IMPACT OF PLAYING AND WATCHING VIDEOGAMES ON CLASSROOM ATTENTION, PROBLEM SOLVING AND PROSOCIAL BEHAVIOUR OF SCHOOL CHILDREN

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ABSTRACT

The research article was aimed on the positive effects of videogames while playing and watching videogames by school children on their classroom attention, problem solving and pro social behaviour. The present experimental study was based on forty five boys and forty five girls from 5th to 7th grade middle school children belonging to the age group 10-13 years. The results show that there is a difference in the classroom attention, problem solving and prosocial behaviour of students while playing the videogame than while watching and boys show more significant difference than girls in problem solving and vice versa for the prosocial behaviour.

Key words: *Videogames, Classroom Attention, Problem Solving, Prosocial Behaviour*

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INTRODUCTION

It is apparent that the significant presence of media, such as television and videogames has an effect on the lives of children and adolescent population. Most of the children spend a great deal of time by watching television and playing videogames (Polman, 2008). It was found that children spend an average of twenty five hours in a week for watching television and nine hours a week by playing videogames (Gentile et al., 2004). It is evident that the children spend ten times more time in such new media than they spend for reading. There have been many studies which focussed on the violent nature of videogames for increasing the aggressive behaviour in children. As many other researchers pitched in to learn more about the effects of video gaming, the perception of its only having negative effects has changed as they could find some positive effects also.

Now perceiving video gaming only in negative light is less common. With the advent of more usages of Smart phones 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 (Prot et al., 2012) have proven that video gaming improved the cognitive functioning (problem solving, reasoning and decision making), visuo-spatial skills, eye hand coordination, prosocial behaviour etc., the society now appreciates video-gamers. Off late the trend has changed and the society has started perceiving video gaming as an effective teacher that affects players in multiple domains. The rising popularity of video games has instigated a debate among parents, researchers, video game designers, and concerned policymakers about the potential harmful or helpful effects of video games on children (Prot et al, 2012). Views expressed in best debate have often been extreme, either idealising or vilifying video games delighting (Jack, 2008).

Correlates of Videogame Playing

From inception till eternity and from dawn till dusk, our world is characterized by phenomena, events, and processes that have a physical and psychological effect on us. A game is any mental and/ or physical activity that is defined by goals, rules, challenges, a feedback system, and voluntary participation (Game & Mcgonigal, 2011; Prensky, 2001). A video game is a complex form of digital media that incorporates these gaming properties requiring active interaction between human and computer (Galloway, 2006; Wadrip - Fruin, 2009).

Cognitive Correlates of Video game Playing

Cognition can be enhanced not only from action gamers but also from non-action gamers. Cognitive improvements were not limited to action game training alone and different games enhanced different aspects of cognition. Many video-games-related cognitive improvements may not be due to training of general broad cognitive systems such as executive attentional control, but instead due to frequent utilisation of specific cognitive processes during game play. Hence, many video game training related improvements to cognition may be attributed to near-transfer effects (Oei & Patterson, 2013). Video game experience highlights a greater cognitive flexibility. The executive functioning mainly cultivated through video gaming are shifting, inhibition and updating.

In Sum, the current research is to find out whether the active involvement (Playing videogames) leads to problem solving or prosocial behaviour more than while passively involved (Watching videogames).

EXPERIMENTAL RESEARCH DESIGN

The research adopted an experimental pre- post-test design in which tools were employed for the pre-test assessment on classroom attention, problem solving and prosocial behaviour of the selected children as a first stage. In the second stage, there were two experimental groups and one control group in which one child will play (active-stage – Experimental Group I) videogames of different concepts and different levels and the other child will watch (passive-stage Experimental Group II) the other play the videogames, the control group is not assigned to watch any videogames. In the third stage, post test assessment is taken.

