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Parents' Perception of Children's Digital Game Use

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As digital games are becoming popular among people of all ages, there are concerns like exposure to violence, sexual expressions, and excessive digital game use, especially with regard to children. However, like other media, digital games may have a positive effect if used properly. The current study aims to look at how parents perceive children's digital game use and proposes a way to educate children and parents on the proper use of digital games. A survey was conducted on 112 parents (49 males). As a result, it was found that about 70% of parents played digital games with their children. Although parents are concerned about the depiction of violence, sexual expressions, and language in games, many of them respect their children's opinions at the time of buying games and also while setting rules of game use.

Keywords: Children, Digital games, Game ratings, Media use, Parents

Introduction

Digital games gained popularity especially after the introduction of smartphones. The digital game market in Japan is worth 1.6 trillion yen and, as of 2017, the Japanese gamer population is 49 million (Famitsu, 2018). According to the infographics released at the Electronic Entertainment Expo 2015 by HIS Technology, the consumer spending on games in 2015 was expected to exceed the spending on movies and recorded music combined. According to a report by Computer Entertainment Supplier's Association (CESA), 41% of the general population in Japan was playing digital games in 2017 (CESA, 2018). It is not surprising to see people in their 40s or 50s playing smartphone games on the commuter train, or children with a portable game console in their hands. In adults, more than half of the men and women in their 20s played digital games. Furthermore, more than half of the men in their thirties and about half of the men in their forties (51.5%) played digital games. In the younger generations, more than two-thirds of boys and girls between the ages from 10 to 19 played digital games (CESA, 2018). Younger generations are born in a culture where digital games are as widespread as other entertainment media. There is a movement to promote electronic sports (esports) and organized competitions using digital games in sports events like the Asian Games and Olympics. This indicates that digital games are becoming a significant part of people's lives.

Digital games are also an effective learning tool. There has been a movement in edutainment and serious games resulting in games being put to practical use in educational scenes. Gamification—"the use of game design elements in non-game contexts" (Deterding, 2011) —is considered effective in keeping learners motivated and making learning enjoyable. In their chapter on game-based learning, Tobias, Fletcher, and Wind (2014) state that players do learn from games, based on existing empirical data. There is also a significant movement in the industry. Games for Change is a nonprofit corporation that supports creators of games and "help[s] people to learn, improve their communities, and contribute to make the world a better place" (http://www.gamesforchange.org/who-we-are/). Minecraft is a commercially successful game developed by Notch in 2009. After it was acknowledged as an effective educational tool, the Minecraft: Education Edition was released in 2016 for school use.

On the other hand, there are many studies on the psychological effect of digital games on players. These studies are based on the General Aggression Model (Anderson & Bushman, 2002), which is used to describe how video game violence can be learned and reflected in players' actions. Buckley and Anderson (2006) expanded the model to the General Learning Model (GLM) to explain the different effects of digital games. Studies on prosocial digital games use this GLM for their theoretical frameworks and suggest that digital games may promote players' prosocial behavior, i.e., behavior intentionally benefitting others. Many studies adopt experimental methodologies to show the effects of prosocial digital games. First, a brief content analysis of digital games is conducted. Then, the effects of playing prosocial and non-prosocial digital games are assessed. For example, in some studies, the observation of spontaneous prosocial behaviors is used (e.g., Greitemeyer & Osswald, 2010).

The GLM explains how digital games can affect players' cognition, affect, and physiological arousal and how this effect is reflected in players' behaviors. It is a theoretical model developed on several cognitive learning theories, one of which is Bandura's social learning theory (1977). Personal factors, including past experiences, personalities, and properties that a learner already possesses, as well as situational factors, including digital games and environmental facto

rs like contexts, where the learning takes place, are input factors of learning. These factors may change the learner's present internal state by affecting learner cognition, arousal, or affect. It is assumed that the changed internal state af fects decision making and behaviors. These output actions are followed by feedback or social encounter, and these i nteractions may influence the learner's perception and environment, which are the input factors of learning.

