The Importance of Implementing Digital Citizenship Curriculum in K-12

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Abstract

This review examines peer reviewed articles regarding digital citizenship and its use as curriculum in K-12 schools. The studies reviewed include examples of the types of curricula out there, how they have been used in classrooms, and how a state has implemented a law requiring digital citizenship in public schools. The articles also show various ways these schools are trying to implement digital citizenship curriculum to students. The goal of this review is to provide an understanding of why digital citizenship is needed, and how the curriculum is currently being used in schools.

Keywords: Digital citizenship, education, public education, schools, digital literacy

Introduction

How people communicate and interact with each other has dramatically changed in the past few years. Communicating online is how society functions, how people receive information and entertainment, and how our children are receiving their education. When the COVID-19 pandemic hit in 2020, education was driven online to finish and start school years. Students were quickly equipped with one-to-one devices like tablets and Google Chromebooks to finish their learning. Since COVID, those one-to-one devices are still in students' hands, and teachers are still using online tools to teach. With all these eyes online, it makes sense that digital citizenship curriculum is more vigorously being implemented in more schools. These curriculums involve elements of digital communication, etiquette, literacy, security, health and wellbeing, law, money, and rights and responsibilities.

After reading through 10 peer-reviewed articles from the Sul Ross State University Library and Google Scholar, using keywords and topics such as digital citizenship, curriculum, K-12, and implementation, what was found was teachers and school districts are attempting

implement digital citizenship into their school curriculum. It was also found that digital citizenship is still a new concept in school districts. The review of this literature can provide an opportunity to explore more in implementing digital citizenship into the classroom.

Literature Review

Digital citizenship refers to the ability to use technology correctly and appropriately rather than merely using it (Tangül & Soykan, 2021). Other definitions describe it as proactive engagement in the virtual world, and the development of the agency, i.e., a capacity to act and to ensure successful integration as citizens in a digital society (Tadlaoui, et al., 2022). The articles cited curriculums from Mike Ribble, Common Sense Media, and International Society Technology in Education (ISTE). Ribble's curriculum takes a nine-step approach: (1) digital access, (2) digital commerce, (3) digital communication, (4) digital literacy, (5) digital etiquette, (6) digital law, (7) digital rights and responsibilities, (8) digital health and wellness, and (9) digital security (Phillips & Lee, 2019). The ISTE has seven categories for its curriculum where students can increase their knowledge and skills in the digital world (Ladd & Traver, 2023). Every state in the United States, and many countries across the globe, use ISTE standards to create curriculum in K-12 schools (Heath & Marcovitz, 2019). Common Sense Media has a branch called Common Sense Education, which is a well-known resource among K-12 teachers (Phillips & Lee, 2019). Common Sense Education has six main areas of focus, which are very similar to the other curriculums: (1) media balance and well-being; (2) privacy and security; (3) digital footprint and identity; (4) relationships and communication; (5) cyberbullying, digital drama, and hate speech; and (6) news and media literacy (Phillips & Lee, 2019). While curriculums exist for digital citizenship, the actual implementation of these curriculums in K-12 schools has been rather scattered. Digital citizenship is often used as an "umbrella term" for

classes that teach technology but don't teach digital citizenship (Tadlaoui-Brahmi, et al., 2022). Although students learn how to use digital tools, schools have only just begun addressing how to educate students in the responsible use of these tools (Tadlaoui-Brahmi, et al., 2022). The need for teaching digital citizenship in schools is there. The Pew Research Center stated in 2011 that 95% of 12-17-year-olds use the internet, and 80% of internet users use social media (Bayder, 2022). Parents teach children not to talk to strangers in person, but often impose fewer restrictions in this direction when online (Bayder, 2022). With rapid increase in internet and social media in teens, this leads to an increase in screen time, technology, and internet addiction. Because of this, it is necessary for school leaders to develop their digital literacy skills and start implementing applications for safe and appropriate uses of technology (Bayder, 2022). Being a digital citizen is just as important today as being a good citizen in society. The ideal digital citizen is an active citizen; not just a resident but a person who makes change (Curran, M.B.F.X. & Ribble, M., 2017).

