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The Relationship Between Emotion Regulation and Video Games

Charlotte J. Splendido
La Salle University, splendidoc1@student.lasalle.edu

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La Salle University

Abstract

64% of homes have at least one person who plays video games regularly (The ESA, 2018). With the continuously growing popularity of video games comes debate about the potential detriments that gaming may have on people's health, particularly children. On the news, video games are often painted as unhealthy, claiming that gaming is addicting and leads people to become antisocial. The media also quickly points to the violent content of some video games as the cause for violent acts. Studies have been conducted to analyze negative effects of video games, such as violence or addiction, but fewer studies have researched potential benefits of playing video games. This study aimed to research the possible correlation between healthy emotion regulation and time spent playing video games.

Keywords: emotion regulation, cognitive emotion regulation, behavioral emotion regulation, video games, motivation, prosocial behaviors, prosocial skills

The Relationship Between Emotion Regulation and Video Games

James Gross describes emotion regulation as "shaping which emotions one has, when one has them, and how one experiences or expresses these emotions" (1998b). Emotion regulation involves both altering internal emotions and the outward expression of emotions. Will someone who is sad try to put on a happy face? Will someone who is angry stomp their feet in a fit? Some thought processes and behaviors are more adaptive than others. For example, learning to distract one's self from disappointing news is adaptive compared to spiraling into self-blame. Withdrawing from loved ones and isolating one's self is more maladaptive than reaching out for social support. Many people turn to distractions to take their minds off whatever is distressing them or help turn to more positive emotions. For many people, these distractions are video games. Perhaps playing Candy Crush is enough to take people's minds off of negative emotions, but what if video games integrate other adaptive strategies of emotion regulation?

Millions of children have been raised around technology, finding access to the Internet and video games with almost no effort. With this rise in popularity and the ever-improving technology of this generation, video game developers have added more complex elements, intriguing settings and visuals, and engaging game mechanics. The increasing complexity of video games requires players to have greater focus on learning mechanics and information as game difficulty increases. Game developers have become very adept at maintaining a challenge to keep the players' attention and desire to play, but not so much that it is impossible to win or overly frustrating. If at first they do not succeed, they are encouraged to try again with a new strategy or given a hint on how to improve. This effort is rewarded by continuing the game or winning a level. This continues until the game ends, allowing players to accumulate more skills

and techniques, recognize patterns, find solutions, and manage emotions in the face of victory or defeat (Tichon and Tornqvist, 2016, pg. 250-259).

Emotion Regulation in a Virtual Setting

In an article analyzing the positive benefits of playing video games, Isabela Granic, Adam Lobel, and Rutger C. M. E. Engels analyze multiple genres of video games and the effect they have on cognitive functions, motivation, emotions, social behaviors, and more. The researchers hope to inspire research into health benefits for intervention researchers and practitioners (Granic et al. 2014, pg. 66). For their research into potential benefits of gaming, they described benefits for the cognitive functions, motivation, mood management for emotions, and prosocial behaviors. When looking at emotional benefits, their research shows that gaming evokes positive emotions as well as frustration, anger, anxiety, and sadness. While playing in a controlled, virtual setting, players are able to enjoy games while also learning to process, control, or adjust their negative emotions. The game is immersive enough to elicit these emotions, but it is a low-risk "environment" that does not have a real-life consequence to the player. The player can experience a range of emotions without anything harmful happening as a result. The different emotions elicited in the gameplay, both positive and negative, seem to promote flexibility and emotional regulation, along with reframing and problem-solving (Granic et al. 2014, pg. 70-72). Reframing is a helpful way to adapt to failure and regulate emotion. Rather than dwelling on a failure or negative emotion, players are encouraged to look at a problem from a new perspective in order to solve it.