Digital games may have a negative or positive effect on players depending on what kinds of games are played and how players play them. For example, Anderson et al. (2010) have shown that violence depictions in digital games may increase aggression in players. On the other hand, Gentile et al. (2009) show that playing games featuring prosocial behavior promote prosocial behavior of players after playing the games. Furthermore, it has been investigated that the different in-game contexts of certain behaviors have different effects on players. The depiction of rewarded violence may positively reinforce aggressive behavior in players while punished violence may discourage aggressive behavior. The importance of how the behavioral model is represented has already been addressed in the 1960s. For example, reinforcement of the model's aggressive behavior influences the children's learning of the behavior (Bandura, 1965). Also, the social context of gameplay may influence the effect. It has been examined that playing the same game cooperatively, as compared to playing competitively, results in exhibiting more cooperative behavior in tasks after playing the game (Ewoldsen et al., 2012). Therefore, concerning the effects of digital games, it is crucial not only to monitor the game play but also to pay attention to the content and context of the games.

Regarding the content of games, there is a rating system that can be referred to when buying games. Pan European Game Information (PEGI) and Entertainment Software Rating Board (ESRB) are in charge of rating digital games in Europe and North America, respectively. With the increase in sales of download contents, International Age Rating Coalition (IARC) provides the rating process that assigns ratings reflecting local standards.

In Japan, Computer Entertainment Rating Organization (CERO) is in charge of rating digital games. There are five age classification marks to describe the proper age group for a game, and nine content icons to describe the content of the game the rating is based on. There are content icons for violence, drinking and smoking, profanity, drugs, crime, gambling, horror, sexual expressions, and romance. Age classification marks and content icons appear on the packages of games released in Japan. However, only 18% of the general population is aware of CERO (CESA, 2018).

It is important to keep an eye on the content of digital games because how digital games are played or what kinds of digital games are played may affect players in different ways. This applies especially to children and it is necessary f or parents to keep a look out for the sake of their children. The role of parents is important in children's media use as they are responsible for appropriate media use (Hogan, 2012). However, Sasaki and Lim (2018) state that parents and game players may have different perceptions of the content of digital games. For example, parents are stricter o n the ratings of violent, sexual, and antisocial expressions than game players and their interpretation of the proper u se of digital games may differ from that of their children. This raises the question, are parents aware of the content of digital games their children play?

The purpose of this study is to understand how parents perceive children's digital game use and grasp their awareness of the proper use of digital games. This study further aims to propose a way to educate children and parents on the proper use of digital games.

Method

A survey was conducted to determine parents' awareness of children's digital game use. The survey was conducted online in February 2018 using Google Forms. Informed consent was obtained from each participant before the start of the survey. Participants were informed that the data collected would be used only for research purposes, that their personal data would not be used to identify any individual, and that they were free to withdraw at any point. The survey was conducted in Japanese and took about 5 minutes to complete.

In the survey, digital games are defined as games played on personal computers, home consoles like Sony PlayStation4, handheld game consoles like Nintendo 3DS, smartphones, or arcade games. They are otherwise called video games or television games (terebigēmu in Japanese).

Participants were asked about their children's digital game use and their own; how often they played digital games, what they thought of their children's game use and their concerns regarding the same, their awareness of CERO ratings and content icons, and how they dealt with their children's game use. Multiple answers were allowed for questions on the interests and rules of children's game use. A written response was required for the question on parents' concern regarding children's game use.

Participants

The participants comprised of parents of elementary school children and were recruited through a crowdsourcing platform called Lancers (http://www.lancers.jp). Only members whose identities were verified by Lancers could participate in the survey. Conducting a survey on a crowdsourcing platform is found to be as reliable as conducting a survey in a university classroom (Miura & Kobayashi, 2016). Each participant was paid 40 Japanese yen (approx. 0.40 USD) as incentive. There were 112 participants (Males = 49, Females = 63), with a mean age of 38.50 (*SD*=5.61), ranging from 23 to 58. Most of them (91 out of 112; 81%) had only one elementary school child, 19 (17%) had two elementary school children, and 2 (2%) had three elementary school children.

Results

Out of the 112 participants, 103 (92%) responded that they possess at least one game console at home, 101 (90%) responded that their children played digital games, and 76 (68%) responded that the participants themselves played digital games. Around 69 participants (62%) stated that they played digital games with their children, and 15 (13%) responded that they did not play games with their children but other adult members of their families did. The children of 73 (65%) participants played digital games as did the participants themselves. The time spent by participants and their children in playing digital games per day is depicted in Figure 1 (*N*=101). Children seemed to play more than their parents. However, there were more parents (*N*=4) who played for three hours or more every day as compared to their children (*N*=2).