From birth, most children have access to technology through touch-screen display (Ladd & Traver, 2023). Common Sense Education's "Media Balance and Well-being," along with "Privacy and Security" curriculums can fit into United States Head Start programs (Ladd & Traver, 2023). Ribble's website breaks down his nine steps by grade level, giving examples of how digital etiquette can be used in kindergarten through second grade, and digital health and welfare in middle school (Phillips & Lee, 2019). Common Sense Education has tailored lesson plans for each grade level (Phillips & Lee, 2019). A study using an in-school curriculum called "Screenshots" showed that New England middle school students increased their knowledge in digital citizenship concepts, including being less supportive of unkind online behavior and supportive of privacy and safety (Bickham, et al., 2021). The idea of using a curriculum that

provides lessons like a video game proved successful in Thailand middle schools. Games and game-based learning grabbed and held the students' attention (Tapingkae, et al., 2020). The results showed that students that used the game-based program had better digital citizenship scores than those who received traditional instruction (Tapingkae, et al., 2020).

While many curriculums focus on the negatives of online and possible dangers, some elementary school teachers are using classroom Twitter accounts to provide students with opportunities for positive social media use (Curran, M.B.F.X. & Ribble, M., 2017). Social media is also being used to teach digital citizenship at the secondary level. Students see organizers of recent online movements like #BlackLivesMatter, #FreePatrick, and #FridaysforFuture showing a strong presence and collaborating with others over a certain goal to raise awareness, influence policy, and change public opinion (Ladd & Traver, 2023). Using social media in a digital citizenship curriculum can help prepare students for civic engagement, better their communication skills, and create a positive social networking (Gleason & Gillern, 2018). The iCitizen Project expands digital citizenship into an interconnected, local, global, and digital perspective (Curran, M.B.F.X. & Ribble, M., 2017). An iCitizen is a person who is "aware, empathic, socially responsible, and action oriented in regard to social justice issues," or a "citizen of the world" (Curran, M.B.F.X. & Ribble, M., 2017).

To create a great digital citizenship program in schools, it takes more than a curriculum. In 2015, the Utah State Legislature passed the "Safe Technology Utilization and Digital Citizenship in Public Schools" bill requiring school districts, charter schools, or colleges of education to "provide for education and awareness on safe technology utilization and digital citizenship" (Phillips & Lee, 2019). However, when it came down to implementing the curriculum, many schools left it up to their school librarians. The school librarians' roles vary

from school to school, many are paraprofessionals and perform other duties, and many have limited time with students (Phillips & Lee, 2019). Digital citizenship instruction and implementation is more than just providing prepackaged lessons, it needs to be a collaboration between teachers, paraprofessionals, school librarians, technology directors, and administrators (Phillips & Lee, 2019). In a 2021 study, it was found that digital citizenship was more widely known by teachers who were currently teaching than teacher candidates in their final year of university (Tangül & Soykan, 2021). Schools need to be education hubs, so that the lessons that happen in the classroom will spread to outside the classroom (Curran, M.B.F.X. & Ribble, M., 2017). At the same time, educational leaders should also be role models for their students and parents in using technology and social media effectively and correctly (Bayder, F., 2022). Just like raising a child, it takes a village to teach digital citizenship.

Conclusion

The teaching of digital citizenship in schools is critical now more than ever. The Covid-19 pandemic dramatically changed how we view online learning and online instruction. Students need a better understanding of how the online world works, both bad and good. Teachers and administrators need a better understanding of how to teach students to be good digital citizens. As found in these articles, it is shown that there is no clear-cut method on how to achieve these goals. It takes a team to teach digital citizenship, just as it takes a team to teach any other school subject.

The idea of digital citizenship being implemented into classrooms is one that every school district should be addressing. Further research should be done by interviewing teachers, administrators, and students from schools that have implemented a digital citizenship curriculum. While we have seen some of these schools in the 10 articles cited, the research was mainly done

by surveys and only one really interviewed school staff about the use of the curriculum. None of the articles talked to the students involved, but instead used surveys. Surveys are effective, but students and teachers have opinions. Results are more personal and more inciteful by conducting interviews. Additional research will be critical to indicate how much training teachers should receive when beginning to implement the curriculum. Interviews with school district leaders and teachers who, once again, use a digital citizenship curriculum would be helpful. This further research also needs to be conducted in both rural and urban school districts, to get a wider perspective.

Education is no longer simply a teacher in front of a classroom lecturing. Today's students are accustom to touch screens held in the palms of their hands receiving all kinds of information, good and bad. It is the role of the teacher to help steer students to factual information. As third-grader Curran Dee said in a TEDxYouth talk, "If you want us to learn about the world, we have to learn with the world" (Curran, M.B.F.X. & Ribble, M., 2017).

