Attitude change towards aggressive behaviors in adolescents

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Abstract. Aggression and its relationship with violent video games have been studied for a long history. Among all different ages, adolescents might be an important group because they are at the stage of changing from childhood to adulthood, from immature to mature. More critically, adolescence is a stage of people to identify themselves. Their identification during this phase might be helpful in predicting their future behaviors and development. As empirical studies with comprehensive designs are critical to carry out effective research and obtain reliable data, a review has been made on a paper examining the relationship among aggression, violent video games, and wishful identification in adolescents. The review with modification could be helpful for future studies to investigating harmful consequences from violent video games on adolescents' identification. This paper has identified two major problems of the study: one is its unclear causes of aggression - weather is due to violent element of games or the self-inference from characters' appearance; the other is its problematic participants selecting. Suggestions have been given by providing more variations on games' character appearance in order to deal with the causal problem. By increasing the sample size, the diversity of participants could be ensured, the sample could be more representative than before, and the problem could be solved.

Keywords: Aggression; Self-identification; Adolescents; Violent video games.

1. Introduction

Aggression has been studied from many different facets. There are studies examining the neural and hormonal mechanisms in aggression [1-4]; the genetic factors in developing aggressive behaviours have also been studied [5, 6]; and with the popularization of electronic devices, people are exposed to media (e.g. games, online chat, tv shows) more than before. The influence made by media could be either positive or negative. A typical example is Bandura and Walters' role learning, where children were taken negative effects through media in learning how to treat bobo dolls [7]. Among all other media, video games are uniquely important because on the one hand, the interactive feature of video games, unlike tv series or films, would enforce users to take virtual characters' (avatars) perspective to play the game [8]. On the other hand, the figure of gamers who actively involved in game playing has increased from 1.99 billion in 2015 to 2.69 billion in 2020, and the number is continually growing [9]. By surveying 1423 students from middle and high schools, a study has revealed that over 90 percent of participants have played video games [10]. Thus, with such great coverage of gamers, especially a high percentage of video game users in middle and high schools, attention should also be paid to adolescents. The study of media impact on adolescents is critically important because adolescents, especially in their early and middle stages, are more vulnerable to the influence transferred from media [11]. The poor development during their adolescence period might lead to a negative consequence in real life [12]. Moreover, self-identification has also developed during adolescence period, and it is a great predictor of one's future development. Research investigating the violent video games' impact on adolescents' self-identification can fill the gap and provide potential suggestions for intervening in the development of human well-being. Thus, this paper aims to modify an experiment conducted by Konijn et al., in which they have paid attention specifically to adolescents' wishful identification, from the potential influence made by violent video games [8]. The modification of the experiment can provide a more reliable study design which promotes a better perspective in examining the relationship between violent video games on aggression and adolescents' self-identification, also rendering useful information for later study in preventing adolescents' unhealthy development from video game influences.

2. Overview of Study

The original experiment is designed to study whether the players identified with violent game characters are prone to become more aggressive after violent video games, and the population was targeted at adolescents [8]. During the study, 112, and 99 at last, low educational ability adolescent boys were recruited [8]. A questionnaire was conducted prior to the experiment by measuring and controlling trait aggressiveness and video game exposure [8]. The investigation has been split into two phases. In the first phase, participants were randomly assigned to play one of the twelve games which were categorized as fantasy or realistic violent video games and fantasy or realistic nonviolent video games [8]. After playing the game for 20 minutes, the experiment entered into phase 2 by inviting participants to perform a reaction time task as a competition with an ostensible partner [8]. Participants have been informed that the one who failed in the competition would face punishment for a burst of noise through the headphones they were wearing [8]. The volume of noise was asked to be set in advance, ranging from 1-10, and participants were told that the level of noise from 8-10 could make a damage to the acoustic ability of the listener permanently [8]. The noise level participants set was used as the measurement of aggression level [8]. Several rating scales were also asked to complete after the reaction time competition by measuring how wishful participants are willing to identify themselves with the character in the game they have played, the realistic and immersion level of the game, and participants' opinions on whether the games they played were aggressive (ranging from 1-10) [8].

The result shows that violent games were rated more violent than nonviolent games, with a mean of 2.33 and standard deviation (SD) of 1.20 in violent games against a mean of 0.63 and SD of 1.03 in nonviolent games [8]. Additionally, participants were more aggressive if they played violent games compared to participants played nonviolent games [8]. Moreover, results have also shown that participants with higher level of wishful identification inclined to be aggressive, and participants' willingness to identify themselves with the character in violent video games was significantly associated with aggression (see figure 1) [8].