When asked about their interest in the digital games played by their children, most parents responded that they were somewhat interested (Figure 2). The response did not vary between parents who played digital games and those who did not, nor did it vary between the parents who played digital games with their children and those who did not (p=.69 and p=.58).

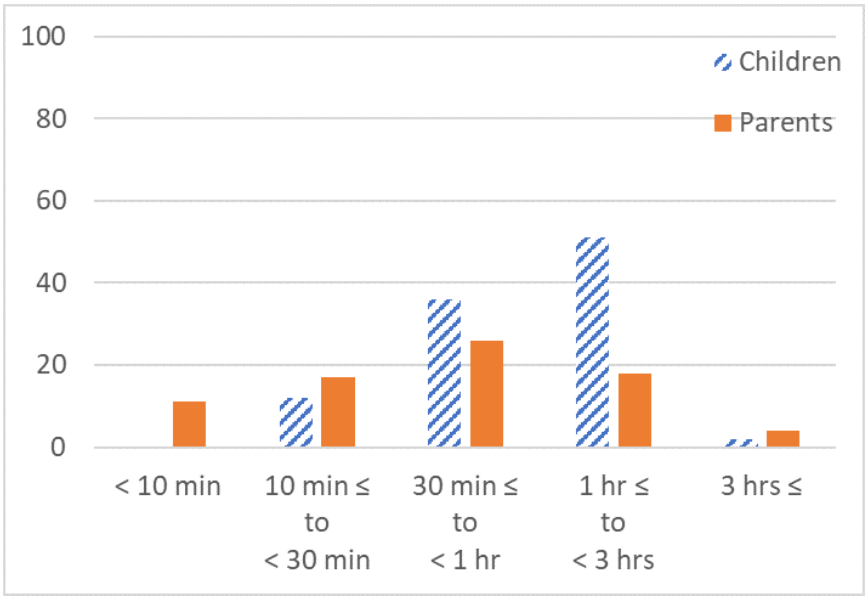

Figure 1. Daily game play time of children and parents.

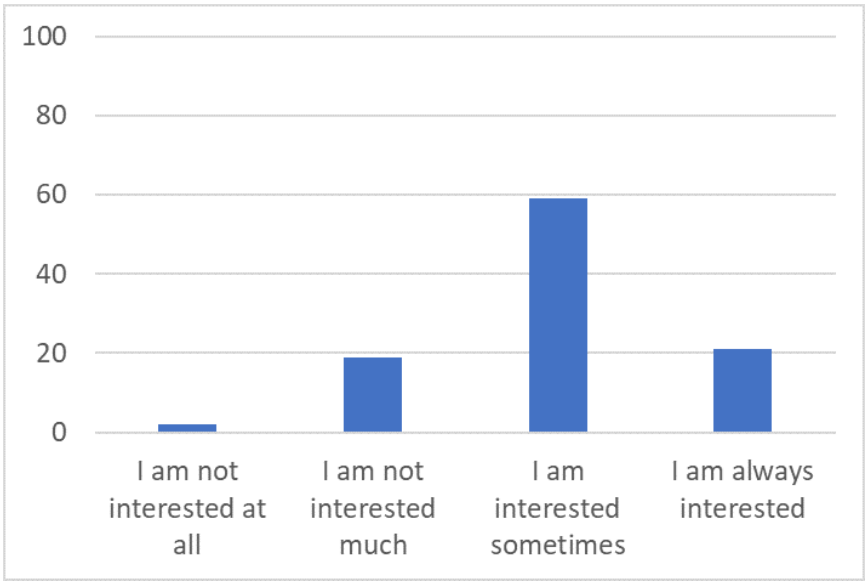

Figure 2. Parents' interest in digital games played by their children (in %).

The participants who responded, "I am interested sometimes" and "I am always interested" (*N*=80; 71%) were asked which aspects of digital games they were interested in. Multiple answers were allowed. Most participants were interested in knowing the depictions of violence in digital games followed by sexual expressions and story content, although these participants formed less than half of all participants (Figure 3). Violence is the most researched topic in digital game effect studies and the research for this seems to have been conducted in accordance with the interests of parents.