Research Question

Following my literature review, I have formulated a question for research asking: what are the pros and cons in making digital citizenship a mandatory subject in K-12 education, and what are the most effective strategies for its implementation within the curriculum?

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Tadlaoui-Brahmi, A., Çuko, K., & Alvarez, L. (2022). Digital citizenship in primary education: A

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Appendix A

Article Analysis

The Importance of Implementing Digital Citizenship Curriculum in K-12

Tangül, H., & Soykan, E. (2021). Comparison of students' and teachers' opinions toward digital citizenship education. *Frontiers in Psychology*, *12*, 752059.

Digital citizenship refers to the ability to use technology correctly and appropriately rather than merely using it. The purpose of this study conducted in the article was to compare the digital citizenship levels of teacher candidates studying in the last year at the departments of classroom teaching and primary school classroom teachers and to reveal their needs. This article analysis will summarize the key points of this study and its findings.

This study tries to address that due to the COVID-19 pandemic, digitalization of classrooms, and increase use of technology in our daily lives, the number of technology users, including classroom teachers, continues to increase. Because of this, the researchers believe that technology has added a new dimension to human relations and communication, bringing about the network society and digital citizens hence digital citizenship. The researchers break down digital citizenship into nine dimensions in their study: "Digital Access, Digital Trade, Digital Law, Digital Rights and Responsibilities, Digital Health, and Digital Security."

The article in this review explored the relationship between digital citizenship and learning success, in particular teachers who are now faced with students who are exposed to rapidly changing technologies and exposures, which may cause teachers to experience problems with regard to technology proficiency and awareness. Therefore, the study used qualitative

analysis between current primary classroom teachers and candidate teachers in their last year of study to determine their digital citizenship levels and the development of "Digital Citizenship Education."

The study was conducted with a total of 65 individuals, comprising of 38 primary classroom teachers and 27 candidate teachers during the 2020-2021 fall semester. The participants were chosen according to targeted random sampling method. The researchers conducted interviews with open-ended questions related to the nine sub dimensions of digital citizenship using a Google Form. The researchers then uploaded all texts to QDA Miner Lite program, where raw data was analyzed by the researchers very carefully before being coded. In their findings, the researchers reported that digital citizenship sub dimension scores of classroom teachers were higher than the teacher candidates, and that the teacher candidates needed digital citizenship education.

Digital citizenship is not a new concept, as the researchers in this article quote studies as far back as 2009. However, until the 2020 COVID-19 pandemic hit, teachers didn't think about providing their lessons digitally or using technology to teach as much as we do now. It's not surprising that the classroom teachers scores were higher, they are around digital citizenship more in their learning environment. This study says that universities need to start including some digital citizenship and digital teaching methods into their education programs, so that teaching candidates have this experience before setting foot in the classroom.

It was interesting to note that the classroom teachers are well informed about digital law, and that behavior on social media and using text messages were negative and should not be used. Candidate teachers still saw those two digital mediums as positive. Once again, candidate teachers need to be instructed at the university level about their presence on social media and the

use of text messaging before they become professional teachers. The study also stated that both sets of classroom teachers stated that they had insufficient knowledge about digital ethics and needed to receive seminar style training. This shows that a digital citizenship curriculum is needed not only for students, but also for teachers as well.

I found this study to be interesting in showing how teachers, and candidate teachers, are needing digital citizenship training, which, to me, strengthens the argument to implement such a curriculum into schools for all grade levels. I liked the breakdown of the nine sub dimensions of digital citizenship to show how the curriculum could be broken down and written for schools. This article also shows how school districts need to implement some digital citizenship professional development training for teachers in their district. Overall, this was a good article that will help me reemphasize my topic.

The Importance of Implementing Digital Citizenship Curriculum in K-12

Phillips, A. L., & Lee, V. R. (2019). Whose Responsibility Is It? A Statewide Survey of School Librarians on Responsibilities and Resources for Teaching Digital Citizenship. *School Library Research*, *22*.

In 2015 the Utah State Legislature passed the "Safe Technology Utilization and Digital Citizenship in Public Schools" law that mandated K-12 schools provide digital citizenship instruction. This study explored how school librarians in Utah implemented the digital citizenship curriculum. While the bill required that a school community council of parents, students and teachers in each school district be charged with ensuring the digital citizenship curriculum was offered, the bill did not identify who should lead the instruction, or how it should be provided. The study found that implicit expectation among district leaders in Utah was for school librarians to deliver the digital citizenship instruction because the librarians were responsible for information literacy instruction, and because the Web was increasingly becoming a default information source for research. The study wondered to what extent digital citizenship instruction was taken up by the school librarians and what resources they were using.

