**Impact of Digital Literacy on Elementary students Safety and Engagement in Schools**

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Research Proposal: Chapters 1-3 Final Draft

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**Chapter 1: Introduction**

The impact of technology use is on the rise in not only adolescents' and adult lives, but there is also an impact of individuals in other age groups (Gottschalk, 2019). Research suggests that preschoolers become familiar with digital devices before they are exposed to books (Gottschalk, 2019). Technology has become a new way to increase student learning at a faster rate and engage students, which makes them eager about their education (Gottschalk, 2019). Furthermore, there are some issues that could potentially arise if the students do not have digital understanding. This is called digital literacy (Tomczyk, 2020). Digital Literacy simply means to have the ability to communicate and obtain information in a community where digital technologies like online services, social media, and mobile devices are used more consistently.

It is important to know how to properly use technology and the many resources to stay safe online. With the exposure being so grand for elementary school students, it could possibly lead to overexposure. This can lead to compromised digital safety of students in the long run (Martin, 2022). Some research cites a potential “Goldilocks effect” in terms of technology use (Sittichai, 2020, pg. 204). This suggests moderate engagement in online and digital activities might actually be beneficial in terms of subjective mental well-being and adolescent connectedness, whereas too much or too little might prove detrimental (Gottschalk, 2019, 91). The “Goldilocks effect” is also discussed in the study about repeatedly exposing infants to an initially unique stimulus, baby gazing times decrease before rebounding in response to the presentation of a different unique stimulus (Kidd, 2012, pg. 113).

There are a few solutions that could increase elementary students' digital safety. Together with digital literacy, parental guidance is extremely important for helping kids deal with the perils of the internet. The primary justification is that kids learn how to use technology by seeing their parents. A positive parenting approach and its guiding principles are a type of parental mediation that can shield kids from harmful effects while they engage in internet activities. To lower online danger inside and outside of the classroom as much as possible, parents also employ a variety of mediation techniques like active co-use and engagement guidelines (Purnama, 2021). Another way to encourage digital safety is self control (Lubis, 2021). Students must be taught how to have self control by those that influence their everyday behavior. Lastly, digital literacy, which is understanding the proper way the internet works will help students prevent possible online risks (Martin, 2022). For students to have digital safety there should be a set of norms that children go by whether individuals are inside the classroom or outside of the classroom. We can call this set of norms “digital citizenship.” The students can earn the digital citizen badge in school to be able to use the multimedia resources in their learning experience.

**Problem Statement**

With the increased use of technology post covid-19, there will need to be ways for teachers to keep our students safe in online environments (Lubis, 2021). The study will evaluate the impact that technology has on students' digital safety and engagement. The focus is on how digital literacy for elementary school students reduces the risks from online. Digital literacy, digital safety, and digital engagement are all intertwined.

**Research Questions**

1. What is the impact of students' level of digital literacy affecting their learning experience on student digital safety and engagement in a primary school setting?
2. What factors influence the effectiveness of digital literacy in enhancing student student digital safety and engagement?

**Hypothesis**

1. Digital literacy provides a positive influence on primary students' digital safety.
2. Digital literacy provides a positive influence on primary students' digital engagement.

**Chapter 2: Literature Review**

The literature on primary school students' use of technology suggests that there is significance connecting digital literacy to the improvement of adolescents and teachers of digital safety. Strategies to acquire a safe online learning environment was an intersecting concept because of the many different online risks that could occur while using technology. The literature also states that technology correlates to students having a more engaging online learning experience (Henrie, 2015, Lim, 2003, Godzicki, 2013). The studies show the many positive and negative effects of technology on students (Martin, 2021, Sittichai, 2020, Purnama, 2021, Lim, 2003). The synopsis discovered was that secondary students having digital literacy creates a more will improve the students overall digital safety and engagement while using technology. This study will discover the correlation of how digital literacy for primary school students would increase digital safety and engagement.

**Technology in schools**

Multimedia technology is used in schools to enhance learning through creating multimedia resources for engagement (Reeves, 1998, Lim, 2003, Henrie, 2015). Overall, studies have shown there to have been few and sporadic differences between media and technology used as tutors and human teachers (Reeves, 1998). The ability of media and technology to encourage students, promote equity of access, and shorten the time required to complete a given set of goals appears to be where their greater value as tutors lies. Research studies on the usage of media and technology in K–12 classrooms around the world have explained how important technology is for 21st century learners.The findings indicated that during the Covid-19 pandemic, teachers and students encountered both possibilities and difficulties when utilizing the online learning process (Lubis, 2021). Studies find that teachers and students in primary schools have the benefit from the use of technology in schools, which increases technology proficiency, technology accessibility, and extending learning resources. During the COVID-19 pandemic, primary school instructors and students encountered three difficulties while using online learning: (1) trouble meeting learning objectives, (2) network disruption, and (3) high cost (Lubis, 2021). The literature discusses the potential and difficulties faced by instructors and learners who use online learning platforms during the Covid-19 epidemic (Lubis, 2021). This connects to this study because it discussed the difficulties faced where students essentially increased their chances of online risks from increased technology use. The solution discovered was to increase the secondary students ability in terms of digital literacy, which enhances the students overall digital learning experience.

