Video Games and the Reading Habits of Children: A Research Proposal

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Abstract

The purpose of this study is to assess whether the level of interest for video games, amount of time spent in video games and types of games played have any correlations with the level of interest for reading, amount of time spent in reading and perceived reading ability among children in primary grades. The population for this study will be students from kindergarten to grade five in an elementary school located in Southern United States. A combination of convenience and quota sampling will be employed to recruit parents of children from every grade level who would be willing to participate. Also a convenience sample of five teachers and one school librarian will be taken. A mixed, qualitative and quantitative approach will be followed. Quantitative data will be collected using questionnaire and structured diary log from parents. The questionnaire will also have one open ended question designed to collect qualitative data. Moreover, both qualitative and quantitative data will be collected using semi-structured interviews with teachers and the school librarian.

Keywords: children, reading, video games

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Introduction

Video gaming has become a very popular American culture. There are 117 million active gamers in the United States of which 56% play games online and that 64% of the online gamers are female (Kent, 2011). However, we were routinely told that we have to limit the amount of time our children spend on electronic media to a minimum. Not long ago, video games were especially considered as a waste of time for children and adults alike. Research also showed that video game playing may decrease reading performance and school performance of children (Cummings & Vandewater, 2007; Sharif & Sargent, 2006; Weis & Cerankosky, 2010).

On the contrary, recent literature is suggesting that video game playing promotes and supplements literacy skills (Hsu & Wang, 2010; Kurt & Constance, 2007; Schmidt & Vandewater, 2008). Video games have gained acceptance by many and are being used for educational purposes in many subjects. Libraries have embraced the growth of video games by incorporating games in their collection, providing gaming equipment and preparing gaming programs. "Video gaming at the library encourages young patrons to interact with diverse peers, share their expertise with others (including adults), and develop new strategies for gaming and learning" (American Library Association, 2011).

However, there is need for more research on the topic as the types of video games and their content continue to change. Therefore, this research can be useful in providing additional data to understand whether video game playing has any effects on the reading habits of children in primary grades at the current time.

Variables

The independent variables, level of interest of children in playing video games, amount of time spent in playing video games and types of games that the children play will be assessed to see if they have any correlations with the dependent variables level of interest of the children in reading books, amount of time spent in reading books and perceived reading ability of the children. Moreover, the independent variables grade level and gender of children will also be considered.

Review of the Literature

Definition

Encyclopedia Americana defines video game as "an interactive electronic game, the action of which is displayed on a monitor screen", which can be played on arcade machines, home consoles, computers, mobile telephones, and PDAs etc. (Kent, 2011). Games are a type of communication media which involves participation of players. Traditional games and communication media like television, film and print are antecedents of digital games (Eck, 2010,

p. 24). For the purpose of this study, all electronic games played on all devices will be refered to as video games.

Brief History

According to the above cited article by Kent (2011), the first video game was created in 1958 by Willy Higginbotham, a physicist at Brookhaven National Laboratory in N.Y. for an exhibit in the laboratory's annual visitor's day. The first game designed for a computer, "Spacewar!", was developed in 1962 by students at the Massachusetts Institute of Technology. A game that would work on the TV was envisioned by Baer in 1967. But later his idea was sold to a television manufacturer and the game console was produced in 1972 by Magnavox Corporation. Recently, games involving physical activity like dance moves were manufactured. Also new platforms like cellular telephones, PDA and online games appeared.

Negative Effects of Video Games - the Displacement Effect

Earlier than video games, one reason of concern with television's potential effects in children's reading has been the "displacement theory, which proposes that time spent with television takes time away from more valuable activities, such as reading and imaginative play" (Lorch & Lemberger, 2006, p. 407). Most concerns regarding video games also relate to the displacement effect. For example, Cummings' and Vandewater's (2007) research assessed whether video game play distracts adolescents from academic, social and physical activities, as the displacement effect suggests. They conducted a survey of 1491 children between ages 10 and 19 in 2002-2003 school year. They used 24 hour research diaries to assess time spent in different activities, among which were video game playing, reading and doing homework. They found out that gamer adolescents spent 30% less time reading and 34% less time doing homework.