Digital citizenship is increasingly becoming a topic of conversation in schools, with parents, researchers, and in libraries due to cyberbullying, online harassment, and sexting incidents involving teenagers and children. Because school librarians currently deal with professional literature, the study cites several sources that find it reasonable for school librarians to also be responsible for a student's information literacy. Information literacy is a mixture of different literacies or "expanded literacies" under which digital citizenship falls. Also, school librarians often form relationships with teachers due to scholarly literature and publications. The

purpose of this study was to better understand the perceptions and beliefs of school librarians regarding state-mandated digital citizenship instruction in K-12 schools. As the mandate in Utah is unique within the United States, the study focused on a survey of school librarians throughout the state.

Out of Utahs's current 41 school districts, 32 were represented in the study's survey responses, which comprised a total of 134 librarians from metropolitan, suburban and rural communities. This represents 15 percent of schools, but according to numbers from the Utah State Board of Education, 58 percent of librarians. The study stated that the difference may be due to the number of recognized certified librarians as more school districts are using paraprofessionals. Librarians were sent the digital citizenship survey by email from the Utah State Board of Education, and then by email from the researchers to individual school librarians after a two-week period. In total 145 librarians submitted the survey. The survey was developed using Qualtrics, an online survey platform, and composed of closed and open-ended questions, including demographic questions. The study used both quantitative and qualitative analysis. The quantitative focused on percentage responses and descriptions, while qualitative responses were coded using Johnny Saldaña's approach to open coding. That approach involved a process of generating major codes as they emerge from responses and determining patterns. The codes were reviewed by the two researchers and broken down into minor codes.

The study found that the responsibility for digital citizenship instruction fell heavily on school librarians and technology specialists. Resources used for instruction included Common Sense Education's website, Utah's Online Library, Utah Education Network, and NetSafe Utah. Without a structured period of instruction or consistent instructional time, the study found that school librarians struggled to adequately teach digital citizenship within the time available. The

study also found that instruction should be a collaborative effort between school librarians and individual teachers. Finally, the study results stated that more training, support, and resources were needed to adequately implement the digital citizenship curriculum.

The study concluded that school librarians are in search of high-quality, up-to-date, and relevant resources that support their instruction for digital citizenship. The survey results showed that librarians must develop their own approaches to bringing digital citizenship instruction to students. The responses received revealed the potential for further research regarding digital citizenship instruction by school librarians. Librarians shared insights from their experiences with digital citizenship curriculum, but future work should delve deeper into the challenges of digital citizenship instruction and opportunities for school librarians to take a role in developing curriculum and resources.

This study brings to light a state that has decided to make digital citizenship a priority in their schools. However, like many state laws, it fails to give clear instruction as to how that law should be implemented. As the study found, the school librarians were lost at times and needed help to teach the digital citizenship lessons. There was also no defined curriculum for them to use, and the librarians stated they needed more time to teach the students. The study also said that many of the school librarians were paraprofessionals for their school districts, that means they had other duties on top of their library duties. In order for the law to truly be carried out, there needs to be a collaboration of teachers, librarians, and administrators, as the study suggests. This study is eye-opening in that if other states try to pass such laws regarding implementing digital citizenship curriculum, the law needs to be specific as to who will handle the instruction.

Digital citizenship is a topic that needs to be covered in all subjects. The study gives four suggestions on how to improve the program. Improvement one is training and education, which

states that librarians are lost as to what resources or the type of curriculum they should use. Training and education is needed for teachers and librarians to make this program successful. Improvement two is collaboration between teachers and librarians. Many of the librarians in the survey did not know what was being taught in the classrooms. Collaboration should also involve administrators, technology specialists, and computer education teachers in the school districts. As one librarian noted in the study: “Personally, I think I need to become more involved in the process [of designing lessons and teaching digital citizenship].” Improvement three was the need for whole-school support of digital citizenship instruction. Everyone in the school district needs to get behind this curriculum and program. Improvement four ended with making resources available to help create a curriculum for each school district.

