Video Gaming and Its Association with Classroom Attention, Problem Solving and pro-Social Behaviour in Adolescents During Pandemic

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Abstract: Examining whether any association exists between video games and cognitive abilities in children could inform ongoing prevention and management of any possible harm. The objective of this study was to investigate the associations between video games, and classroom attention, Problem Solving and Pro-social Behaviour of adolescents. Present study, conducted on ninety enrolled middle school children aged between 12 and 15 years. Four schools were chosen randomly for this study. The results showed that video gaming was significantly positively associated with classroom attention, problem solving and pro-social behaviour of adolescent during Pandemic. The results suggest a correlation between video games and classroom attention, problem solving and pro-social behaviour in of adolescent during Pandemic is positive especially during pandemic. Those findings indicate the need for more extensive research, and serve to highlight vital next steps needed in future papers, such as identifying predicting factors that could aid in early detection of video gaming in children.

1 INTRODUCTION

The popularization of the internet and the invention of smart phones have a important impact on the use of various types of electronic devices for video games (Farchakh et al., 2020). The frequency of video gamers among the adolescents seems to be even higher, as reported by several studies, indicating that around 80% of adolescents use smart phones for video games, with the average time spent on video gaming estimated to be between 11.3 and 13.2 h a week (Bajovic et al., 2013).

These data could have further increased because of lockdown imposed by the coronavirus (COVID-19) pandemic, officially declared as such on 11 March 2020 by the World Health Organization (WHO). In fact, as COVID-19 is transmitted between humans in closeness, preventive measures, such as mask wearing, social distancing and quarantines, have been employed to prevent the spread of the disease. These “stay-at-home” measures provoked a spread of indoor activities, especially electronic video game playing, which is typically a solitary home pastime.

2 CHANGING PERCEPTION OF VIDEO GAMES

Over the years video gaming has a lot of bad press. Earlier it was considered as only a tool that develops aggression among children. As many other researchers inclined to learn more about the effects of video gaming, the perception of it only having negative effects has changed as they could found the positive effects also (Przybylski et al., 2010). Now perceiving video gaming only as negative is less common. With the advent of more usage of Smartphones and Tablets, the number of users playing video games also increased on a regular basis. It has been proven that more than 50% of the gamers are now females. As many studies proven that video gaming improved the cognitive functioning (problem solving, reasoning and decision making), visuo-spatial skills, eye hand coordination, pro-social behaviour etc., the society now appreciates video games. Off late the trend has been changed and the society perceive video gaming as an effective teacher that affect players in multiple domains (Čábelková et al., 2020).

The rising popularity of video games has instigated a debate among parents, researchers, video

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game designers, and policymakers concerning about the potential harmful or helpful effects of video games on children. Views expressed in best debate have often been extreme, either idealizing or vilifying video games delighting (Zayeni et al., 2020).

2.1 Dimensions of the Effects of Video Games

The first dimension is the amount of game play that could have an impact on the low academic performance and can develop obesity (Kracht et al., 2020). The second dimension is based on the content of the video game that is played which is related to pro-socially behaviour in order to increase helping and empathy among the players (Przybylski et al., 2010). The third dimension is the context of the video game being played can create a collaborative learning. The fourth dimension is on the effects of games structure that can increase visual spatial skills and improve attention. The fifth dimension speaks about the mechanics of video gaming; it plays a dual role having positive and negative effects simultaneously taking place. The above explanation will give a conceptual framework about the evolution of videogame and the effects of it among the video game players (Zayeni et al., 2020). Focussing on these frameworks the researcher has explored various correlates of videogame playing. There are many long-lasting positive effects of videogames on the basic mental processes. These mental processes or the cognitive correlates include perception, attention, memory, problem solving, pro-social behaviour and decision making and many more.

2.1.1 Attention

Video gaming enhances the spatial distribution, spatial selectivity, capacity, temporal resolution, efficiency, top-down guidance of attention. In addition to the greater spatial distribution of attention they can even identify the central target shape example diamond or square, this shape congruency is an indicator of increase in one's attention capacity.

2.1.2 Problem Solving

Videogames are series of puzzles and tools to facilitate decision making capacity. It creates an environment in which the players should take decisions quickly and to adapt to the changing circumstances and rules. These circumstances encourage cognitive flexibility, tolerance of ambiguity, and comfort with decision making without full information, excellent skills for dealing with real world situation on a daily basis at work, school and at home.Video games provide an excellent training to develop leadership strategies and henceforth it teach the types of environment that facilitates adaptive decision making. Video game acts as a training module to boost up the creative ways of children by solving puzzles and related problems in short burst. Each puzzle acts as a module which gives the brain the real workout almost every second of the game. Such training will help the players to decide very quickly and to come up with a solution to the problem. Video games are fundamental aspects of learning that provides a real goal driven experiences to the players.