**Digital Literacy and Engagement**

It was found in Purnama’s study, (2021) suggesting that a secondary student's digital safety and engagement can be positively affected with increased digital literacy. According to the study discussing the structural equation modeling estimate, online risk is influenced by digital literacy, parental mediation, and self-control (Purnama, 2021). As opposed to Martin, (2021) approach in discussing the ways to prevent online risks, these results of his study imply that in order to lessen the influence of online risk on teaching and learning, both digital literacy and parental mediation must be increased. This is the first stage in raising parents' and schools' awareness of the need for supporting and taking into account proper and safe media usage. Internet usage and the implementation of online learning have benefited learners as well. (Purnama, 2021).

**Digital Safety and Online Risks**

The connections between a student's digital literacy and the online risks that they may face are highlighted in studies discussing deficiencies in six critical areas, including safe logging-in, protecting online privacy, evaluating the reliability of information, ICT ergonomics, and intellectual property (Tomczyk, 2020). Students interacting with multimedia technology would need guidelines and restrictions to prevent online risks. The 4Cs (content, contact, conduct, and contract) structure was used to classify the issues in digital safety (Martin, 2022). Examples of students accessing inappropriate content were among the content-related issues. Concerns about contacts included giving personal information without realizing the possible risk, friending others online, and making inappropriate contact with strangers (Martin, 2022). Participants discussed issues about cyberbullying that were related to conduct and the understanding of students' digital footprints. Participants discussed contract-related worries centered on privacy and digital security concerns. This helps with the comprehension of elementary school teachers' worries and behavior around digital safety (Martin, 2022).

**Chapter 3: Methodology and Limitations**

**Participants**

The participants in the current study will be students who are in the 2nd grade, so there will be a consent form for the students to sign in order to conduct the study. The population is under 70 second grade minority elementary public school students. The sample will be a random selection of 10 students from each of the three 2nd grade classrooms. The students will be selected as possible participants because they are currently primary school students. The school where the study will be conducted is in a suburban area that has 290 students enrolled. Participants will be divided into two categories: digitally literate students (i.e., students with background knowledge/training on how to properly use digital resources) and non-digitally literate students (i.e., students without background knowledge/training on how to properly use digital resources).

**Instruments**

This study includes a digital literacy familiarity knowledge kahoot quiz informative section, a digital safety 3-point quality Likert-scale survey examination section, and a digital engagement 3-point Satisfaction Likert-scale survey evaluating section. The information provided is developed based on the characteristics of what qualifies one as a digitally literate individual. The examination section for one's digital safety will be classified by perceived risks that students believe would increase their level of online risks. The evaluating section for the students’ level of engagement will be determined by their active use of technology in the classroom.

**Digital literacy knowledge quiz**

This will be the first part of the study for the 2nd Grade students to separate into the two focus groups. The quiz is there to assess each student's understanding of technology and multimedia resources. This will be a survey on how well they know how to use technology and its resources. The students will use kahoot to test their understanding of technology and multimedia resources, which will be a short questionnaire on their overall technological understanding. Students that have a score of over 85% correct on kahoot will be classified in the digitally literate group. The students that will get 50% or lower will be classified as non-digitally literate. The convenience sample method will be used to gather 15 digitally literate students and 15 non-digitally literate students for the study.

**Related factors: Digital training and Accessibility of Technology Survey**

Students will answer a yes or no question on whether they have technological resources in the home. This survey is important to see the correlation between accessibility of technology at home and their digital literacy ability to answer research question 2.

**Digital safety quality scale**

There will be a survey of students' level of digital safety before and after having digital training. This will tell us if digital training will improve a students digital safety and engagement. The 5-point Likert scale was created by Reniss Likert. The scale will be reduced to a 3-point scale to simplify the scale for the second grade students. The 2nd grade students will reflect on their safety online and record their perceived level of safety. For example, students that are safe from any proposed threats to their learning, the students will state that they are a 3-Great. If the student feels that they are somewhat in the middle they will select 2-okay. If the student believes that they will be endangered by using technology, the student will select 1-poor. There are many safety risks, such as cyber bullying, overexposure, data leaks, etc (Martin, 2022, Sittichai, 2020, Tomczyk, 2020).

**Digital engagement satisfaction scale**

The 2nd grade students will rate their level of engagement and interest in using technology with the use of the 3-point Likert satisfaction scale created by Reniss Likert. For example, students that are completely engaged in the online activity will state that they are a 3-Great. If the student feels that they are somewhat in the middle they will select 2-okay. If the student believes that the online activity is not fun at all the student will select 1-poor. There will be visual representations with each level, such as a smiley face, slightly happy face, and a frown face. The way the students have fun at the end of the day is because of their overall motivation. This will prove that technology use can be used as an effective tool to further motivation.