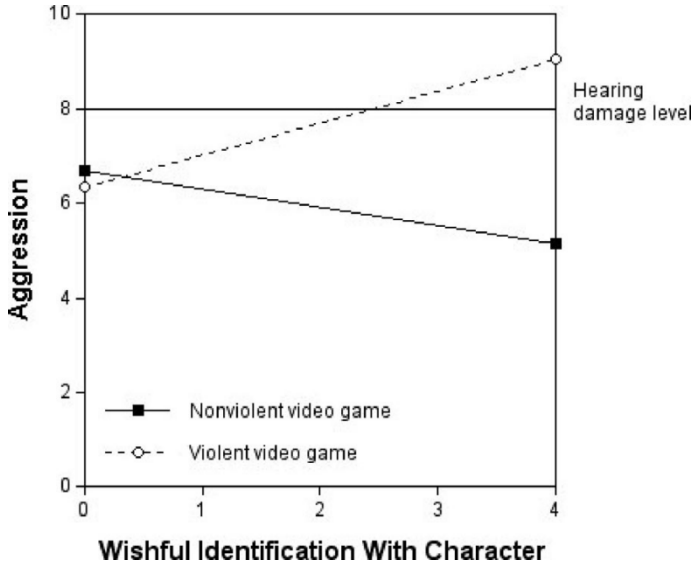

Fig. 1 Relationship between wishful identification with nonviolent and violent games and aggression level [8]

3. Problems and suggestions

There are two major potential problems that could be identified in this experiment; the second one is made by extending to the socioeconomic status' problematic setting:

Participants' behavioral and attitudinal change may be rendered by factors other than wishful identification. Namely, the proteus effect, which is caused by participants' inference from avatars' appearance, could be one of the potential factors.

Education ability and socioeconomic status matter in aggression research. Furthermore, the willingness of participants to identify themselves with game characters might be unrelated to violent elements, but rather a form of escapism.

3.1. Wishful identification

3.1.1 What causes it?

One important feature of this study is its focus on wishful identification. Konijn et al. base their study on social learning theory by assuming that media offer multitudinous of role models for observers to emulate behaviors and attitudes towards others. There are two types of identification have been identified in the study. One is similarity identification, and another is wishful identification. The former refers to the idea that observers imitate a model because models share salient characteristics in common with them.

In contrast, wishful identification refers to the idea that observers desire to imitate the character, either assume the role models as a goal of self-development or deem them in a particular sense as a learning response for a specific situation [8]. Konijn et al. continue to state that wishful identification can offer a temporal experience of 'what if', namely that video games could provide a scenario for users to experience what will happen if they act as so [8]. Studies show that boys are often rewarded for being aggressive, thus Konijn et al. hypothesized that adolescent boys are prone to emulate and act aggressively after phase 1 of the experiment than others if they wishfully identify themselves with violent characters [8, 13, 14].

However, this assumption has presupposed that participants who performed aggressively after the experiment were self-facilitating themselves to be more aggressive - the action of imitating the violent characters in games is because participants are wishfully identifying themselves with aggressive characters. It is possible instead that there is another factor influencing and causing the attitudinal change of participants, for example, the proteus effect might be an option. 'Proteus effect', studied by Yee and Bailenson has shown that identity cues from users' avatars can cause users to change in attitudes and behaviors [15]. In other words, it is a term used to describe the phenomenon that users are conformed to the expected dispositions (attitudes and behaviors) they inferred from their avatar's appearance. The study has revealed that an avatar's attractiveness (or height) could affect a participant's behaviors and attitudes [15]. In contrast to those assigned unattractive avatars, participants with attractive avatars were becoming closer to other people and disclosed more personal details about themselves to others after the virtual experience. Various recent studies have confirmed the strength of the proteus effect [16, 17]. For instance, researchers found that participants who embodied an Albert-Einstein-like avatar outperformed in the puzzle-solving task than those who embodied a normal individual [16]. Therefore, adolescents being vulnerable to this impact indicates that they are vulnerable to capturing influence from media. Hence, a comprehensive examination of what has played the major role in aggression development is expected. Specifically, whether their longing to learn the role models for reward or the physical attributes has led to attitudinal and behavioral change needs further clarification.

3.1.2 Suggestion

The study could be improved in terms of this problem by using different in-game modifications. For instance, in the same game, some participants can be assigned to play the original character, which has the default appearance, and some of the participants can have a modified version of the appearance. For example, if the default appearance is a man with a fiendish look, a modified version could be a man or woman with an attractive appearance. Later a comparison of aggression levels between participants with fiendish appearances and participants with attractive appearances could be

conducted to see whether there will be a significant difference between them, and whether the change in aggression level from participants who played the modified version is significant or not.

3.2. Education Ability and Socioeconomic Status

3.2.1 Similarity or Wishful?

Another problem of this study is the participants they recruited were boys who had been allocated to the lowest educational ability levels, and low-income students are appeared mostly from these levels [8]. It leads to two conditions for considering the appropriateness of participant selection.

Regarding educational ability and aggression, a study has recruited over 27,000 participants to measure the relationship between aggression and education performance [18]. The age of participants ranged from 7-16, and their educational ability was measured by either teacher-rated grade point averages or standardized test scores [18]. The level of aggression is inter-rated by both parents and teachers of participants [18]. The results have shown that across different ages, raters and measurements of academic performance, there is a robust negative correlation between academic performance and aggression [18].