American Academy of Pediatrics (APA) also seems to support the displacement theory in its 2010 Policy Statement. The report stated that "time spent with media often displaces involvement in creative, active, or social activities." According to the statement, children spend more time in media (which includes video game playing) than any other activity except sleeping. It recommended for parents to limit the content of media and time that their children spend with media. A survey by Sharif and Sargent (2006, p. e1067) involving 4508 middle school students also supported APA's recommendation. Their research showed that increase in videogame weekday screen time was positively correlated with below average school performance and negatively correlated with excellent school performance.

Weis and Cerankosky (2010) conducted experimental study in first, second and third grade boys and found similar results. They found out that boys who own video games spent more time in playing video games and less time in after-school academic activities. They also had lower reading and writing scores and greater teacher-reported academic problems than the others. Another research regarding children's leisure reading habits was done by middle school librarians Hughes-Hassell and Lutz (2006, p.41). They asked participant students "if you don't read, why not?" 55% of the boys and 32% of the girls who do not read replied "I'd rather play

video games" as one of the reasons why they do not read. Especially in the case of the boys, this was the reason mentioned by highest number of boys who do not read.

Another notable report on the subject was the "reading at risk" report by National Endowment for the Arts (2004), which reported decline in reading for two decades among adult Americans, with the steepest decline in the age group of 18-24. The report stated that "the decline in reading correlates with increased participation in a variety of electronic media, including the Internet, video games, and portable digital devices" and stated that "non-readers watch more television than do readers" (p.xii). Related to the "reading at risk" report, a delphi study was conducted by Yunfei Du (2009, p.49) to assess librarians' responses to the report. In this study, participant library experts "tended to agree that digital media compete with reading time for youth".

Positive Effects of Video Games - Video Game Playing as Literary Activity

On the other hand, there has been increasing amount of literature showing the positive aspects of video games. Concepts linking literacy with video games which suggest that video gaming being one part of literary activity have emerged. One of these concepts is visual literacy, which means to be able to read images, symbols, graphs, diagrams, artifacts and other visual symbols (Gee, 2003, p. 13). Another relevant concept is the concept of "paratexts". According to Apperley (2011), "paratexts refer to both texts and the surrounding materials that frame their consumption, shape the readers' experience of a text and give meaning to the act of reading".

Steinkuehler (2010) wrote video game playing is "a form of digital literacy practice". Hsu and Wang (2010, p.402-4) discussed the concept of game literacy; as related to new literacy skills of the 21st century, which is using information and communication technology (ICT) tools effectively. Players are game literate if they can recognize the goals and the rules of the game, understand how the game works, and acquire and apply skills and knowledge to achieve goals by complying with rules". They paralleled game playing with reading and game designing with writing. Game playing requires understanding text in the game, rules, graphic and audio elements, game goals and scenario of the game. Game designing involves even higher critical skills, cognitive skills and stronger social interaction.

Kurt and Constance (2007, p.38) explained game cultures promote information literacy, information seeking, information production (like writing) and research skills. Schmidit and Vandewater (2008) also wrote video games "can enhance visual spatial skills such as visual tracking, mental rotation, and target localization" and "may also improve problem-solving skills." Eck (2010, p.25) stressed the interactive nature of video games which makes them better than other media. According to Eck, "games are an extension of ourselves, and represent a change in our interpersonal dynamics – gamers come to expect to be interactive agents as opposed to passive receptacles, and this notion spreads to other aspects of their lives – including formal education".

Positive Applications of Video Games

Video games are being used for educational purposes in different subjects. As the National Research Council (2011) stated, research findings support the idea that simulations and games used in science education can increase in motivation and support understanding of scientific concepts. The organization actually urged that computer games and simulations should be used more to teach scientific concepts. Computer games will help young people to learn innovative and high-tech skills in science and technology which will help them to be competitive in the job market (Shaffer & Gee, 2006).