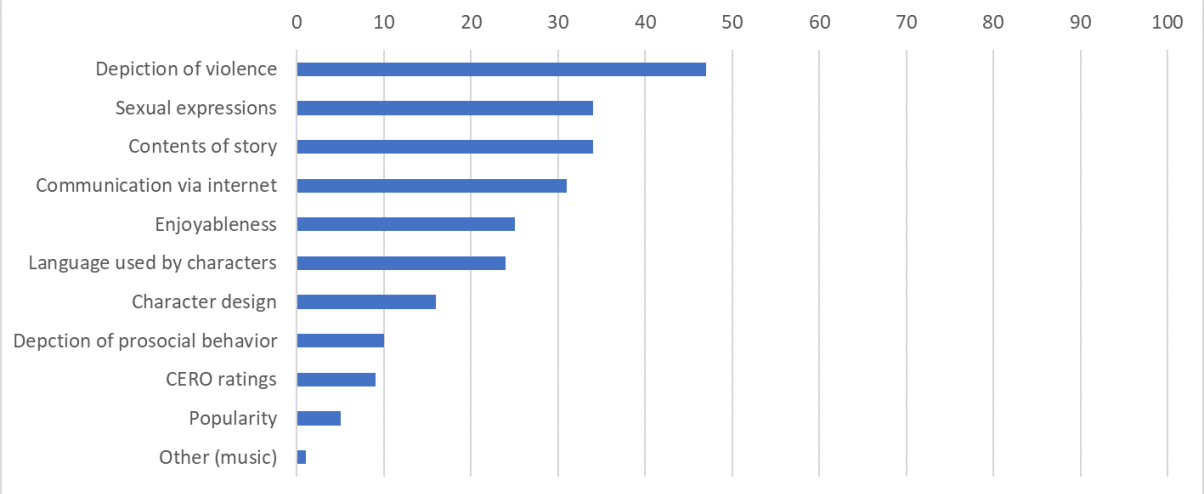

Figure 3. Parents' interest in the aspects of games (multiple answers allowed; in %).

When participants buy digital games for their children, children's opinion affects their decision the most (Figure 4). Here, multiple answers were allowed. Almost all parents regarded their children's opinion when buying games. However, fewer parents referred to CERO ratings and other sources. This indicates that sometimes parents may not be aware of the content of games that their children play.

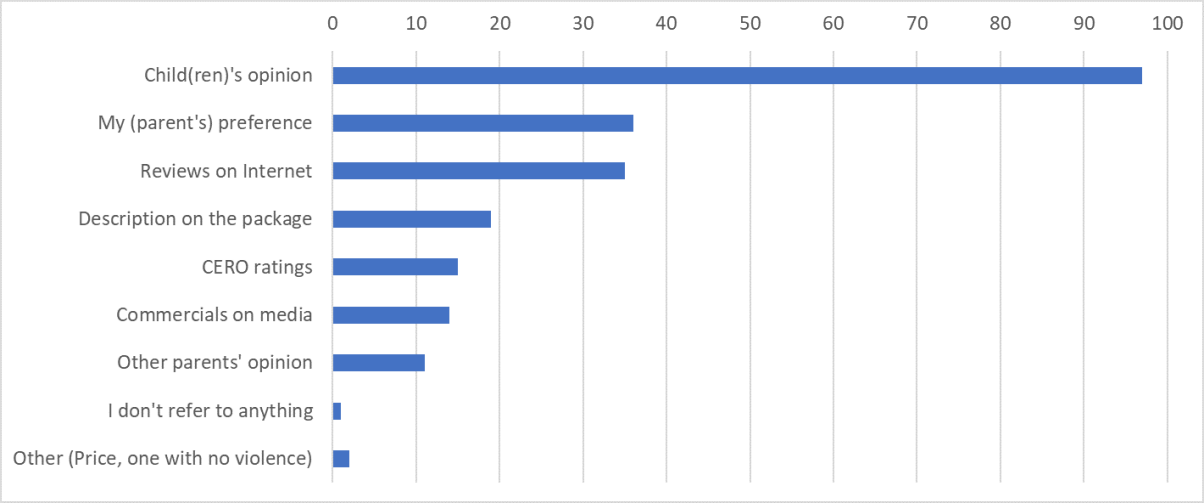

Figure 4. Factors influencing parents' decision when buying digital games (multiple answers allowed; in %).