Motivation and Emotion Regulation

Gross describes how motivation involves a *reward system* which encourages a behavioral approach toward rewarding or appetitive stimuli or to minimize loss (2014, pg. 471). Video

games incorporate this type of reward system to engage players and encourage them to continue

playing. By giving the players a challenge that is not too easy, but not too difficult, players want

to win and receive the reward of their success. In the Granic study, they found that a "sweet

spot" of challenge level and frustration, success and accomplishment, and adjusting difficulty is

a consistent challenge to the players. While the game grows more complex and demanding,

players want to complete it to feel the reward and continue playing. It was even found that failing

the level did not immediately make the players upset or angry. Instead, it was found to provide

more motivation to try the task again and improve (Granic et al. 2014, pg. 72-73). Developers

first design levels that build the players' skills and show them how to succeed.

Motivation to continue or try again in order to succeed is an essential part of emotion

regulation. When looking at cognition, acceptance of a failure or stressful event is an adaptive

strategy compared to dwelling on the negative feelings and ruminating (Kraaij, 2014, pg. 32). A

good step in an adaptive strategy is to refocus attention on planning how to improve for the

future, similar to adapting how to conquer a game level in order to win and continue with the

knowledge the players now have (Kraaij, 2014, pg. 33). In the event that the player fails a level,

that person has the capability to try again with a different approach with a new sense of

determination. If this way of thinking can be translated into real-life strategies, the evocation of

emotion combined with the motivational factors of videogaming could potentially be very

beneficial in acquiring improved coping strategies.

Prosocial Skills and Emotion Regulation

Another advantage of the popularity of video games that is not highlighted by popular

media is the encouragement to play with multiple people. Online multiplayer games allow people

from all over the world to play the same game. Many have the choice to have players compete

against each other or work together. The popularity of gaming consoles like the Nintendo Wii, Wii U, and Switch has encouraged play between family members and friends. Just like board games in years prior, groups of people can bond together and share positive emotions. In the case of emotion regulation, playing games with friends or family can provide a distraction, comfort, and support following a stressful event.

Studies have found that players gain prosocial skills when playing games that emphasize cooperation, support, and helping. Surprisingly, video games with violent content that encourage cooperation still decreased aggressive cognitions and increased prosocial behavior outside of the game (Granic et al. 2014, pg. 72-73). In a study on multiplayer games such as *World of Warcraft*, Brandon K. Ashinoff emphasizes that cooperation and strategizing with fellow players are needed in order to have the best outcome for the team (Ashinoff, 2014). In another study, Ashinoff found showed that participants who played the prosocial game were more likely to help confederates in their tests, contradicting the media portrayal that all gaming leads to antisocial, isolationist behavior. If gaming can provide a social support network for players, this can open the door for better help-seeking behavior in the face of stressful events.

Video Games as a Potential Teaching Tool

As previously stated, players often need to learn elements of the video game that they are playing. This does not mean that what they learn needs to be limited to within the game only. Ashinoff also explains that although video games are played "for fun," he argues that people can acquire better skills and learn. For his example, he mentions people who play Pokémon for fun. Many of these people know hundreds of names, types of Pokémon, symbols, etc. If this is possible, this means that there is potential for a game to use similar techniques to help people learn things like the periodic table (Ashinoff, 2014). If a game requires players to learn how to

best manage time and resources, potentially transferring to real-life situations, other skills can be learned as well.

Conclusion

These studies show that there are correlations between these positive benefits and certain video games. It is important to note, however, that these studies cannot definitively establish whether people with better emotion regulation, motivational thinking, prosocial skills, etc. are drawn to these games or if the games have had a direct, positive effect on them.

This previous literature provides even more reason to research whether video games can help people learn and develop skills for better emotion regulation. Through, but not limited to, increased motivational thinking and prosocial behaviors that are encouraged through game play, there is a possibility for healthier emotion regulation. If video games prove to be a viable teaching tool, whether it be through repetition or building upon previously learned skills, games can potentially be used to help people learn or improve their real-life skills or as an intervention to learn healthier coping strategies.

The Current Study

The research in this study aimed to show an association between adaptive emotion regulation and video game play. The hypothesis of this experiment was that the engagement of emotion through virtual settings, adjusting difficulty, and social aspects of gameplay can be correlated with players' emotion regulation, particularly with emotional flexibility, motivation and resilience, and prosocial behaviors. This study is unable to establish causation as an association claim. If gaming is found to be associated with healthy emotion regulation, more research into whether there is any causation could be beneficial for future studies.