This study is a good one that shows while digital citizenship is needed to be taught in schools, it also needs to be thought out. Today many students are now one-to-one with technology as school districts have added iPads and Google Chromebooks for students to use. This study was done in 2019, before Covid. When Covid hit in 2020, school districts implemented the one-to-one technology devices due to school shutdowns. So, for schools to implement digital citizenship curriculum, it can’t be solely left to just the school librarians as this study shows. It has to be a school-wide effort. This study is one that will be used in my continuing research of implementing a digital citizenship curriculum in K-12 schools.

The Importance of Implementing Digital Citizenship Curriculum in K-12

Tadlaoui-Brahmi, A., Çuko, K., & Alvarez, L. (2022). Digital citizenship in primary education: A

systematic literature review describing how it is implemented. *Social Sciences & Humanities Open*, *6*(1), 100348.

With the COVID-19 pandemic, schools had to quickly find solutions to finish their educational mission. This new onslaught of technology has led to an increase in digital citizenship in schools. A common definition of digital citizenship refers to promoting respectful online behavior and civic engagement. Other definitions describe it as proactive engagement in the virtual world, and the development of the agency, i.e., a capacity to act and to ensure successful integration as citizens in a digital society. In this study, the researchers looked to answer the following questions: (1) How has digital citizenship been implemented and taught at the primary level to date? (2) What learning outcomes do teachers set? (3) And what impact does a study's year of publication, culture/country where digital citizenship is practiced, and student age have? By inquiring into how digital citizenship is realized in daily practices and specific classroom interventions, this study aims to contribute to operationalizing the theoretical concept.

In the study, the researchers adhered to the Cochrane Collaboration definition of systemic literature review: “A systematic review attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question. It uses explicit, systematic methods that are selected with a view to minimizing bias, thus providing more reliable findings from which conclusions can be drawn and decisions made.” In conducting the study, the researchers followed a predefined procedure by Newman and Gough (2020) that

defines the individual steps: formulation of the research questions, selection of studies according to inclusion/exclusion criteria, coding strategy, in-depth evaluation, and synthesis. A systematic review of articles published between 2009 and 2021 in peer-reviewed journals was performed using the following computer databases: APA PsychINFO, ERIC, Education Source, EBSCOhost and Dimensions.io. The exact terms to search abstracts were "digital citizenship," "primary," and "implementation." The study applied specific criteria to the articles: reading a real implementation of digital citizenship teaching, concerns primary education, written in English, French, or German, published peer-reviewed journals and completed after 2009. The study did not use theoretical studies, investigations at secondary or teriary education level, or articles written in other languages beside the three previously stated.

The initial search yielded 334 studies. After removing duplicates, analyzing titles and abstracts, and after reading all the articles, the researchers were left with 14 studies in their review. The models of digital citizenship were applied as a template to categorize and the approaches and goals targeted in the educational interventions. The study looked at Choi's model of digital citizenship that uses four educational approaches: ethics, media literacy, participation/engagement and critical resistance. They also used Ribble's nine-step model (digital access, digital etiquette, digital law, digital communication, digital literacy, digital commerce, digital rights and responsibilities, digital safety and security, and digital health and wellness), and then the areas of competence defined by Carretero et. al. (2017) that has information and data literacy, communication and collaboration, digital content creation, safety and problem solving.

In the results, the study found that the vast majority of studies is concerned with how digital citizenship is taught to future teachers at universities, with some of them targeting the high school level. Only very few focus on investigating DC education at the primary school

level. Furthermore, actual implementation measures in the classroom are rarely documented. The study found that digital citizenship is often used as an umbrella concept to justify projects, such as using the game "Minecraft" for media literacy purposes. Digital citizenship educational practices are used with the game, but do not provide a clear aim other than references to a framework of popular competences. The study also found it difficult to formulate a definition of digital citizenship as it related to a student's age. Older students are more often enrolled in digital projects, whereas younger students primarily learn digital literacy skills. The study found it difficult to understand how objectives are selected, or any coherency between how digital citizenship is defined and what is done in the classroom. The results also state that there is a lack of serious ethical reflection in the digital citizenship implementations, and students are not invited to question with how they engage with digital tools and environments. Overall, the study finds that it becomes apparent that how digital citizenship is taught greatly depends on the specific context, and that digital citizenship skills of students vary according to school level or country of implementation.

While this study is basically a review of other studies, it does have helpful information in citing how digital citizenship is being implemented in schools. From the study, we can see that digital citizenship is all over the place and schools are still trying to figure out the best way to educate students. We also gain knowledge that mainly secondary students are getting more hands-on learning in digital citizenship than primary students. However, this study is a hard read and very difficult to understand.

