TECHNOLOGY FATIGUE AND BURNOUT AT SCHOOL AND HOME

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ABSTRACT

Background

The issue addressed in this study is whether students (grades 4-12) using technology at school is causing technology fatigue, and therefore less use of technology at home, or vice versa. The purpose is to discern if technology fatigue is occurring with these students and if so, how it affecting their ability to use technology either at home or at school.

Methods

Surveys will be distributed among students, staff, and parents/guardians. The surveys will contain two sections, one about technology use at school and one about technology use at home. Interviews with students, staff, and parents/guardians will take place. Interview questions will be led by survey answers. Interviews will be recorded and transcribed.

Results

The data from surveys will be analysed on a 4-point scale system, with higher scores denoting greater technology use. This data will be used to inform interview questions. Interview answers will then be analysed for connections to survey questions (ie, do the interview answers explain survey answers).

Discussion and Conclusion

This data will be useful in seeing if students are perhaps spending too much time with technology either at home or at school, and what effects it may be having on their lives in either area. Parents could use the information to adjust technology use at home; school personnel could use the information to adjust technology use at school.

INTRODUCTION

Technology has become ever more present in every-day life. The world has gone from massive computers which take up entire rooms to a device which can fit in a pocket. Not only does nearly every adult have and use some kind of technological device (computer, cell phone, tablet, video game system), but school-age children are also learning to become attached to anything with a screen. Schools are also adopting more technologically enhanced curriculum and lesson plans as they strive to keep up with the digital world. With all of this technology at their fingertips, it is critical to ask: are school-age children experiencing too much technology? Is using technology at school leading to technology fatigue and burnout in their home lives or vice versa?

If technology fatigue or burnout is present, it could have a number of repercussions on a student's daily life: lower grades on technology enhanced school work, lower productivity or output of technology enhanced school work, confusion or resentment for learning new technologies, a decline in social networking both online and in person, or even a decline in technology-enhanced activities they previously enjoyed. Since technology is present in almost every aspect of a young person's life, the fallout caused by technology fatigue and burnout could be widespread and long-lasting. It is essential to discern if technology use in school and at home is leading to technology fatigue and burnout in any facet of a student's life.

PROBLEM STATEMENT

Overview

This study will be using the explanatory sequential mixed method method. Surveys will be issued to parents/guardian, teachers, and students to gather data on student technology usage. The surveys (Appendix 1) will be divided into two sections: technology use at home, and technology use at school. Respondents will record their answers using a scale of 1-4, with the higher numbers indicating greater use of technology. Interviews and observations will take place after survey data is analysed. Interview questions will be developed by how respondents answered their survey questions in order to make and clarify connections between survey answers and observations. Interviews will be recorded and transcribed in order to code for recurring themes among respondents. Observations will also be transcribed and coded similarly.

Research Question/Hypothesis

Is using technology at school and at home causing students to develop technology fatigue and/or burnout in one place or the other? What implications of this are students, staff, and parents/guardians seeing in the students' daily lives?

OBJECTIVES AND AIMS

Overall Objective

- To see if technology fatigue and/or burnout is occurring in students and therefore affecting performance in one place or the other

Specific Aims

- To see if students are experiencing technology fatigue/burnout
    - To see if this technology fatigue/burnout is affecting technology use at home or school
- To see where students are using the most technology
- To discern what connections there are between amount of technology use at home and at school

BACKGROUND AND SIGNIFICANCE

Overview

There is not a lot on the subject of school technology use causing technology fatigue or vice versa. The main divisions of my literature are attitudes of technology use at home, attitudes about technology at school, attitudes about balancing technology with real life, motivations behind balancing technology with real life, motivations behind technology use at school, and technology fatigue in schools.

Attitudes of Technology Use at Home

Robinson (2006), Edmunds, Thorpe, & Conole (2012), Vigdor, Ladd, & Martinez (2014), Davis (2015), Gulatee & Combes (2018), and the article *Three Lessons About Going Digital* (2013) all agree that technology use at home is growing. Current students are touted as "digital natives" (Gulatee & Combes, 2018), and use technology fluently at home and for learning at school. While Vigdor, Ladd, and Martinez (2014) are concerned with the disparity of technology use at home among differing socioeconomic statuses, most others are mainly concerned with the social aspect of technology use. Most students have cell phones or tablets to communicate with their peers, enabling them to interact socially from wherever they happen to be. Being able to instantly communicate is seen as a necessity for a healthy social life.

Attitudes about Technology at School

Many of the same authors which discussed attitudes of technology use at home compared it to attitudes about technology at school. Again, technology use in school is growing, and has been of concern at least since 2006 (Robinson). In addition to the above authors, Howard

(2006) adds that with the ever-rising use of technology, schools should be counter-balancing this use with the arts.