**Data Collection**

It will be collected in a quantitative data analysis format. Using a convenience sampling method, an online survey will be administered, which includes the above-described scales measuring digital literacy, digital safety, and engagement. Demographics will be stated in the results. The survey will be approved by the Institutional Review Board (IRB) and consent forms will be sent to parents prior to the study being conducted for the student participants. At the beginning of the data collection process, participants will be informed of the purpose of the research and the expected time to take the survey. They will also be informed that their participation in this survey is completely anonymous and voluntary. This study’s sample will comprise of a maximum of 30 2nd grade students at a minority public school with a high population of Multilingual learners learning English as a second language.

**Date analysis**

Statistical Package for the Social Sciences (SPSS) 26.0 will be used to analyze the data. Prior to analysis, data will be examined for missing values. To answer research question 1, the independent variable is students' level of digital literacy, which includes the digitally literate and non literate groups. The dependent variables for this research question are digital safety and engagement. Research question 2 will be answered with the independent variable digital literacy and dependent variable accessibility of technology in students' homes. The Statistical Package for the Social Sciences (SPSS) will be used for the data analysis. To answer each research question, an independent sample t-test will be used to examine the differences between the two groups (kids from technology accessible homes and kids from scarce technology desert homes). The dependent variable in this study will be level of digital safety and engagement.

**Limitations & Future Research**

There are some limitations worth noting regarding the definition of the key constructs of the study, study participants, and data collection method. First, the key construct of the study, motivation, is a general term that can be defined and measured in various ways using different theoretical frameworks. Second, this study adopts a self-reported questionnaire. Therefore, there is a possibility that respondents’ answers on individual items might not accurately capture their true perceptions. Students who take this survey may not thoroughly understand their level of digital competency, and their level of digital safety and engagement can be affected by recent events they may experience. Studies evaluate how much students are digitally safe from overexposure, data leaks, and cyberbullying, etc. Model digital citizens, which is basically how well the students understand technology safety norms, use technology/multimedia resources, and maneuver through online spaces. This will provide a comparison on how digital safety and digital literacy can impact a students overall engagement and technology learning experience (Reeses, 1998). While digital literacy cannot guarantee that children won't encounter online safety issues, it can provide them with critical information, resources, processes, and tools to assist safeguard their safety and privacy as much as possible (Reeses, 1998). There have been many studies on the increase of technology use after the Covid 19 pandemic, which provides so much information on how to become a digital citizen (Lubis, 2021). In addition, there have not been many studies on how one's ability to appropriately use technology has affected the students willingness to use technology to engage in their learning. Therefore, I hope to convey the findings on digital safety, digital literacy, and engagement levels through the perspectives of using technology frequently throughout the students' learning experience.

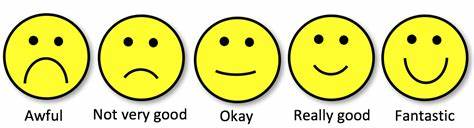
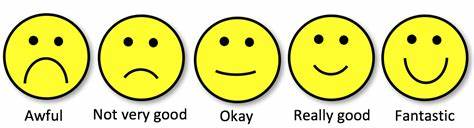
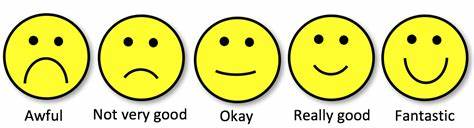
**Digital Literacy Scale**

Kahoot questionnaire used to receive a total of 30 convenient sample participants

Digitally literate = 85% accurate or greater on kahoot questionnaire

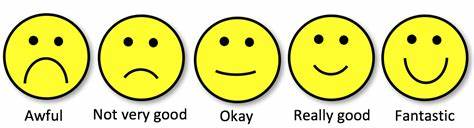
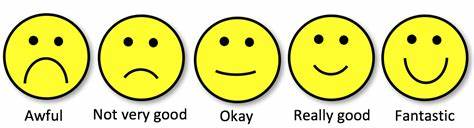
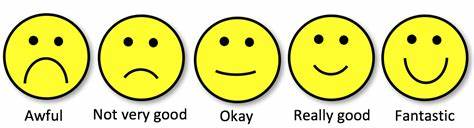
Non-digitally literate = 50% accurate or less on kahoot questionnaire

**Digital Engagement Satisfaction Scale**

| **1- Poor** | **2- Okay** | **3- Great** |
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**Digital Safety Quality Scale**

| **1- Poor** | **2- Okay** | **3- Great** |
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**Accessibility of Technology Resources**

Yes or No (access to technology in your home)

**Digital Training** (Important for Research question 2)

-school provides training on how to use technology

This will tell us whether digital training and/ accessibility of technology in the students home are factors that affect digital safety and engagement.

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