Regarding socioeconomic status and aggression, a series of studies have demonstrated that people with low socioeconomic status are more aggressive than people with high socioeconomic status [19]. The underlying mechanism is that people with low levels of socioeconomic status, when they feel at a disadvantage, would elicit the experience of disadvantage, which in turn promotes hostility and perform aggressive behaviors lastly [19]. Thus, it also indicates that there is a negative correlation between socioeconomic status and aggression [19].

Thus, the correlational relationships revealed in the two studies stated above imply that participants from low educational ability levels might originally be aggressive already, and the later performance in the reaction time task could merely be a normal performance. Moreover, the characteristic of low income is often associated with the poor quality of the neighborhood, for example, exposure to neighborhood violence and sensation seeking. Although the study states that trait aggression has no significant correlation with violent video games, sensation seekers' aggression level has risen [8]. Following the social learning theory, Konijn et al. endorse an inference could be put by combining social learning theory with exposure to poor quality of neighborhoods that participants may have learnt how to cope with others from neighborhood violence and later performed in reaction time task, rather than due to the reason that violent games cause participants to be aggressive. Since participants have already associated themselves with the element of violence, and the violent characters share the element of violence with the participants themselves. Hence, participants who identify themselves with violent game characters should be considered as a form of similarity identification rather than wishful identification.

3.2.2 Identification for Escapism

Moreover, exposure to violence resulting from the socioeconomic status problem might further lead to a consequence. As investigated by Fitzgerald et al., children with exposure to neighborhood violence will become poorer in emotion regulation [20]. Another study has found that the maladaptive style of emotion regulation and difficult emotional experiences can increase aggression [21]. The relationships from two study findings imply it is possible that the measured aggression—participants showing a lack of empathy in increasing the volume of sound, which might cause permanent acoustic damage, is due to participants' background rather than the effect of video games. Furthermore, by extending the inability to emotion regulation problem of participants, a third identifiable problem is about whether playing violent video games plays a role in causing one to wishfully identify with aggressive elements or whether such wishful identification is rather a form of escapism. It has been found from problematic video gamers that higher emotion dysregulation is associated with addictive involvement in the game (world of warcraft in this study), and the escapism motivation may reinforce the addictive involvement in games from emotionally dysregulated people [22]. The reason for addictive involvement is that gamers with emotion dysregulation may rely on game experience to

regulate their adverse emotional experience, which eventually developed as a coping strategy. Additionally, the interactive feature, or deeply immersive feature of games, further enhanced the likelihood of such problematic behaviors.

Thus, it is possible that participants' wishful identification is not related to the violent element of the character; rather, it is the willingness to be that character in the game that matters to participants. Because during the study, in measuring wishful identification, participants were asked questions such as "I wish I were a character such as the one in the game" in the questionnaire to investigate whether they are wishfully identify themselves with game character [8]. Hence, for a possible emotionally dysregulated participant, they might agree to such identification due to the reason that they want to escape from their adverse emotional experience.

3.2.3 Suggestion

A better way to alleviate the problems mentioned in the second subsection is to expand the limited conditions, namely the low educational ability and low-income background, to an appropriate amount. Adolescents from different educational ability levels and from different socioeconomic statuses should all be recruited to ensure the reliability of the study results since the findings should cover all adolescents rather than low education ability adolescents. Moreover, the study can further provide data on the relationship between adolescents and aggression from video games, rather than the relationship between low educational ability adolescents and aggression from video games. In addition, attention should also be paid to the emotional dysregulation of participants. The study measured the time exposure to video games but only concerned it as a condition for selecting participants. A modification might be made by taking time exposure as a variable in causing aggression, for example, by changing participants with different levels of emotion regulation, and to see whether there will be a robust correlation between wishful identification and violent characters.

4. Conclusion

This paper has explored a potential modification that could be utilised in investigating the relationship between adolescents and aggression in video games. Problems have been demonstrated that the original study might misidentify the cause of violence preference. It could be that participants' inference of characters' internal attributes made them change into a more aggressive attitude, which in turn made them wishfully identify themselves with violent characters. Moreover, the sample selection has also posed a problem in the experiment. The low educational ability and low socioeconomic status both indicate that the population from this specific population is more likely to be aggressive than normal adolescents and cannot be representative of all adolescents. Furthermore, the willingness to identify themselves with game characters from such a population might not be the same as the study has originally postulated. Due to the complexity of the population, there are some other potential factors that may interact with aggression development, and the wishful identification with game characters might merely be a form of escapism. Therefore, a few suggestions have been made for the problems by changing the appearance of game characters and increasing the sample size. With more diversity in the sample, a more reliable correlation between adolescents and aggression in video games could be found. Such findings could be used in future interventions to prevent adolescents from becoming aggressive or unhealthy and help them maintain personal well-being.

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