension 1			Contribution of rows to Dimension 2		
	coord	contr		coord	contr
play	1.016	5.904	villain	1.278	7.016
cooperation	0.624	5.189	occurrence	0.988	6.289
can put	1.34	5.131	world	1.234	4.908
happy	1.34	5.131	a brave man	1.234	4.908
event	-0.638	5.04	unfolding	-0.795	4.075
interesting	0.835	4.65	hero	1.059	3.616
to attack	1.097	4.588	up	1.059	3.616
to move on	-0.658	4.121	to obtain	-0.997	3.204
level	1.178	3.967	friend	-0.595	3.046
to help one another	0.976	3.629	situation	-0.613	2.825
necessary	0.976	3.629	ally	-0.613	2.825
to get	1.016	2.952	basic	0.777	2.596
feeling	-1.001	2.865	neutral	-0.429	2.574
to die	-1.001	2.865	case	0.464	2.549
inside	-1.001	2.865	can put	0.884	2.522
character	-0.538	2.757	happy	0.884	2.522
to do	-0.87	2.161	merit	0.572	2.457
bad	-0.87	2.161	to move on	-0.475	2.429
to protect	-0.87	2.161	natural	-0.862	2.397
can get	-0.498	1.651	to give	0.676	1.965
after	-0.577	1.588	emotion	-0.549	1.942
to obtain	-0.738	1.556	good	0.386	1.924
to knock down	0.482	1.548	to overlook	0.741	1.772
			power	0.741	1.772
			reward	-0.728	1.707
			reason	0.411	1.452

Table 3: Contribution of the words to each dimension (only the words with contributions larger than the expected value; in descending order)

Contribution of columns to Dimension 1			Contribution of columns to Dimension 2		
	coord	contr		coord	contr
NPC-character	-0.548	27.727	NPC-character	0.641	42.869
NPC-player	-0.357	17.827	NPC-player	-0.454	32.536
PC-character	0.648	35.582	PC-character	0.403	15.504
PC-player	0.413	18.863	PC-player	-0.27	9.091

Table 4: Contribution of the categories to each dimension

Figure 2: The quality of representation of each word in Dimensions 1, 2, and 3.

In terms of how empathy toward NPCs and PCs motivated the prosocial behaviors of players, the frames of meaning moderated some of the effect of empathy on prosocial behaviors. In the situation of helping NPCs, for both character–players and player–players, emotional empathy and personal distress significantly predicted their prosocial behaviors toward NPCs (Table 5). There was no mixed effect of the frames of meaning and the levels of empathy on the prosocial behaviors toward NPCs.

	Character-players (N = 147)		Player-players (N = 235)	
	β	Odds Ratio [95% CI]	β	Odds Ratio [95% CI]
Intercept	-0.47	0.62	-1.37**	0.25
	(0.57)	[0.20, 1.92]	(0.51)	[0.09, 0.68]
Emotional empathy	0.55*	1.73	0.92**	2.51
	(0.25)	[1.06, 2.89]	(0.22)	[1.66, 3.90]
Cognitive empathy	0.35	1.42	0.32†	1.38
	(0.23)	[0.91, 2.29]	(0.18)	[0.97, 2.01]
Personal distress	-0.62*	0.54	-0.53*	0.59
	(0.25)	[0.32, 0.87]	(0.21)	[0.38, 0.89]
Nagelkerke R^2	.20		.25	
AIC	172.31		255.33	
Chi-square	22.83**		45.46**	
Note Inside the brackets are standard errors. †$p < .10$, *$p < .05$, **$p < .01$				

Table 5: Coefficients of the logistic regression of the most fitted models on helping behaviors toward NPCs

In the situation where a PC is being attacked, different kinds of empathy motivated the prosocial behaviors of the character–players and player–players. The logistic regression models in Table 6 show that while the level of emotional empathy predicted prosocial behaviors for both groups, the level of personal distress only predicted prosocial behaviors of the character–players; the lower the level of personal distress toward PCs, the more likely character–players were to help PCs.

	Character-players (N = 147)		Player-players (N = 235)	
	β	Odds Ratio [95% CI]	β	95% CI
(Intercept)	-0.69	0.50	0.10	1.10
	(0.78)	[0.10, 2.34]	(0.47)	[0.44, 2.83]
Emotional empathy	1.14**	3.13	0.31*	1.36
	(0.24)	[1.97, 5.21]	(0.16)	[1.01, 1.86]
Personal distress	-0.68*	0.51	-	-
	(0.27)	[0.29, 0.85]	-	-
Nagelkerke R^2	.30		.02	
AIC	138.55		271.13	
Chi-square	33.32**		4.07*	
Note Inside the brackets are standard errors. *$p < .05$, **$p < .01$				

Table 6: Coefficients of logistic regression of the most fitted models on helping behavior toward PCs

Furthermore, the multivariate logistic regression model, in Table 7, supports a mixed effect of the frames of meaning and emotional empathy. The main effects of emotional empathy and personal distress indicate that whether players are character–players or player–players, the greater their emotional empathy or the smaller their personal distress toward PCs, the more they are likely to help PCs. However, the level of emotional empathy of character–players has more impact on prosocial behaviors than that of player–players. However, there was no mixed effect of the frames of meaning and personal distress.