In researching digital citizenship, this study is not one to put at the top of the list. While the study breaks down other studies, it is the other studies listed in the reference section that

might be more useful in learning more about how to implement a digital citizenship curriculum in K-12 schools.

The Importance of Implementing Digital Citizenship Curriculum in K-12

Baydar, F. (2022). The Role of Educational Leaders in the Development of Students' Technology Use and Digital Citizenship. *Malaysian Online Journal of Educational Technology*, *10*(1), 32–46. https://doi.org/10.52380/mojet.2022.10.1.367

With rapid changes in technology, it's time that educational leaders start providing digital leadership to students to develop their digital citizenship skills in educational environments. The concept of digital citizenship, which is widely used due to the development of technology and the internet, emphasizes that students should integrate technology with their daily lives to live in the digital age. This study aims to investigate the role of educational leaders in students' acquisition of digital citizenship and technology use. The research study group consisted of school principals, assistant principals, and teachers working in Istanbul. The case study technique, one of the qualitative research designs, was used to describe the current situation in detail regarding the use of technology and development of digital citizenship behaviors.

The data was obtained with a semi-structured interview form, and content analysis was made. In this study, the face-to-face interview method was used for data collection. The data obtained with the semi-structured interview form were subjected to content analysis. The study looked at technology ethics, technology security, technology abuse, misuse of technology, and the role of the educational leader in gaining technology literacy. The study then took each category and broke it down into sub-themes. For technology ethics the sub-themes were empathy, being a role model, teaching programs, and increasing student awareness. Technology

security was broken down into protecting technology infrastructure and satisfying student curiosity. Technology abuse was broken down into protection of personal data, school/environment, community, information, and secure network access. Misuse of technology sub-themes were technology addiction and harm, cyberbullying, decreased academic achievement, and psychological and adjustment problems. Role of educational leader in acquiring technology literacy was broken down into technology infrastructure, being a role model, and technology awareness. There was also a theme of students' technology responsibility that was broken into the sub-themes of acquiring knowledge, self-confidence, technology curiosity, awareness of responsibilities, and active use of technology.

The conclusion of the study explains the roles of educational leaders in developing technology ethics in students, ensuring that students use technology safely, preventing students from misusing technology, and raising a sense of responsibility towards technology as required by age. The study found that educational leaders need to be role models for students, teachers, and parents in using technological leadership effectively and correctly. In technology ethics, the study found that educational leaders should set an example of behaviors to be exhibited in the digital world and how online communication networks should be used and should act following the ethical rules required by the digital world.

The study also found that it is necessary to adjust curriculum when dealing with students and digital citizenship, especially when they face cybercrime. Educational institutions should take all necessary security measures not to cause any negativity in this regard, the study found. The researchers discovered that schools should have secure access networks within the school's boundaries, so students can be safely connected to the online world. As a digital citizen, the study found that the educational leader should lead the other stakeholders of the school and be a

role model for students, teachers, and parents. Education leaders should be open to innovation and continuous development in digital citizenship and the correct use of technology. In this context, educational administrators and policymakers should put forward short, medium, and long-term policies to train educational leaders equipped with the skills required by the age and who can take technological leadership in educational organizations.

This study was very interesting, especially since it was conducted outside the United States. The study points out a very good point that it does take educational leaders, students, and parents working together to make students good digital citizens. However, it places the burden mainly on the educational leader, which means the educational leaders need to become more familiar with how the online world works, both negatively and positively. The study emphasizes that the curriculum for the students should be positive and not one to just scare students from being online. Students are already online; the curriculum should show them how to be good digital citizens.

The study also mentions that educational leaders should be good role models online, which is something that all educators and parents should do for students. This study was good and gave insight to educational leaders being the role models and the main ones to teach students how to be better digital citizens. I will be using this study in my project to emphasize the importance of a implementing a digital citizenship curriculum.

The Importance of Implementing Digital Citizenship Curriculum in K-12

Bickham, D. S., Moukalled, S., Inyart, H. K., & Zlokower, R. (2021). Evaluating a Middle-School Digital Citizenship Curriculum (Screenshots): Quasi-Experimental Study. *JMIR mental health*, *8*(9), e26197. https://doi.org/10.2196/26197

The curriculum Screenshots is used to develop positive digital social skills in middle school students with the long-term goal of improving their health and well-being. This study aims to determine the effectiveness of the Screenshots program in increasing participants' knowledge about key concepts of digital citizenship and in shifting beliefs and intended behaviors to align with prosocial and safe online interactions. The study also examines whether the program has varying effects on males' and females' conflict and bullying resolution strategies.