2.1.3 Pro-Social Behaviour

The violent video game literature on pro-social behaviour is limited and somewhat contradictory. Seminal work by Chambers was among the first to demonstrate that violent video games can reduce pro-social behaviour by showing that children who played a violent video game donated less to charity than those who played a pro-social game. Subsequent experiments found that participants who played a violent game, compared to a non-violent game, were less likely to reward a confederate (Shliakhovchuk & García, 2020), and less likely to cooperate. However, an experiment conducted by Rudolf and Kevin failed to reveal an expected detrimental effect of violent video games on pro-social behaviour (Rudolf et al., 2020). In G Dale and A Joessel experiment, the researcher asked participants to play either a violent, non-violent, or pro-social video game, and then surreptitiously spilled a handful of pens on the ground, before observing whether the participants helped gather the spilt pens. Participants who had played the pro-social video game picked up more pens than those who played a violent or non-violent video game. Importantly, there was no difference in frequency of helping between the violent and non-violent games (Dale et al., 2020).

The present research was focussing on the study of choices of video gaming on the dimensions or correlates like classroom attention, problem solving and prosocial behaviour while the children play video games. Hardly, the study was being researched on the same topic. Many will be curious to know the difference while playing videogame pre and during covid scenario. So this study was conducted to compare the choices of children pre and during COVID situation.

2.1.4 Classroom Attention

A growing body of evidence suggests that videogames may exacerbate attention problems and can interfere in the classroom also (Alamri, 2016). Several studies have found correlation between attention problems in childhood and video game play (Praveen Kumar & Vasimalairaja, 2020). High excitement, sudden and rapid changes of focus during video game play may weaken children's abilities to concentrate and focus on less exciting tasksthat can reduce their attention spans (Fogel et al., 2010). In a longitudinal study by on video game use and attention problems, video game play predicted children's attention problems 13 months later, even while controlling for other relevant variables(earlier attention problems, television viewing, and gender). The three-year longitudinal study of more than 3000 children found evidence of a bidirectional relation between attention problems and video game playing hence found a strong relation between the amount of gaming and later attention problems than for the content of gaming.

3 PROBLEM SOLVING

Video game playing is also an effective tool, with its interactive and decision affecting nature it encourages problem solving skills among the players (Praveen Kumar & Vasimalairaja, 2020). When children sit to play a video game the cognitive capacity is increased and the brain remains intact and alert (Hamlen, 2018). Due to the challenging nature of video games, the chance of improvement of abilities to adapt to the circumstances and quick-thinking skills is higher (Suziedelyte, 2015). Most of the video games are logically based that need thought-out moves and the ability to decide to conquer the challenges (Buelow et al., 2015).

The skill-challenge balance will help to regulate the emotions in a productive way which will avoid boredom and with less anxiety (Choi et al., 2020). This can be termed as arousal. The flow path is with the integration of clear goals and the player will be focused and concentrate more on the task completion, thinking rapidly reaches the arousal state and results in problem solving (Pallavicini et al., 2021).

4 RATIONALE AND SIGNIFICANCE OF THE STUDY

Video games are a ubiquitous part of almost all Children's and adolescence life. The vast majority of research by educationists on the effects of gaming has been on its negative impact on the potential harm related to violence, addiction and depression (Greitemeyer & Osswald, 2010). Majority of the people recognise the value of the research has a negative consequence however the current research focuses on the more balanced perspective and it is the need of the hour that considers, not only the possible negative effects but also the benefits of playing the video game. In the present era, the need of studying the potential benefits of the videogames is more important as from all the age groups especially when in the pandemic time children do not interaction with their friends; from children to adults playing videogames is an important part of their life because the nature of the video game has changed dramatically in the last decade which is becoming increasingly complex, diverse, realistic, and social in nature. In the present research the focus is mostly on the positive benefits of video game while playing during pandemic. Few researches has been taken place to study the effects of video games both while playing and watching, the researcher focussed to know the choice of video games pre and during covid scenario playing also and to how much the this study can contribute to the society. By integrating insights from developmental, positive, educational and social psychology, as well as from media psychology researches propose some candidate mechanism by which playing video games may foster real world psycho-social benefits during pandemic. The current research is to provide strong enough evidence and a theoretical rationale to inspire new programs of research on the largely unexplored educational and mental health benefits of the video gaming.