PARTICIPANTS

The participants selected for the present study were middle school children between the age group 10 to 13 years. The total number of participants selected was forty five boys and forty five girls from different sections of grade 5, 6

and 7. Of the selected participants, 50 percent were from grade five, 36 percent were from grade six and 14 percent were from grade seven. Most children were 10 years old *(n* =45), several 11-year-olds (*n* =28), 12-year-olds (*n* =15) and 13-year-olds (*n* =2).

PROCEDURE

There were ninety participants who have been selected for the study. The participants selected were divided into three groups based on gender and groups. The researcher has taken the pre-test from all these three groups, given certain specified videogames that have problem solving and pro social behaviour content for experimental group - I to actively play and experimental group - II to watch the videogames while the other group is playing and no videogame is given to the control group. After the completion of 21 days, the post-test assessment is taken from all the three groups.

APPARATUS/ MATERIALS

Different videogames were used to measure the effects of school children playing and watching videogames on their classroom attention, problem solving and prosocial behaviour. The questionnaires used for the study were Classroom Attention Scale, Problem solving Scale and Prosocial Behaviour Scale. The researcher had developed the tool.

RESULTS

The hypotheses 1, 2 and 3 show that there is a significant difference between the Pre-test and Post-test groups of Experimental group - I (Playing Video games) with regard to Classroom Attention, Problem Solving and Prosocial Behaviour and the results are given below in Table - 1.

Table - 1.1: Comparing Means Scores of Classroom Attention, Problem Solving and Prosocial Behaviour between Pre-test and Post-test of Experimental Group - I

Table - 1

Paired Sample t-test

Group	***Mean***	***SD***	***'t' value***	***df***	**Sig (2-tailed)**
Pre-test	36.70	*3.436*	*31.598*	*29*	*.000*
Post test	*80.53*	*6.962*			
Pre-test	*39.27*	*3.413*	*53.003*	*29*	*.000*
Post test	*105.77*	*6.867*			
Pre-test	*36.87*	*4.681*	51.092	*29*	*.000*
Post test	*102.07*	*6.125*			

Table - 1 shows a significant difference in the mean scores between pre-test and post-test group of Experimental Group - I with regard to the Classroom Attention, Problem Solving and Prosocial Behaviour of school children

The hypotheses 4, 5 and 6 show that there is a significant difference between the Pre-test and Post-test groups of Experimental group – II (Watching Video games) with regard to Classroom Attention, Problem Solving and Prosocial Behaviour and the results are given below in Table - 2.

Table - 1.2: Comparing Means Scores of Classroom Attention, Problem Solving and Prosocial Behaviour between Pre test and Post test of Experimental II Group

Table - 2

Paired Sample t-test

Group	*Mean*	*SD*	*'t' value*	*df*	Sig (2-tailed)
Pre-test	37.70	*4.372*	*26.853*	*29*	*.000*
Post test	*70.47*	*4.659*			
Pre-test	*34.30*	*3.743*	*1.040*	*29*	*.307*
Post test	*31.20*	*16.327*			
Pre-test	*37.50*	*4.183*	1.825	*29*	*.078*
Post test	*31.50*	*17.514*			

Table - 2 shows a significant difference in the mean scores between pre-test and post-test groups of Experimental Group - I with regard to the Classroom Attention and no significant difference in Problem Solving and Prosocial Behaviour.

The hypotheses 7, 8 and 9 show that there is a significant difference between the Pre-test and Post-test of Control Group (Neither Playing nor Watching) with regard to Classroom Attention, Problem Solving and Prosocial Behaviour and the results are given below in Table -3.

Table - 1.3: Comparing Means Scores of Classroom Attention, Problem Solving and Prosocial Behaviour between Pre-test and Post-test of Control Group

Table - 3

Paired Sample t-test

Group	*Mean*	*SD*	*'t' value*	*df*	Sig (2-tailed)
Pre-test	33.40	*8.228*	*1.175*	*29*	*.250*
Post test	*30.23*	*11.767*			
Pre-test	*36.67*	*9.308*	*1.340*	*29*	*.191*
Post test	*30.33*	*23.084*			
Pre-test	*45.37*	*21.427*	*1.321*	*29*	*.197*
Post test	*36.13*	*27.270*			

Table - 3 shows no significant difference in the mean scores between pre-test and post-test groups of Control Group with regard to the Classroom Attention, Problem Solving and Prosocial Behaviour.