With regard to participants' awareness of CERO ratings and content icons, half of the participants did not know what CERO ratings were and more than three-fourths of them did not know what content icons were (Figure 5). Participants who played digital games (37 out of 73; 51%) were more aware of CERO ratings than participants who did not play digital games (5 out of 28; 18%) but they were not aware of content icons (p=0.01 and .35, respectively; Fisher's Exact test). There were also participants who knew about CERO ratings and content icons but had never referred to it ("I know about it, but I have never used it").

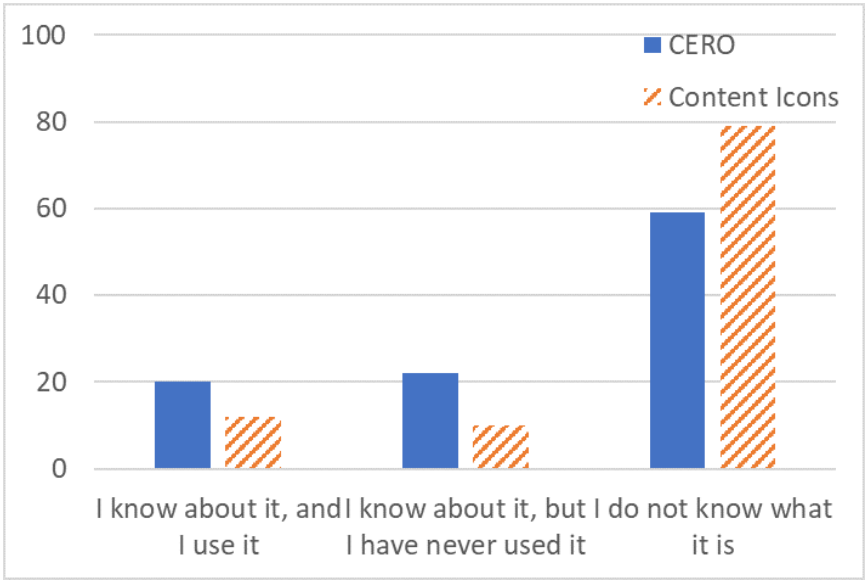

Figure 5. Parents' awareness of CERO ratings and content icons (in %).

When asked whether they were worried about their children's game use, less than half of the participants (41%) responded that they worried (Figure 6). The amount they worried about their children's game use did not differ between those who played digital games themselves and those who did not, nor did it differ according to the different ages of participants. For those who stated that they were worried about their children's game use, most participants seemed to worry about how much time their children were spending on these games (Table 1). Some of the responses were: "game play time gets extended despite my warning," "I am worried that game play time is much longer than study time," and "I try to restrict children's play time, but sometimes they do not follow the rule." Some participants were worried that their children got too engrossed in the game and neglected other things like studying and playing in the real world. For example, one parent responded, "sometimes the child gets too engrossed in playing, to care about other things." Other participants were worried about their children's eyesight. There were participants who worried about their children becoming too dependent on games. There were also comments on their understanding of digital

games as a media of communication with friends, and thus finding it difficult to forbid children to play games while being worried at the same time (e.g., "I am worried about the rules on playing with friends," "because the child is playing with friends through games, I cannot completely forbid it. I am worried that there might be some bad effects of the games," "[…] I do not like that there are some friends that get along only through games.").