Method

Participants

There were 52 participants in this study. Of these participants, 41 identified as female, 10 identified as male, and 1 identified as gender variant/non-conforming. The target population was young adults at La Salle University in Philadelphia. Participants could be of any gender and needed to be between 18 and 25-years-old. The ability to read and speak English and have access to the Internet was required. Previous experience with video games was encouraged but not a requirement. This study used convenience sampling to recruit participants who volunteered. Potential participants were made aware by presenting the study in classes with the permission of the professor. The link to the study's Qualtrics survey, contact information, and brief details about the study were given so that people interested in participating could contact the researcher and learn more if they wished. Snowball sampling was utilized in order to encourage more students to participate. Accepted participants were asked to mention the study to people they knew who might wish to participate.

Measures

Variables in this study were:

- Time spent playing video games

- Cognitive Emotion Regulation Questionnaire scores

- Behavioral Emotion Regulation Questionnaire scores

- Demographic information

Time spent playing video games. The first part of a self-report questionnaire was about the participants' time spent playing video games in a given month. They were asked to choose between never, once a month, two or three times a month, at least once a week, and daily.

Cognitive Emotion Regulation Questionnaire (CERQ). The CERQ (Garnefski, Kraaij, Spinhoven, 2002), a thirty-six-question survey, was used to measure the cognitive strategies used by participants to regulate emotion. The questions were answered using a five-point Likert scale ranging from almost never to almost always. This questionnaire focuses on these cognitive strategies of emotion regulation: self-blame, acceptance, rumination, positive refocusing, refocusing on planning, positive reappraisal, putting into perspective, catastrophizing, and blaming others. An example of each section and its description are as it appears in the survey is as follows:

> *Self-Blame:* putting the blame and/or the cause for what happened on yourself and being preoccupied with thoughts about the mistakes you yourself have made.

> A high level of self-blame and the guilt that accompanies it can be associated with symptoms of psychopathology (Garnefski, Kraaij, Spinhoven, 2002).

> *Acceptance***:** you resign yourself to what has happened and accept it, thinking that it cannot be changed and life goes on.

> While acceptance is usually considered a good strategy for coping with stressful events, a very high score can possibly indicate a negative form of resignation, being associated with symptoms of psychopathology. A low score of acceptance can also be associated with symptoms of psychopathology (Garnefski, Kraaij, Spinhoven, 2002).

> *Rumination***:** thinking all the time of and/or being preoccupied with the feelings and thoughts associated with the negative event.

> Rumination is a common strategy during stressful events; however, a high score can be highly associated with symptoms of psychopathology (Garnefski, Kraaij, Spinhoven, 2002).

Positive Refocusing: thinking about other, pleasant matters instead of the event in question.

A low score of positive refocusing can be associated with lower emotional well being (Garnefski, Kraaij, Spinhoven, 2002).

Refocus on Planning: thinking about which steps to take in order to deal with the event or thinking up a plan to change the situation.

Although a high score is considered a good strategy, it is important that this strategy is *acted upon*. If this strategy is not acted on, then a high score can still be associated with emotional problems. A very low score is also associated with emotional problems (Garnefski, Kraaij, Spinhoven, 2002).

Positive Reappraisal: mentally attributing a positive meaning to an event in terms of personal growth, thinking that the event makes you stronger, looking for the positive sides of an event.

Similarly to refocusing on planning, a high score of positive reappraisal is considered a positive coping strategy as long as it is acted upon. A very high score without action and a low score can also be connected to emotional problems (Garnefski, Kraaij, Spinhoven, 2002).

Putting into Perspective: thoughts that play down the seriousness of the event when compared to other events and to emphasizing in your mind that there are worse things in the world.

Catastrophizing: recurring thoughts about how terrible the event has been and about what you have gone through being the worst thing to happen to a person, much worse than what others experience.

A high score of catastrophizing is associated with emotional problems (Garnefski, Kraaij,

Spinhoven, 2002).

Blaming Others: putting the blame for what you have experienced on others, holding

others responsible for what has happened and/or thinking about the mistakes others have

made in this respect.