5 OBJECTIVES OF THE STUDY

Objective1: To study the significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the classroom Attention

Objective2: To study the significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the Problem Solving

Objective3: To study the significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the Pro-social Behavior-

6 HYPOTHESIS OF THE STUDY

Hypothesis 1: There is a significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the classroom Attention

Hypothesis 2: There is a significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the Problem Solving

Hypothesis 3: There is a significant difference between the Pre Covid and during Covid Choice of playing video games with regards to the Pro-social Behavior

7 METHODS & MEASURES

The goal of the study was to compare the choices of playing video games pre covid and during covid with regards to the classroom attention, problem solving and prosocial behaviour. The researcher has adopted a survey design method to know the choices of the children. The researcher used three questionnaires to study the choices of videogames on the variables used like classroom attention, problem solving and prosocial behaviour both in the pre covid and during covid scenario. The demographic detail of the children who was the sample for the study also is assessed. In the present study the population is consisted of all the middle school children belonging to the age group of 12-15 years. This was the population, to which the researcher wanted to generalize the results of the present study. Participants are a subset of people selected from a larger population for the purpose of analysis and making inferences. The participants selected for the present study were middle school children between the age group of 12 to 15 years. The participants were randomly selected by using lottery method and finally the total numbers of participants selected were forty five boys and forty five girls from different sections of grade 5, 6 and 7. From the selected participants 50 percent of them were from grade five, 36 percent were from grade six and 14 percent were from grade seven. Most children were 12 years old (n =45), several 13 year olds (n =28), 14 year olds (n =15) and 15 year olds (n =2). The researcher used both the apparatus and materials for the experimental method.The respondent used twenty-five personal smart mobiles to show videogames of different content and different levels of difficulty. Different videogames were used to know the choice of playing on the classroom attention, problem solving and prosocial behaviour. The researcher employed three questionnaires for the study which will be used. The questionnaires used were adopted a Likert scale method. The questionnaires used for the study were Classroom Attention Scale, Problem solving Scale and Prosocial Behaviour Scale.

SN	Tool	No. of Item
1	Classroom Attention Scale	30
2	Problem solving Scale	31
3	Prosocial Behaviour Scale	26

In addition to the above questionnaire a demographic profile and response sheet was also developed by the researcher to collect the personal data of the samples chosen. For the purpose of establishing reliability and validity of the prepared tools a pilot study was conducted on a sample of 30 middle school students in Bhopal District and had administered in English. Reliability scores for Classroom Attention Scale, Problem solving Scale and Prosocial Behaviour Scale are 0.792, 0.795 and 0.635 respectively. Validity is generally defined as its capacity to measure what it purports to measure. The questionnaires studied by five experts and the contents were found to be relevant with regard to the items. Moreover, the items after being studied by experts were modified. Hence the questionnaires were considered to be valid to assess the variable used for the study.

8 RESULT & ANALYSIS

The purpose of this study is to find out the comparisonbetween the Pre Covid and during Covid Choice of videogames while playing on the classroom attention, problem solving and prosocial behavior of middle school students.

1. Analysis: Data shows a significant difference in the mean scores between the Pre Covid-Scores and during Covid Choice Scores of playing games with regards to the classroom Attention. Results indicated that the mean scores for the pre covid choices score is 36.70 and after covid it is 80.53 and SD are 3.436 and 6.962 respectively with the t-value 31.598 for the df 29 at .000 level of significance. Therefore, the null hypothesis there is a significant difference between

the Pre Covid and during Covid Choice of playing games with regards to the classroom Attention is rejected.

2. Analysis: Data shows a significant difference in the mean scores between the Pre Covid-Scores and during Covid Choice Scores of playing games with regards to the Problem Solving. Results indicated that the mean scores for the pre covid choices score is 39.27and after covid it is 105.77and SD are 3.413 and 6.867 respectively with the t-value 53.003 for the df 29 at .000 level of significance. Therefore, the null hypothesis There is a significant difference between the Pre Covid and during Covid Choice of playing games with regards to the Problem Solving is rejected.

3.Analysis: Data shows a significant difference in the mean scores between the Pre Covid-Scores and during Covid Choice Scores of playing games with regards to the Prosocial Behavior. Results indicated that the mean scores for the pre covid choices score is 36.87 and after covid it is 102.07 and SD are 4.681 and 6.125 respectively with the t-value 51.092 for the df 29 at .000 level of significance. Therefore, the null hypothesis There is a significant difference between the Pre Covid and during Covid Choice of playing games with regards to the

9 DISCUSSION

By using knowledge of how children learn in video games, we have more information to help us determine with which games children may be more likely to engage in learning strategies that encourage the development of classroom attention, problem solving and prosocial behavior. Further, this knowledge of how children learn in the video game world may lead to developments in designing educational video game products and serious games, and possibly even to modifications of learning environments in the classroom. This was also noted the disparity between the learning environments of video gamers, who are engaged in learning games, with students in traditional school environments, who are given little control over their own learning. Finally, this study supports the view that children will be attracted to learning environments with content that interests and challenges them especially in Pandemic. It reveals that fewer children are using video games to avoid thinking and during covid children increased their choices for playing video games.

10 CONCLUSION AND SUGGESTION

The research study found out that there is a significant difference in the classroom attention, problem solving and prosocial behaviour in the choice of playing video games pre and during covid scenario among school children.

- The future researchers may examine the cause and effect of this in the grades also.
- The future studies may geographically distribute the sample equally.
- The future researchers can consider another demographic variable also
- The future researchers can use the standardised questionnaire
- The future researchers can be conducted on higher education students.

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