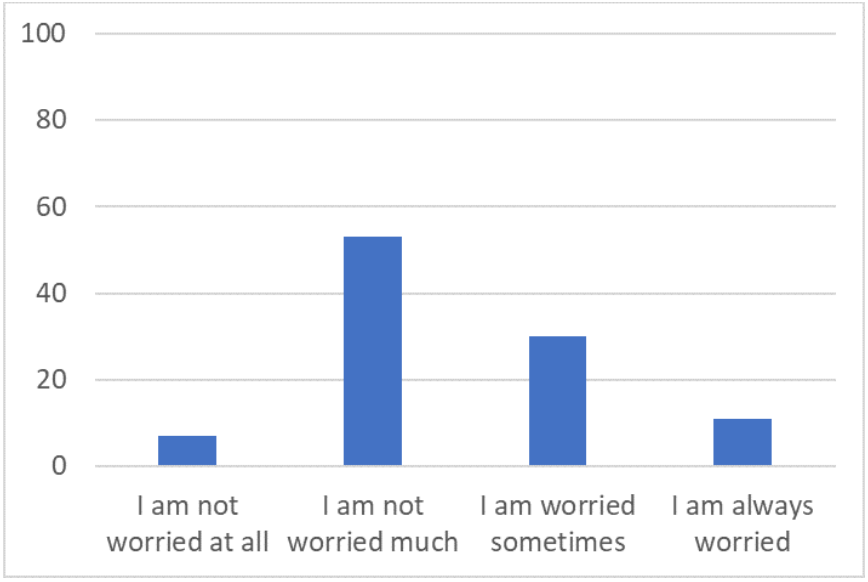

Figure 6. Parents' concern about children's game use (in %).

Table 1

The frequency of words used in parents' responses indicating their concern about their children's game use (>1).

Word	Frequency	Word	Frequency
game	20	neglect, rule, bad, bad influence, dependence, mediate, reality, now, can keep (promise), finish, homework, concern, restriction, growth, other, boy, long, worry, to be into, eye, friend, play, good	2
time	11		
to play	6		
study	5		
care, long time, engrossment	4		
eyesight	3		

To understand how to deal with children's game use, articles on the Internet (48%) were the preferred source of information, followed by opinions of their children (44%), and other parents (44%). Nineteen percent of participants responded that they did not refer to anything (Figure 7).

Discussion

In the current study, it becomes clear that while parents paid attention to the content of digital games played by their children, a majority of parents were not worried about their children's game use. The reason for this may be that parents are already taking proper actions to control their children's game use. They may have consensus with their children on their game use. For example, it is shown that children's opinions were respected when buying games or when dealing with their game use.

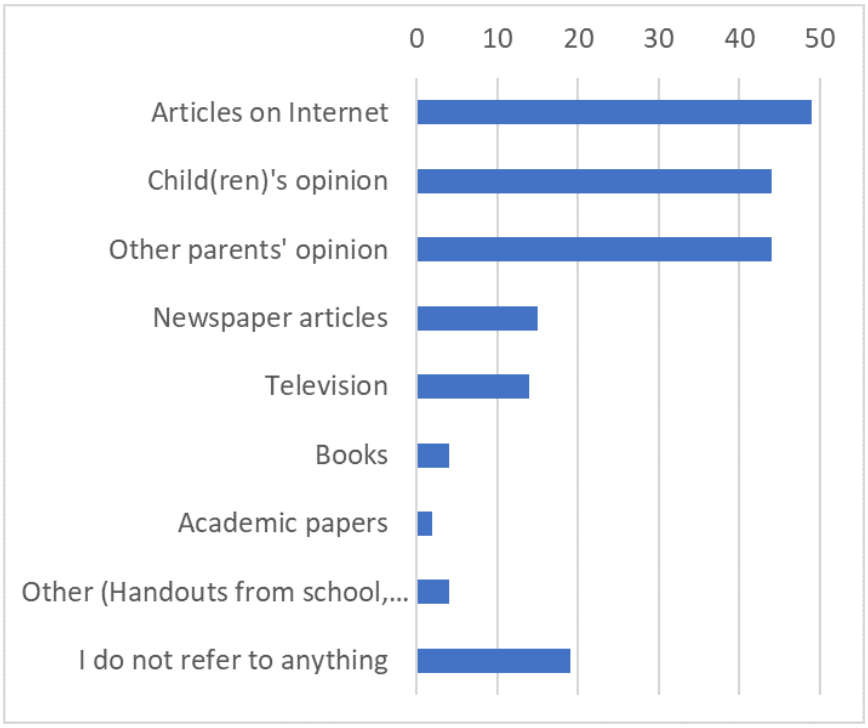

Figure 7. Sources of information for dealing with game use (multiple answers allowed; in %).

In addition, many parents belong to a generation that may have played games themselves when they were young or were at least familiar with digital games. The mean age of the participants was 38.5, which is the core of what is called "Famicom generation" in Japan. Although age was not related to how much parents worried about their children's game use, the fact that parents who belonged to a generation that had played digital games as children might have affected the result, indicated that over a half of them are not worried about children's game use.