Screenshots is a nine-lesson, in-class, middle school curriculum that delivers lessons that help youth manage online conflict, recognize how online behavior contributes to mental health problems, practice empathy, and explore the role of digital media in peer pressure that can lead to bullying and substance use. *Screenshots* helps students to gain knowledge about how online communication impacts behaviors, to develop beliefs about how best to promote on‐line prosocial and healthy behaviors, and to cultivate the cognitive skills to actualize these new knowledge-based beliefs. It consists of three units with three lessons, each with each lesson de‐signed to be implemented within a standard 45-minute class.

The study used quasi-experimental evaluation in four middle schools in which one group of seventh grade students received the Screenshots curriculum and another did not. Before and after the curriculum, all students completed a questionnaire that measured their knowledge of and beliefs about digital citizenship and related online behavioral concepts, their attitudes regarding strategies for stopping online bullying, and their intended online conflict resolution behaviors. The sample included 92 students who received the curriculum and 71 students who were included in the comparison group. Pre- to postinstruction retention rates ranged from 52 percent to 84 percent, varying by school and condition.

The results showed an increase in knowledge about key curricular concepts for some students. In response to some individual items, students decreased their belief supportive of a negative online behavior and increased their belief consistent with an online safety behavior compared with the comparison group. Gender moderated the results related to conflict resolution, with males from one school reducing their endorsement of an aggressive option and males from another school increasing their reported tendency to pursue a nonaggressive option. On average, participants reported learning something new from the classes.

This study represents a rare evaluation of an in-school digital citizenship program and demonstrates the effectiveness of Screenshots. Students' increased knowledge of key curricular concepts represents a foundation for developing future beliefs and healthy behaviors. Differences in how adolescent males and females experience and perpetrate online aggression likely explain the conflict resolution findings and emphasize the need to examine gender differences in response to these programs. Students' high ratings of the relevance of Screenshots' content reinforce the need for this type of intervention.

The study is interesting in that it looks at male and female students' perspective on online conflicts. It's also interesting that the results from the four different schools are mixed in the male and female behaviors toward verbally aggressive behavior. It would have been nice if the researchers had also taken a qualitative approach and interviewed some of the students and teachers about their findings.

In fact, the study states it was limited by using on seventh graders, rather than a full range of middle school students. It also limited itself to one part of the country, the New England area, even though the study says the students were diverse and came from different backgrounds. Students see online behaviors and things differently based on where they live. The study showed that the Screenshots curriculum improved the seventh-grade students' knowledge in digital citizenship. Students also recognized the need for this program by indicating they learned something new that would be relevant to other children. This study, while limited, is a good example of implementing digital citizenship curriculum in classrooms, and one I will be using for my project.

The Importance of Implementing Digital Citizenship Curriculum in K-12

Tapingkae, P., Panjaburee, P., Hwang, G. J., & Srisawasdi, N. (2020). Effects of a formative assessment-based contextual gaming approach on students' digital citizenship behaviours, learning motivations, and perceptions. *Computers & Education*, *159*, 103998. https://doi.org/10.1016/j.compedu.2020.103998

Digital citizenship is an essential conception for fostering students' correct behavior and safe daily life habits while using computer and communication technologies. The advancement of computer and multimedia technologies has encouraged an increasing number of studies on digital game-based learning, which provides students with opportunities to experience various situations, and to cope with problems encountered in daily life. This study proposes a formative assessment-based contextual gaming approach to guide students to make decisions and to monitor their learning during the gaming process. A digital game-based learning environment was developed based on this approach, and a quasi-experiment on the digital citizenship topic was conducted in northern Thailand to evaluate its effectiveness. The experimental results show that the proposed approach not only enhanced the students' digital citizenship behaviors, but also promoted their motivations and perceptions.

In this study, a digital game was developed using the concept of the contextual decision-making approach and formative assessment. The game was a 2D role-playing game that required less computer power and wireless networking communication. The study employed the digital citizenship curriculum provided by Common Sense Education. The Common Sense Media curriculum prepares instruction for practicing good behaviors related to cyberbullying, digital drama, digital relationships, and online communication. In the study, the storyline tree of digital citizenship was developed based on the topic of cyberbullying generated by Common Sense Education's curriculum. It was validated by three information and communication technology (ICT) experts who had taught the ICT course for more than 10 years.