In recent years, video games have gained acceptance by library and information professionals. Gaming programs have enabled libraries to connect with patrons of all ages, especially teens (Easterwood & Wesson, 2009). Libraries are including video games in their collection, organizing gaming programs and providing equipment and space for video game playing. Easterwood and Wesson (2009, p.25) stated that librarians should not "assume that gamers are not readers and make the mistake of choosing books on a lower reading level." Instead, they should familiarize themselves with the genres of games available and be able to pair books with genres of games that users enjoy in their reader's advisory service. Martin and Ewing (2007) discussed that approaches used in video games like motivation, engagement, rules, goals, challenges, control etc… can be useful in designing library instruction. Similarly, Brown, Ceccarini and Eisenhower (2007) pointed out the concepts of active participation, first person perspective, feedback and reflection that can be applied in library instruction programs.

In conclusion, the literature regarding the effects of video games on reading has been mixed. Some said it takes away reading and school work time, while others believe it promotes new literacy skills as well as traditional literacy skills. As positive applications of games, there has been literature showing that video games can be effective for educational purposes (eg. Kim, Park & Baek, 2009; National Research Council, 2011). Previous studies which compared the amount of time spent in video game playing with amount time spent in reading or afterschool educational activities focused on middle school children (Cummings & Vandewater, 2007), (Sharif & Sargent, 2006). Although the experimental research by Weis and Crankosky (2010) focused on children from grades one to three, there is need for additional data to understand the variables. This is especially true because effects of video games may change as the types of video games available for children continue to change.

This study will attempt to provide additional data to understand the variables better. The study will focus on effects of video games on reading behavior of young children in primary grades and attempt to identify any possible correlations.

Method

Purpose

Sharif and Sargent (2006) used survey method and Weis and Cerankosky (2010) followed experimental approach for their studies. Cummings and Vandewater (2007) used time use diaries, but they studied children between the ages of 10 to 19. This research will use

structured time use diaries, questionnaire and interview to assess children's time use, interest, and reading ability, and opinions of parents, teachers and a school librarian in order to provide data that is current and as accurate as possible on young children in primary grades.

Study Design

The research will follow both analytical descriptive survey and exploratory techniques. Analytical descriptive method will be used in order to test associational relationship of the variables and explore possibility of casual relationships. Exploratory technique will be used to identify and understand any other issues relevant to the research question. Both quantitative and qualitative approaches will be employed to help answer the research question.

Population and Sample

The population for this study will be students from kindergarten to fifth grade in an elementary school in Southern United States. A combination of convenient and quota sampling method will be used to select about 20 parents, who are willing to participate, from each grade level to fill questionnaire and diary log. Five teachers and one school librarian will be selected for interview based on the convenience and willingness of participants.

Investigative Techniques

Questionnaire to parents. (Please see the draft questionnaire in the Appendix.) The questionnaire will contain structured questions and one open-ended question. The structured questions ensure that the data required to address the research problem will be gathered. The open ended question will allow parents to express opinions and observations that are not addressed in the questions.

The major data to be collected using the questionnaire will be the child's level of interest to play video games and to read books, reading ability of the child as perceived by her/himself and the parent, the kinds of games that the child likes to play, the parents opinions towards video games. Other closely related questions and questions relating demographic information will be included. Questionnaires will be attached with diaries and distributed and collected together. The questionnaires may be filled at once at the convenience of participants, but will be returned when the diary logs are completed.

Structured research diary to parents. (Please see the draft diary log in the appendix.) Parents will fill the diaries every night for one week. They will specify how much time in hours and minutes their child spent reading and playing video games on each day. This method ensures that the amount of time spent on each activity will be recorded as accurately as possible.

Semi-structured interview with teachers and school librarian. (Please see the draft interview questions in the appendix.) This method will be used to assess viewpoints from teachers and school librarian based on their experience with primary school children. The interviews will have open ended questions. This will give some structure for the data, but will allow participants' viewpoints and perceptions to come through.

Measures for Variables

The following table summarizes how the variables will be measured.

Variable	Measure
Level of interest of the children to play video games	Likert type five-step scale.
Level of interest of the children to read books	Likert type five-step scale.
Amount of time spent in playing video games	In hours and minutes for each day.
Amount of time spent in reading books	In hours and minutes each day.
Perceived reading ability	In categories of "above grade level", "at grade level" or "below grade level". (according to the parent's perception and the child's perception)
Types of games that the children play	In categories of "educational", "non-educational, but with some educational components" or "non-educational".
Gender	Male and Female
Grade level	Kindergarten to grade 5

Instrumentation

Questionnaire, research diary log and interview questions will be designed for this research. (Please see drafts in the appendix at the end of this proposal.) The questionnaire and the diary log will be tested by three parents prior to conducting the survey and will be reviewed as necessary.