DISCUSSION

Attention can get diverted for any area of work or any area of interest, for some it will be watching television, for others it will be talking with friends. The interest can vary from one individual to another. In the context of middle school children the curiosity to know something funny and the nature to challenge something new is inbuilt in their behaviour. Since video games give a lot of fun and thrilling experience their thought processes will always be dwindling about their winning and losing events in the play. The researcher was giving hands-on experience of the selected videogames every day for nearly an hour to the participants. During this time a naturally occurring neurotransmitter in the brain called dopamine is released which is largely responsible for reward driven behaviour.

Findings suggest that the release of dopamine will be high for those who play videogames as it is reward motivated. This is the reason why children play with the intention of gaining reward, be it advancement in the game, rising up a ranking board or badges and trophies.

The result shows that there is a significant difference in the experimental group - I with regard to problem solving for the participants who played the videogame. Mcgonigal (2015) suggests that certain mainstream games like call of duty and other related videogames can be the powerful tools to improve one's attention, mood, cognitive strengths and relationships. Many of the research findings slowly try to change people's conception about videogames as the findings mention the positive outcomes of videogames such as improvement in problem solving skills, cognitive abilities etc.. Shute et al., (2014) found that videogames geared towards entertainment can improve attention, spatial orientation and problem solving abilities. The children develop problem solving skills as they play videogames more and more due to the simulation effects of the same which give a reality effect and helping to gain mastery over it.

Very few researches have been done to highlight the effects of videogames on the prosocial behaviour, Gentile et al., (2009), compared to participants who had played either the neutral or the violent video games. Participants who had played the prosocial video game show significantly lower levels of aversive noise, thereby indicating lower levels of aggressive behaviour. Moreover, these results remained significant even after controlling for levels of trait altruism, aggression, arousal and mood. Whitaker and Bushman (2012) examined the effects of videogames on prosocial behaviour and also on positive mood. According to the study, compared to participants who have played either the neutral or the violent video game, those participants who had played the relaxing video game reported greater positive effect and displayed greater helping behaviour and there was a mediation effect of positive mood also. Saleem, Anderson & Gentile (2012) found out that the pattern of increased helping behaviour after playing a prosocial video game has been consistently demonstrated. Whitaker and Bushman's (2012) study shows that those who had played the prosocial video game choose significantly less difficult puzzles for their partners to complete than did those who have played either the neutral or the violent video games.

As they were not actively or physically playing the videogames the skill of problem solving that developed in the playing participants was not seen in the participants who were watching the videogame played by others. The passive group or watching participants were stressful as they were not allowed to take the moves because they were passive observers. Inculcating problem solving skills through games requires analytical, creative and logical thinking that the passive participants had not practiced as they were merely observers. So, the steps while playing a videogame and the rules or strategies developed by oneself like evaluating the problem, managing the problem, decision making, resolving a problem and the outcome of it has not been practised by the passive observers. As they were not actively or physically playing the videogames the skill of Prosocial Behaviour that developed in the playing participants was not seen in the participants who were watching the videogame played by the others. The passive group or watching participants were stressful as they were not allowed to take the moves because they were passive observers. The current research has found out that prosocial behaviour is developed in the players who were actively playing and not in the passive players. This could be due to the time constraint and the involvement that the passive players lacked. The researcher is not claiming for the causality that spending more time and active playing of the game will develop the prosocial skills. It is the result that the study showed. The control groups were given the scales as a pre-test and after which they had not been distracted in any way. After a gap of three weeks the post-test evaluation was taken which showed no significant difference in the effectiveness of videogames with regard to classroom attention, problem solving and prosocial behaviour.

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