The storyline tree presented different online scenarios about students who are experiencing negativity online. The scenario timeline aims to allow the players to practice good online behaviors. Make good decisions led the players to good results, increased their score and they received a happy face emoji. Making bad decisions led players to a sad result leading to their score being reduced and they are recorded as showing cyberbullying behavior. Moreover, when the players make inadequate or bad decisions, the gaming system will direct them to corresponding scenarios to fix the problems and revise their decisions, leading to improved understanding of the concept. Each gaming scenario consists of more than two missions asking players to make decisions with the aim of helping them to practice good behavior. The gaming scenario missions displayed with texts, pictures, animation, and narration with multiple kinds of representation.

The first scenario mission was comprised of situations involving either cyberbullying or being upstanding, which is related to the difference between being a passive bystander and a brave upstander in cyberbullying situations. The second mission was comprised of safe online

talk situations; the students learned strategies for recognizing and responding to risky online interactions. The third mission was about the reality of digital drama situations; the students learned to analyze generalizations about men and women and to think critically about gender stereotypes, as well as their role in their own lives online. The fourth mission was cyberbullying with crossing the line; the students were asked to use their own prior knowledge from previous missions to make decisions in this mission. The students learn to distinguish good-natured teasing from cyberbullying, and learn about serious forms of cyberbullying, which include harassment, deception, flaming, and threats to safety.

The students in the study were between the ages of 12-14, in seventh and eighth grades in Thailand. There was a total of 115 students divided into two groups, where 60 students received digital citizenship learning activities with a formative assessment-based contextual digital gaming approach, and the 55 students in the control group completed the digital citizenship learning activities with the conventional learning approach, a contextual learning activity. Both groups of students used a similar worksheet. The researchers had no conflict of interest in this study. The students completed a 10-minute pre-digital citizenship questionnaire to evaluate prior practices of digital citizenship. Then, over 10 minutes, the teacher introduced the basic knowledge of digital citizenship and the overall learning goals and activities. Afterwards, over four days (a total of 160 min), students in the experimental group learned digital citizenship with the formative assessment-based contextual digital gaming approach as the in-class learning activity with the teacher as facilitator, while those in the control group learned digital citizenship with the conventional learning approach with the teacher playing the main role of providing a chalk-and-talk learning activity and feedback. Both groups of students completed a similar worksheet after the learning activities. The students then took a post-digital citizenship

questionnaire to evaluate their score of digital citizenship, and filled out the learning motivation and perception questionnaires, which took 40 minutes. Consequently, the score of digital citizenship of the two groups was compared based on their pre- and post-digital citizenship behaviors. Learning motivations and perceptions of the learning approach were also analyzed and compared. A pre- and a post-digital citizenship questionnaire were self-reported digital citizenship behaviors and were employed to measure the students' digital citizenship behavior.

The students' score of digital citizenship in terms of total digital citizenship (DCS), online respectful behaviour (ORB), online civic engagement (OCE), helpful bystander behaviour (HBB), online harassment victimization (OHV), and online harassment perpetration (OHP) were analysed through the digital citizenship questionnaire ratings by performing an independent *t*-test. It was found that before participating in the learning activities, there was no significant difference between the two groups. The main objective of this study was to compare the score of digital citizenship, learning motivations, and perceptions of students who learned digital citizenship in their usual school setting and those who learned digital citizenship via the proposed game. The test results from 115 secondary school students, who are 12–14-year-olds, showed that the proposed approach did provide a more effective game-based learning environment for the students; that is, the students who followed the proposed approach achieved a significantly better score of digital citizenship than those who learned with the conventional contextual learning approach.

Even though this study was conducted in Thailand, it wouldn't be surprising if similar results were found with students in the United States. Living in a digital world, we have to change how we teach. Not just digital citizenship, but all subjects. If students can play a game where they must make choices and get a reward at the end, they are better able to learn and

remember the lesson. Not saying that the conventional approach of teaching is not needed, but both need to be integrated into today's world of teaching.

This study admits to having limitations, only using a single school and using data instead of interviewing the students and teachers, it is a good study to show the use of a digital citizenship curriculum in a classroom. Overall, I will be using the study in my project research.