With regard to CERO ratings, although only half of the parents were aware of CERO ratings, it is still high as compared to that of the general population. According to the survey conducted by CESA, only 18% of the general population were aware of CERO ratings. It may seem that parents are aware of what their children are playing. However, parents who did not play digital games themselves were as aware of CERO ratings as the general population. Also, there were parents who were aware of CERO ratings and content icons but had never referred to it. Probing these parents in future research may provide a picture of the effectiveness of the rating system and the clue for raising the awareness of parents and game players.

In dealing with children's game use, articles on the Internet were referred to the most. For example, there are web-based online communities for mothers that have articles on how to set rules for children's game play and the dangers of game dependency. However, some articles give a negative impression of digital games with no evidence to back it. Also, because parents are mostly concerned with how much children play rather than what and how they play, many sources of information focus on how to set the rules on play time.

It would be a problem if children neglected things like studying and became dependent on playing games. However, digital games are not necessarily a bad influence on children. Not all digital games have negative effects on players and some digital games with proper content may have positive effects on players. Furthermore, different contexts of certain content, such as violence or prosocial behavior in games, may have different effects on players. For example, rewarded violence in games may promote aggressive behavior in players (Shibuya, Sakamoto, Ihori, & Yukawa, 2008). Different types of prosocial behavior may affect players' prosocial tendencies differently (Lim & Sasaki, 2017).

To establish rules for proper use of digital games, it is important to acknowledge both the positive and negative effects of digital games on both parents and children. Also, to help parents and children choose games with proper content, it is important to inform them about CERO ratings and content icons, especially for parents who do not play digital games. In the previous study on ratings, and parents' and gamer players' perceptions, Sasaki and Lim (2018) stated that the Third-Person Effect (Davison, 1983) and desensitization (e.g., Carnagey, Anderson, & Bushman, 2007) may affect the perceptions of parents and game players, respectively. The Third-Person Effect may cause parents to think that their children are more apt to be influenced by digital games. On the other hand, game players may be desensitized

by the prevalent depictions of violence in digital games. It is proposed in the study that the standard of female game players—those playing games for about one hour per week—may be the most balanced as compared to the standards of parents and game players. This suggests that the experience of game play is important for a better understanding of the content of digital games and thus for the establishment of rules for the proper use of digital games.

In order to educate parents and children on the proper use of digital games, using the Internet seems to be the most effective. Social networking services like Instagram could be used as a source of information and for exchanging opinions, as the opinions of other parents are referred to as often as children's opinion themselves. It must be noted that in the survey, there were some parents who did not refer to anything because they considered whether or not to let children play digital games a discipline problem, and they did not want other people telling them what to do. Nevertheless, it is still important to make information available in case it is sought.

Conclusion

The current study showed that about 70% of parents played digital games with children. Many parents respect childr en's opinions when buying games and also when deciding on rules for children's game use. Regarding the research q uestion, the findings indicate that although parents pay attention to depictions of violence, sexual expressions, and la nguage in games, a majority of parents are not aware of CERO ratings and content icons, which contain informatio n on violence, sexual expressions, and language in games. Also, only about 40% of parents were worried about children's game use. Although digital games are sometimes blamed for youth crimes (e.g., "Trump turns spotlight on violent video games in wake of Parkland shootings" abc News, March 8th, 2018), fortunately, parents may not be making a hasty judgment on digital games. If they have easy access to the informatio n on the content of digital games like CERO ratings, the information would be able to help parents guid e their children to the appropriate digital game use.

While many studies are conducted on game effects and game ratings, there seems to be a gap between academic research and practice. However, as digital games are getting more popular every year, and as children are not only playing games but are also starting to make games with programming education coming to school, it is critical that parents watch out for children's game use by not only limiting the time of game play but also paying attention to what and how they play.

As for researchers, it is crucial that they put their efforts into guiding parents and game players (children) toward proper game use, based on reliable studies. For further studies, it is essential to understand how each factor in game play affects children and how the results can be put into practice. For a more in-depth discussion, qualitative studies could be conducted using focus groups, observation, or interviews.

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