The risks of this questionnaire are minimal. If a participant felt uncomfortable with a

question pertaining to their thinking when faced with stressful life events, they were able stop the

survey. (Garnefski and Kraaij, 2019).

Behavioral Emotion Regulation Questionnaire (BERQ). The BERQ (Kraaij and

Garnefski., 2019), a twenty-question survey, was used to measure the behavioral strategies used

by participants to regulate emotion. The questions were answered using a five-point Likert scale

ranging from almost never to almost always. This questionnaire focuses on these behaviors

people use to regulate emotions: seeking distraction, withdrawal, actively approaching, seeking

social support, and ignoring. An example of each section as it appears in the survey is as follows:

Seeking Distraction: distracting yourself from your emotions by doing something else, in

order to cope with the stressful event.

Withdrawal: drawing yourself back from situations and social contacts to deal with the

stressful event.

Actively Approaching: active behavior of yourself to deal with the stressful event.

Seeking Social Support: actively sharing emotions and asking for support and advice in

order to cope with the stressful event.

Ignoring: ignoring and behaving like nothing has happened in order to deal with the

stressful event.

When analyzing the effects of these strategies, seeking distraction, actively approaching, and seeking social support were found to be helpful while withdrawing and ignoring were found to be unhelpful. The risks of this questionnaire are minimal. If a participant felt uncomfortable with a question pertaining to their thinking when faced with stressful life events, they were able to stop the survey. (Kraaij and Garnefski., 2019).

Demographics Questions. The study asked participants their age and which gender they most identify with. Participants would enter an age between 18 and 25 and choose between the following for gender: female, male, transgender female, transgender male, gender variant/non-conforming, not listed, and prefer not to answer. Participants may type their gender under the "not listed" category.

Procedure

The study was approved by the Institutional Review Board (IRB) after making modifications. The necessary steps to make the study ethical were taken to ensure that participants did not need to fear punishment for ending participation, avoided bias and special interests, and provided information for counseling resources in the event that a participant required them. All volunteer participants were given a consent form on Qualtrics before taking the survey. They were informed that the survey would likely list 20-30 minutes. Once they had read this form and took time to contact the researcher with any questions, they were asked if they wanted to take part in the study. If the participant agreed, they were asked to give consent. If they chose to not provide consent, the survey ended. If at any time the participant did not wish to participate anymore, the person could exit the survey at any time. Any compensation for participating in this study was in the form of extra credit from a professor with his or her permission. If the participant did not consent to or complete the study, extra credit was not given.

Participants who consented would complete the sections on video game play, the

Cognitive Emotion Regulation Questionnaire, Behavioral Emotion Regulation Questionnaire,

and demographic questions. Although a total of 68 people participated in the study, only 52 of

these participants completed the survey. The 16 incomplete responses were omitted from the data

analysis. Those who completed the survey had the opportunity to earn extra credit with their

professor's permission.

The description of the study was adjusted to emphasize that this was not a causational

experiment. It is not claiming to "prove" anything. It is an association claim that aims to

encourage more research into potential benefits of video games.

Results

Of the 52 participants, 12 never play video games, 11 play once a month, 10 play two or

three times a month, 9 play at least once a week, and 10 play daily. Tables 1 and 2 below show

the means, standard deviations, and ranges of the emotion regulation subgroups.

Table 1
Means, Standard Deviations, and Ranges of the CERQ Subgroups

CERQ Subgroup	*M*	*SD*	*Range*
Self-blame	11.481	3.44	6.00-20.00
Acceptance	13.673	3.52	4.00-20.00
Rumination	13.192	3.47	5.00-20.00
Positive Refocusing	11.461	3.92	4.00-20.00
Refocus on Planning	14.404	2.99	7.00-20.00
Positive Reappraisal	14.154	3.72	6.00-20.00
Putting into Perspective	14.327	3.32	5.00-20.00
Catastrophizing	9.635	3.85	4.00-20.00
Other-blame	8.615	3.16	4.00-20.00

M = mean
SD = standard deviation

Table 2

Means, Standard Deviations, and Ranges of the BERQ Subgroups

BERQ Subgroup	M	SD	Range
Seeking Distraction	14.558	3.61	4.00-20.00
Withdrawal	13.037	4.39	4.00-20.00
Actively Approaching	13.289	3.60	4.00-20.00
Seeking Social Support	13.308	4.31	4.00-20.00
Ignoring	11.519	3.97	4.00-20.00

M = mean
SD = standard deviation

When analyzing for a potential difference between genders, there was no significant difference found. This may be in part to the low level of male and gender variant/non-conforming participants. There were also no transgender participants to compare results.