Data collection plan. Questionnaires, research diary logs and letters will be sent to parents of students in two sections from each grade level in the weekly folders sent to parents. The letter will describe the purpose of the study and invite parents to participate. The forms will be sent again in the second week to allow parents who might have forgotten or lost the forms to be able to participate. After collecting the filled out questionnaires, it may be necessary to distribute forms in additional sections where the total number of forms returned from parents is less than 15 for the grade level.

Parents will be asked to fill the questionnaire at once at their convenience. However, they will fill the diaries at the end of each day every day for one week. If a parent happens to forget to register in the diary and cannot remember the amount of time his/her child spent in the activities, he/she may replace that day with another day. A school day from Monday to Thursday can be replaced for any other school day from Monday to Thursday, in the coming week. However Friday, Saturday and Sunday should be replaced for another Friday, Saturday and Sunday respectively. This is done because activities of the children could vary between

school days and weekends. Diary log and questionnaire from each individual participant will be attached together to be able to study individual participant behaviors and practices.

Interviews with five teachers and one school librarian will be conducted at the time and place convenient to participants. If possible, interviews will be voice recorded for easier transcription and data analysis, with prior consent of participants. Voice records will be deleted as soon as the interview is transcribed.

Data analysis plan. For this study, descriptive univariate frequency distributions will be used to summarize the following data, by gender and grade level: reading during leisure time, number of books children read in a week outside school, level of interest of the children for reading, reading ability as perceived by the children and as perceived by the parents, frequency of visit to the library per month, activities during library visit, number of children who play video games, level of interest of the children for video game playing, types of video games (educational versus not educational) played with percentage of total amount of time played, time spent in reading during school days and weekends, and time spent in video game playing during school days and weekends.

Correlation coefficient and scatter diagrams will be used to compare the following ordinal and interval variables and to identify if they have any correlations.

- Level of interest of children in playing video games and level of interest in reading books.
- Level of interest of children in playing video games and amount of time spent in reading books.
- Amount of time spent in playing video games (during school days and weekends) and level of interest in reading books.
- Amount of time spent in playing video games (during school days and weekends) and amount of time spent in reading books.
- Amount of time spent in playing video games (during school days and weekends) and perceived reading ability of the children (as perceived by the parent and the children themselves).

In addition, bivariate frequency distributions will be used to assess if there are any relationships between the following variables. (Since “types of games” is a categorical variable, correlation coefficient could not used here.)

- Types of games the children play and their level of interest for reading.
- Types of games the children play and amount of time they spend in reading books.
- Types of games the children play and perceived reading ability of the children (as perceived by the children themselves and the parents).

Moreover, Mean, median and standard deviation will be calculated for time spent in reading, time spent in video game playing and number of books read per week by gender, grade level and for the total sample.

Finally, qualitative data collected from the open ended questions in the questionnaire and interviews will be analyzed using qualitative content analysis method. Unit of analysis will be themes arising from the collected data. Categories will be formed inductively from the data. Inductive method will be used to learn current viewpoints of parents, teachers and school librarian, and minimize being influenced by viewpoints from literature or existing theories. Themes will be categorized and coded. During the coding process, comparison will be done for each text to be assigned to a category with those already assigned to that category. Two persons will code the data to increase the reliability of the research. Finally major themes will be identified and presented in the research report (adopted from Wildemuth, 2009, p.308-11).

Ethical Considerations (Human Subject Protections)

This research will be based on the information from parents, teachers and school librarian who care for the children and watch the children every day. Without their participation, this research cannot be done. It is hoped to help understand the effects of video games on children enabling children and caregivers to make informed decisions.

All data collected in this study will not have any identifying information. Even though interviews will be voice recorded for easier and accurate transcription, voice records will be deleted as soon as transcription is done.