Attitudes and Motivations behind Balancing Technology

Howard (2006), Edmunds, Thorpe, & Conole (2012), Vigdor, Ladd, & Martinez (2014), Davis (2015), Gulatee & Combes (2018), and the article *Three Lessons About Going Digital* (2013) all touch on the importance of maintaining balance between technology use and physical interaction. Howard (2006) goes so far as to specifically recommend breaks from technology by creating and then hanging specific art forms around a room to keep from becoming "machine-like."

Motivations behind Technology Use at School

This division is where most of the literature on technology use at school can be found. Cavanagh (2006 & 2015), Robinson (2006), Olver & Corn (2008), Humble-Thaden (2011), Edmunds, Thorpe, & Conole (2012), Miranda & Russell (2012), Eyyam & Yaratn (2014), Davis (2015), Union, Union, & Green (2015), Reynolds & Chiu (2016), Gulatee & Combes (2018), and the article *Three Lessons About Going Digital* (2013) all assert that it is important for students and teachers to be able to use technology at school, especially as it becomes more prevalent in life outside of school.

Technology Fatigue in School

Howard (2006) asserts that to combat technology fatigue in school or the workplace, breaks must be taken to enjoy artwork or to partake in an artistic endeavor. This will "enhance our powers of inner concentration and mobility of thought" which will in turn refresh the student or worker enough to return to their studies or work (Howard, 2006).

The Gap

There is a tremendous gap in the study and research of technology fatigue and/or burnout as it pertains to students. There are many articles on motivation and attitude, but hardly any on how the growing use of technology is truly affecting student abilities in various aspects of their lives, whether it be social or educational.

RESEARCH DESIGN AND METHODS

Overview

This study will draw from social cognitive theory, as it seeks to determine if technology use at home and at school is contributing to technology fatigue/burnout in one area or the other of a student's life. It will further investigate how those areas are affected, and motivations and attitudes behind changes in those areas.

Population and Study Sample

The study sample will include students in grade 4-12 attending a specific private school. It is assumed that these students are in the upper socio-economic bracket, as the private school is costly, and free scholarships are not offered. Staff/teachers at the school and parents/guardians of the students will also be surveyed, interviewed, and observed.

Sample Size and Selection of Sample

The sample size and selection will be dependent on participation of the students, staff, and families.

Sources of Data

Data will be collected first via survey sent to willing participants, including staff, students, and families. Subsequently, interviews and observations will be undertaken by the same participants.

Collection of Data

Surveys will be distributed via Google Forms, which will be automatically submitted and sent to the researcher. Researchers will record and transcribe interviews, as well as transcribe

observations. All documents are to be typed and filed in a shared folder located on a secure, encrypted server.

Data Management

Each student will be randomly assigned a number and each document pertaining to this student will use this number as an identifier. All physical documents are to be shredded after upload to the secure server. After research is completed, all digital documents are to be deleted, and the hard-drives/servers containing the documents to be wiped.

Data Analysis Strategies

Surveys

Each respondent's survey will be analysed on a scale from 1-4, with higher numbers indicating greater use of technology by the student. Scores will correspond directly with each individual student for interview and observational purposes. Survey responses will also be analysed using the data analysis software program PSPP (as published by GNU) for ease of tracking trends across grade levels, age ranges, and teachers. This will provide data on each individual student as well as students as a group.

Interviews and Observations

Using survey scores to guide the interview questions, each respondent will be interviewed to gain insight into why they answered the survey questions the way they did. Observations of respondents at school and at home will also occur. Interviews will be recorded and transcribed. Observations will also be transcribed. Interviews and observations will then be coded for recurring themes. Themes will offer insight and connections amongst survey answers.

Ethics and Human Subjects Issues

The biggest ethical concern is subject privacy, especially as it pertains to technology use at home. What students do at school is public, but privacy is always assumed with personal devices and in personal places. De-identification is important for this matter, as well as explicit permission for interviews and observations which may occur in the home.

Timeframes

The initial survey should be distributed and returned within 2 weeks, with one more week for analysing the data. Interviews based on survey data as well as observations would take place over the next month, as these will take longer and conferences must be set up with respondents. Interview and observation coding may occur simultaneously, but should not take more than another month after finishing the interviews and observations. Final data analyses should be completed within another month.

STRENGTHS AND WEAKNESSES OF THE STUDY

The greatest strength of this study is that it takes a holistic look at student technology use. The study includes data from parents/guardians, school staff/teachers, and the students themselves, about technology use at school and at home. The technology can include cell phones, tablets, computers, video games, or any other digital device which may be interacted with using a screen and an input device. This study will be the first of its kind in the literature and will provide an in-depth look at how technology use affects more technology use.

The greatest weakness of this study is that the surveys are self-completed. Most individuals are inclined to either over- or under-exaggerate when they are answering questions about themselves. Staff may answer questions which makes them look more technology-friendly if that is what the school is striving for. Parents may answer questions which makes them look more family-oriented, if that is what they wish for their family to look like. Interviews and observations will assist in correcting human error.