When analyzing the participants based on how often they play video games, the results of the analysis of variance (ANOVA) and whether there was a significant difference between groups were as follow in Tables 3 and 4:

Table 3
Significance of Difference between Groups

CERQ Subgroup	*p*
Self-blame	.207
Acceptance	.352
Rumination	.017*
Positive Refocusing	.596
Refocus on Planning	.949
Positive Reappraisal	.348
Putting into Perspective	.161
Catastrophizing	.240
Other-blame	.540

* $p < .05$ has a significant difference

Table 4

Significance of Difference between Groups

BERQ Subgroup	p
Seeking Distraction	.721
Withdrawal	.163
Actively Approaching	.907
Seeking Social Support	.589
Ignoring	.225

* $p < .05$ has a significant difference

Self-blame has a value of p= .207. Although there was not a significant difference found, those who played video games once a month and those who played daily had higher levels of self-blame than those who never play, with those who played daily having a slightly lower mean. Those who played two or three times a month and once a week had lower levels of self-blame than those who never play. Based on this data, the hypothesis is supported when people play a more moderate amount of video games; however, too much or too little gameplay suggests more maladaptive cognitions.

Acceptance has a value of p= .352. There was no significant difference found, but those who play any amount of video games were shown to have higher levels of acceptance compared to those who never play. Playing daily had the highest mean level of acceptance, giving support to the hypothesis.

Rumination has a value of p= .017. A significant difference was found between the levels of rumination for those who play once a month when compared to those who never play and play two or three times a month. Those who play once a month were found to have significantly higher levels of rumination, having the highest mean level of rumination of the study at 15.818. The lowest level of rumination was found in those who play two or three times a month at 11.600, but there was no significant difference from those who never play, play once a week, or

play daily. Although the difference is not significant, daily gaming had a higher mean level of 14.200 compared to never playing, playing two or three times a month, and once a week. Playing two or three times a month and weekly once again shows a positive impact on emotion regulation, but did not seem much different from never playing.

Positive refocusing has a value of p= .596. Although there was no significant difference, all groups who played video games had a higher level of positive refocusing than those who never play. The level of positive refocusing increases with the frequency of game play with the exception of playing weekly, which had a slightly lower mean level than those who play once a month. The highest mean level of positive refocusing was found in those who play daily, supporting the hypothesis.

Refocus on planning has a value of p= .949. There is almost no difference in the levels of refocusing on planning. The mean for people who never play video games was slightly less than those who play once a month, two or three times a week, once a week, and daily, with mean scores of 13.917, 14.636, 14.500, 14.111, and 14.900 respectively. Playing daily had the highest level of refocusing on planning, lending support to the hypothesis.

Positive reappraisal has a value of p= .348. There was no significant difference, but the highest level of positive reappraisal was found in those who play daily at 15.700. On the other hand, those who play once a week had the lowest mean level of 12.778, followed by those who never play at 13.000. Those who play once a month and two or three times a month had a negligible difference between each other. The higher levels of positive reappraisal for playing daily lends support to the hypothesis.

Putting things into perspective has a value of p= .161. The largest difference was found between those who play once a week and those who play daily. Those who play weekly had the

lowest mean level of putting into perspective while playing daily had the highest. Those who never play, play once a month, and two or three times a month had only slight differences between each other. Playing daily seemed to be the most beneficial.

Catastrophizing has a value of p= .240. The greatest difference was found in those who play once a month, which had the highest level of catastrophizing. The lowest mean level of catastrophizing was found in those who play daily, but there was not a significant difference in means from those who never play, play two or three times a month, and play weekly. Playing daily appeared to be the most beneficial again.