Assumptions

It is assumed that sections chosen from each grade level will be representative of all other sections in the grade level in the school. It is also assumed that data collected from parents, teachers and the school librarian regarding the children will be accurate enough.

Limitations

This study uses data collected from parents, teachers and school librarian. However, it may be a good idea to conduct another study based on data collected from the children directly using methods like interview, observation or ethnographic research to understand the research question better. Also Sample to be used for this study is relatively small. However, studies on the topic with a large sample size may provide more reliable understanding. Finally, even though, this research may suggest the possibility of casual relationship, further study will need to be done to determine if the variables indeed have any casual relationships.

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Appendix

Draft Questionnaire

You may fill the questionnaire part at one time at your convenience.

1. What grade is your child in? (Circle one.)
   KG 1 2 3 4 5
2. What is the gender of your child? (Circle one.)
   Male Female
3. How do you describe your child reading during his/her leisure time?
   a. Very frequent
   b. Frequent
   c. Moderate
   d. Rare
   e. Not at all
4. About how many books does your child read (or read for him/her) in a week outside school?
   _____
5. How do you rate your child's interest for reading?
   a. Very high interest
   b. High interest
   c. Medium interest
   d. Low interest
   e. Very low interest
6. How do you rate your child's reading ability?
   a. Above grade level
   b. At grade level
   c. Below grade level
7. How does your child perceive her/his reading ability?
   a. Above grade level
   b. At grade level
   c. Below grade level
8. Do you visit the library with your child? How often in a month?
   a. Yes. _____ times in a month
   b. No
9. If you visit the library with your child, what does your child do at the library? (Please circle all that apply.)
   a. Read books
   b. Attend story time or other events
   c. Socialize with friends
   d. Play computer games
   e. Use the computer for other activities
   f. Others. Please specify _____
   _____
10. How does your child perceive his/her reading ability?
    a. Above grade level

b. At grade level
c. Below grade level

11. Does your child play video games (including video games, computer games, handheld games etc.)?
    a. Yes
    b. No
12. How do you rate your child's interest for video games?
    a. Very high interest
    b. High interest
    c. Medium interest
    d. Low interest
    e. Very low interest
13. What kinds of games does your child play and in how much percentage of the time s/he plays video games?

Type	Percentage
a. Completely educational	_____
b. Not completely educational, but with some educational component	_____
c. Not educational, just to have fun	_____

14. What are your opinions towards video games? (Please consider educational and non-educational video games.)

_____
_____
_____
_____

Draft Research Diary

Please fill this diary log at the end of each day for one week. If you happen to forget to register in the diary, please try to fill it the next day if you can remember the amount of time your child spent on each activity. However, if you cannot remember, please replace that day with another day. A school day from Monday to Thursday can be replaced for any another school day from Monday to Thursday in the coming week. However if it is a Friday, Saturday or Sunday, please replace that day for another Friday, Saturday or Sunday respectively.

Date	Day of the week	Time spent in reading in hours and minutes, if any	Time spent in playing video games in hours and minutes, if any
	Monday		
	Tuesday		
	Wednesday		
	Thursday		
	Friday		
	Saturday		
	Sunday		

Draft Interview Questions

1. What positive and/or negative effects do you think video games have on children reading habits and reading ability? (Please consider educational and non-educational video games.)
2. What other benefits and/or negative effects could video games have on children? (Please consider educational and non-educational video games.)
3. How much time do you think children should spend playing video games and how much time do you think children are spending playing video games during school days and during weekends? (Please consider educational and non-educational video games.)
4. What do you think about applications of video games for educational purposes?
5. Do you have any other opinions regarding video games?

Draft Letter to Parents

Dear parents:

A research is being conducted to evaluate whether video game playing and reading habits of children has any relations, as video game technology and media is evolving rapidly. It is hoped that the findings of this research will provide additional data in understanding whether video game playing has positive and/or negative effects on children's reading performance. Your participation in this research is completely voluntary, but will be greatly appreciated.

If you choose to participate, please fill the attached questionnaire. Also, please fill the attached diary log at the end of each day for one week. Please return the forms together to your child's teacher when you are done with both forms.

Sincerely,