SIGNIFICANCE FOR LEARNING TECHNOLOGIES

This study will give students, staff, and families insight into how technology use at home and at school is affecting students' daily lives - whether using technology at home is affecting technology use at school or vice versa. If students are using so much technology that they are experiencing technology fatigue/burnout, families and educators can adjust technology use in each place to assist students in overcoming their fatigue/burnout in a way that does not hinder learning.

BUDGET AND MOTIVATION

Data collection by researchers is done voluntarily. Survey responses, interviews, and observations by students will be rewarded with a Free Homework Pass, good for one entire night's of homework.

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APPENDICES

Appendix 1: Survey

Here is a downloaded form of the survey. When distributed via Google Forms, respondents will automatically be taken to the next section based on their answers (in the forms below, it indicates going to a different numbered question based on answers).

How Do You Use Technology?

Please answer the following questions as accurately and honestly as possible.

* Required

1. **What is your name?** *

2. **Are you a student, school personnel, or family member?** *
   Mark only one oval.
   - ◯ Student *Skip to question 11.*
   - ◯ School Personnel *Skip to question 7.*
   - ◯ Family member *Skip to question 3.*

Technology at School (family member)

3. **What is the name of the student you will be thinking of as you answer these questions?** *

4. **What grade is the student in?** *
   Mark only one oval.
   - ◯ 4
   - ◯ 5
   - ◯ 6
   - ◯ 7
   - ◯ 8
   - ◯ 9
   - ◯ 10
   - ◯ 11
   - ◯ 12

5. **How many classes do you believe the student uses technology in?** *
   Mark only one oval.

	1	2	3	4	
No classes	◯	◯	◯	◯	All classes

6. **How much of the classtime do you believe the student uses technology?** *
Mark only one oval.

	1	2	3	4	
1-15 minutes	◯	◯	◯	◯	45 minutes (all class)

Skip to question 16.

Technology at School (school personnel)

7. **What is the name of the student you will be thinking of as you answer these questions?** *

_____

8. **What grade is the student in?** *
Mark only one oval.

- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7
- ◯ 8
- ◯ 9
- ◯ 10
- ◯ 11
- ◯ 12

9. **How many classes do you believe the student uses technology in?** *
Mark only one oval.

	1	2	3	4	
No classes	◯	◯	◯	◯	All classes

10. **How much of the classtime do you believe the student uses technology?** *
Mark only one oval.

	1	2	3	4	
1-15 minutes	◯	◯	◯	◯	45 minutes (all class)

Skip to question 18.

Technology at School (student)

11. **What grade are you in?** *
Mark only one oval.

- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

12. **How many classes do you use technology in?** *
Mark only one oval.

	1	2	3	4	
No classes					All classes

13. **How much of the classtime do you use technology?** *
Mark only one oval.

	1	2	3	4	
1-15 minutes					45 minutes (all class)

Skip to question 14.

Technology at Home (student)

14. **How often do you use technology at home?** *
Mark only one oval.

	1	2	3	4	
Never					Every day

15. **How much time do you spend on technology at home?** *
Mark only one oval.

	1	2	3	4	
<1 hour					>4 hours

Stop filling out this form.

Technology at Home (family member)

16. **How often does the student use technology at home?** *
Mark only one oval.

	1	2	3	4	
Never	◯	◯	◯	◯	Every day

17. **How much time does the student spend on technology at home?** *
Mark only one oval.

	1	2	3	4	
<1 hour	◯	◯	◯	◯	>4 hours

Stop filling out this form.

Technology at Home (school personnel)

18. **How often do you believe the student uses technology at home?** *
Mark only one oval.

	1	2	3	4	
Never	◯	◯	◯	◯	Every day

19. **How much time do you believe the student spends on technology at home?** *
Mark only one oval.

	1	2	3	4	
<1 hour	◯	◯	◯	◯	>4 hours

Appendix 2: Interview Example Questions

Q1. What is your name?

Q2. What is your grade level?

Q3. How old are you?

Q4. On the survey you filled out for us, it says you use technology in almost every class. What kind of technology do you use? What do you use it for?

Q5. On the survey you filled out for us, it says you don't use technology in school. Is that by choice? Does the school not provide you with technology?

Q6. On the survey you filled out for us, it says you use technology every day at home. What kind of technology do you use? What do you use it for?

Q7. On the survey you filled out for us, it says you do not use technology at home. Is that by choice? Do you not have technology to use at home?

Q8. On the survey you filled out for us, it says you use technology a lot at school, but not much at home. Why is that?

Q9. On the survey you filled out for us, it says you technology a lot at home, but not much at school. Why is that?

Q10. Do you enjoy using technology? What kinds of technology?

Q11. What do you use technology for the most?

Q12. Would you want to use technology more or less if you had a choice?

Q13. Would you want to learn more about technology?

Q14. What is your favorite aspect of technology? Least favorite?

Q15. Do you think people, in general, should use more or less technology?

Q16. Do you think technology is helpful? Why/Why not?