	Character-players and Player-players (N = 382)	
	β	Odds Ratio [95% CI]
(Intercept)	-0.69	0.50
	(0.78)	[0.10, 2.34]
Frame	0.96	2.61
	(0.95)	[0.41, 17.12]
Emotional empathy	1.14**	3.13
	(0.24)	[1.97, 5.21]
Personal distress	-0.68*	0.51
	(0.27)	[0.29, 0.85]
Frame * Emotional Empathy	-0.79**	0.45
	(0.29)	[0.25, 0.79]
Frame * Personal distress	0.54	1.72
	(0.34)	[0.90, 3.39]
Nagelkerke R^2	.11	
AIC	411.18	
Chi-square	30.82**	
Note Inside the brackets are standard errors. *$p < .05$, **$p < .01$		

Table 7: Coefficients of logistic regression of the multivariate logistic regression model on helping behavior toward PCs

Lastly, H3 stated that the occurrence of prosocial behaviors in games cannot be related to the types of recipients of prosocial behaviors and the frames of meaning that players adopt. Most participants would help in all situations, regardless of whether they are character–players, player–players, or others. The hypothesis was supported as the proportion of those who responded that they would help did not differ between the participants of different frames of meaning or between different situations (Table 8).

	NPC		PC	
Frames	Help	Not help	Help	Not help
Character	98	49	110	37
Player	161	74	173	62
Person	7	7	9	5
Other	76	52	76	52

Table 8: Decisions to help or not to help in each situation

DISCUSSION

The findings suggest that the frames of meaning are not related to the levels of empathy toward other characters. Most character–players and player–players decide to help other characters, and the more they empathize with other characters, the more they are likely to help. In the real world, empathy is the main motive of prosocial behaviors, and it is considered to be the mechanism of mind to help those who are in need and ensure survival in society. Some prosocial behaviors in games happen exactly as they happen in the real world.

Motives of Prosocial Behaviors in Games and Frames of Meaning

Looking at each situation separately, for prosocial behaviors toward NPCs in games, the responses mainly consist of empathic and goal-oriented motives. For example, the reasons for helping NPCs include words like "event," "to move on," as well as "feeling" and "to protect." From a game design perspective, goals are what drive players' behavior in the game. From the results, it is clear that goals are in fact prioritized by players when they take actions. However, some respondents help NPCs because they empathize with the character. The reasons for helping PCs included words like "cooperation" and "to help one another," indicating the reciprocity regarding PCs. Compared with those for helping NPCs, many motives were inspired by the fact that the other player is a living human, even when the other player may not be visible.

With regard to the frames of meaning, emotional empathy seems to have more effect on helping PCs for character–players than for player–players. When players empathize with other PCs, they are more likely to help, and this tendency is more distinct in character–players than in player–players. For player–players, although their empathy toward other characters has a significant effect on their behavior, its effect is less than that of character–players. In games, although it is important to be alive to succeed, it is not necessary for a player to play along with other members of society as in the real world. In games, there is a concrete goal set by the designer or the player, and how to act to achieve the goal is made clear to the player. Owing to the fact that players have to follow the rules to achieve the goal of the game, then the rules and the goal are more significant to player–players in deciding their actions than the empathy toward PCs.

Also, for character–players, their prosocial behaviors toward PCs are similar to those toward NPCs in terms of empathy being their motivation. The prosocial behaviors of character–players in both situations are motivated by emotional empathy and personal distress. For player–players, their prosocial behaviors toward PCs are motivated by emotional empathy only, whereas their prosocial behaviors toward NPCs are motivated by both emotional empathy and personal distress. The levels of empathy of both groups of players do not differ, but the impact of the level of personal distress on prosocial behaviors does. Personal distress includes emotional responses that are oriented toward oneself, such as a feeling of unease caused by the situation. People with high personal distress will not be able to handle the situation well and will try to avoid the situation if they can. It is considered that personal distress may be positively or negatively correlated with prosocial behaviors depending on the situation. For example, in a situation where it is easy to avoid getting involved, high personal distress would be negatively correlated with prosocial behaviors. In a situation where it is difficult to avoid getting involved, people with high personal distress will try to help to alleviate their distress. In the situation given in the survey, in instances where people felt like running away, they responded that they would not help. This can be attributed to the fact that the situation was not real.