Other-blame has a value of p= .540. The greatest difference was again found in those who play once a month, having the highest level of other-blame and playing daily having the lowest. Playing never, two or three times a month, and weekly had marginal differences in means. Playing daily was once again beneficial.

Seeking distraction has a value of p= .721. Although there was no significant difference, those who played weekly had the highest level of seeking distraction with those playing daily slightly lower. Those who never play had the lowest level but was not much different than those who play two or three times a month. All groups who play games had higher levels of seeking distraction, supporting the hypothesis.

Withdrawal has a value of p= .163. Those who never play, play once a month, and play daily have close levels of withdrawal. The greatest difference is found between playing two or three times a month at 10.000 and those who play once a week at 14.667. This suggests that a moderate level of gaming can be beneficial.

Actively approaching has a value of p= .907. There were only marginal differences between the means. The largest difference was between those who never play with a mean of 12.417 and those who play daily with a mean of 13.800, giving support to the hypothesis.

Seeking social support has a value of p= .589. The largest difference came between the means of those who play once a week at 11.333 and those who play daily at 14.200. Those who play once a month came close behind playing daily at 14.091. Never playing had a level of 12.917, making those who play weekly the only group who did not have a higher level of seeking social support. All other group results lend support to the hypothesis.

Ignoring has a value of p= .225. While never playing, playing two or three times a week, playing weekly, and playing daily have closer means ranging from 10.200 to 11.417, playing once a month has the greatest difference with a mean of 13.909. Playing two or three times a month has the lowest mean level compared to playing once a month, making a moderate level of gaming appear more beneficial.

Discussion

For many of the results for different subgroups, video game play appears to be associated with more adaptive, positive emotion regulation strategies when compared to those who never play; however, the frequency of play seems to correlate with different beneficial strategies. For example, more moderate amounts of video game playing, like two or three times a month, were associated with healthier levels of self-blame, rumination, withdrawing, and ignoring. For acceptance, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, other-blame, actively approaching, and seeking social support, playing daily had the most beneficial levels for those subgroups. It is important to keep in mind that the only subgroup that had a significant difference between groups was rumination.

A possible explanation for the significant difference in rumination is that those who never play have other hobbies or coping mechanisms than gaming to turn to. Since those who only play once a month do not utilize games as a distraction, perhaps they tend to dwell more on their unpleasant thoughts than those who play more frequently.

Although there was no significant difference, it is interesting to note that those who play daily had the highest levels of refocusing on planning and positive reappraisal (CERQ) *and* actively approaching (BERQ). This may suggest that those who play daily are more likely to act on their refocusing and reappraisal. By acting on their adaptive strategies rather than not, people who play daily might be more resilient against emotional problems. A possible reason for the increased levels of these subgroups could be related to the attention and reassessment skills required for playing games.

The ability to put things into perspective could also possibly be tied to the need to assess situations in video games. Players are often put in situations that need assessing in order to succeed. In the event that a player fails, the only way to continue is to adapt and try again. These strategies can be extremely useful when applied to real-life situations.

Some limitations to this study were the limited number of male, transgender, and gender variant/non-conforming participants, the desire to be seen in a more positive light, and the limited knowledge of the participants' personalities. Due to the high amount of female participants compared to participants of other genders, the results might be skewed. A future study with a more equal gender ratio would be beneficial. Another improvement to this study could be the inclusion of a social desirability measure. Although the survey was anonymous and it was encouraged to answer the questions honestly, there is still the possibility that participants answered questions in a way that would make them seem more favorable or positive. Questions

involving rumination, catastrophizing, and other-blame could have been skewed due to the desire to be seen in a favorable light. Future studies could also benefit from the addition of a personality measure. Measuring traits like extraversion and neuroticism could give more insight as to what types of people are drawn to video games and how that affects their strategies for emotion regulation compared to others. The addition of asking whether participants play video games with friends, and how often, could be very helpful. This could be another element of seeking social support that might otherwise go unnoticed. More frequent players who play with friends would spend less time isolating themselves and more time seeking distraction with friends.

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