The difference between character–players and player–players in the prosocial behaviors exhibited in each situation may indicate that player–players differentiate NPCs and PCs, whereas character–characters do not. It can be assumed that whether the character in danger is an NPC or a PC will not have a different effect on the behavior of character–players because NPCs and PCs are both regarded as characters in the gaming world. Owing to the fact that character–players interpret what is happening in a game based on the rules of the game, it's less likely that they will relate a PC to a player who is a person in the real world. For player–players, because they perceive PCs differently from NPCs, it is possible that for some of them, the high level of personal distress promoted the prosocial behavior exhibited in the situation of helping PCs, similar to what happens in the real world. This may have caused the level of personal distress to be insignificant in predicting the prosocial behaviors of player–players toward PCs.

Game Design and Prosocial Behaviors in Games

One of the factors that are inferred to promote prosocial behaviors in games is the players' awareness of the goals of the game. Games are characterized as having goals set out for players to achieve. The goals are usually provided by developers. Goals can also be set by players themselves, and they may have a bigger effect on players' motivation. As Juul (2005) notes, players feel attached and exert effort for certain outcomes that are necessary for games. As prosocial behaviors are also a part of players' behaviors, they may be affected by players' goals.

Game rules influence players' behaviors in the gaming world. Under implicit rules, the behavior of players is constrained by computers, and usually, it is not possible to go beyond these rules. This may limit the players, for instance, when players want to help a character, but they are not allowed to interact with the character. Also, implicit rules like sportsmanship or conventions of gamers that are not limited by computers but that are socially defined by players themselves, based on what is good or bad, may also constrain players' behaviors. This may be especially observed when player–players help PCs because they pay attention to the relationship with other players. For example, player–players may choose to make friends with other players.

Apart from players' goals and the rules of the game, empathy also plays a role in prosocial behaviors in games. Emotion plays an important role in players' involvement in games. Not only certain emotions can be induced by games, but also players' emotions may have an effect on the game itself by influencing the behaviors of players. From the results of this study, it is observed in the written responses that when players help other characters, emotion seems to play a role in motivating prosocial behaviors. This is exhibited by the use of words such as "pitiful," "feeling," and "emotion." Also, it became clear that empathy may play different roles in motivating players' prosocial behaviors, even when the level of empathy that is induced by games is not different between character–players and player–players. This suggests that although emotional responses are similar for different types of players, emotions induced by a game may be interpreted differently depending on how the game is interpreted.

Regarding the effect of digital games on players' prosocial behaviors, adopting different frames may influence the effect. Role-playing is considered as one of the effective teaching techniques for prosocial behaviors (Bal-Tal & Raviv 1982). Digital games may also work as an effective agent in teaching prosocial behaviors specifically motivated by emotional empathy or altruistic behavior. For games mainly featuring PCs, encouraging players to adopt the *character* frame rather than the *player* frame may promote learning of prosocial behaviors motivated by emotional empathy. In addition, considering the frames or players' interpretations when looking

at the effect of digital games may further contribute to the effective positive use of games.

CONCLUSION

This study looked at the relationship between the frames that players base their interpretations on and the motives of prosocial behaviors toward other characters in games. For prosocial behaviors in games, there were empathy-related motives, e.g., helping because a player feels sympathy toward the other character, goal-related motives such as helping because a player wants to progress in the game, reciprocity such as helping with an expectation that a player may be helped with the other character in the future, and reward-related motives such as helping because a player expects to gain something from it. These motives differ between different recipients of prosocial behaviors and the different frames of meaning that players adopt.

This study has some limitations. In this study, a survey was conducted to look at how empathy affects players' helping behavior. The survey is self-reporting and might not reflect how participants would actually behave when they encounter such situations. Also, in the survey questions, not the same game was used for all participants, and the frames were treated as something that is stable during gameplay. It must be noted that in practical, there are different kinds of games in terms of genres, stories, social contexts, etc., and that players adapt to different games, situations, and contexts. For these reasons, the results of this study may not be generalizable and rather hypothetical. Also, the results of the current study only apply to the attitude toward prosocial behaviors, not actual behaviors. However, this study may provoke a discussion on players' perspectives in studies on in-game behaviors and their effects. In addition, it provides some insights regarding the process of in-game behaviors, thereby setting a base for further research. For future work, an experiment is to be conducted to look at the differences between the different frames that players adopt and their relationship with the actual in-game behaviors of players.

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