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Digital Literacy Curriculum: A Case Study Approach to 21st Century Source Evaluation Skills

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Digital Literacy Curriculum:
A Case Study Approach to 21st Century Source Evaluation Skills

by

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Minnesota State University Moorhead

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Abstract

DIGITAL LITERACY CURRICULUM: A CASE STUDY APPROACH TO 21ST CENTURY

SOURCE EVALUATION SKILLS

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Minnesota State University Moorhead 2023

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This study focuses on the impact that digital literacy curriculum has on online source evaluation skills. The focus is on whether providing modern digital literacy lessons will increase the ability to find bearings online. Research participants were asked to complete asynchronous lessons teaching them modern source evaluation skills. Results of the study used a qualitative approach comparing responses from a pre-test and post-test. The pre-test and post-test are parallel assessments with the same questions. The only change from the pre-test to post-test was the topic of the sources evaluated. The study was conducted using teachers employed at a large school district in Minnesota. The data and results will follow.

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Introduction

Access to information has continued to evolve in the twenty-first century. During the 2016 election cycle in the United States, this became apparent to social scientists. The prevalence of misinformation online is at an all-time high. Students do not have the adequate educational training to discern credible sources in the digital landscape. There has been a rise in demand for media literacy curriculum (Adams, 2018). Educators have been looking for the answers to how to best teach students strategies that will allow them to independently explore the constantly changing online environment. Researchers have developed a curriculum based on tactics used by professional fact-checkers. When determining the purpose of a source, fact-checkers use strategies that allow them to find accurate information in less time than traditional information assessment strategies (Wineburg & McGrew, 2019). More research needs to be performed to continue evaluating best methods to teach students modern information assessment strategies that will survive the endless onslaught of the online world.

Part One: Brief Literature Review

Groups from around the world have been analyzing the effects of viral misinformation in society (Adams, 2018; Breakstone et al., 2018; Friesam, 2018; Hodgins & Kahne, 2018; Ireland, 2018; Kassinger & Kenneth, 2018; McGrew et al., 2019; Paisana et al., 2020; Scheufele & Krause, 2019; Sperry, 2018; Tully et al., 2019; Tynes et al., 2021; Waldrop, 2017; Wineburg & McGrew, 2019). When a country's population is not correctly informed, it can lead to distrust in epistemic knowledge (Scheufele & Krause, 2019). If the majority of the United States develops distrust of experts due to an increasingly polarized environment, the strength of democracy can be threatened (Adams, 2018; Breakstone et al., 2018; Friesam, 2018; Hodgins & Kahne, 2018; Ireland, 2018; Kassinger & Kenneth, 2018; McGrew et al., 2019; Paisana et al., 2020; Scheufele & Krause, 2019; Sperry, 2018; Tully et al., 2019; Tynes et al., 2021; Waldrop, 2017; Wineburg & McGrew, 2019).

Education standards across the nation do not provide adequate room for social studies educators to feed the expanding demand for media literacy instruction. According to a Youth and Participatory Politics survey, 84% of young people would like to be able to tell if online information is trustworthy (Hodgins & Kahne, 2018). The issue is that curriculum is outdated because of exponentially increasing information available online (Breakstone et al., 2018). Researchers with the Stanford History Education Group [SHEG] have established research studies to revamp media literacy curriculum by analyzing tactics used by professional fact-checkers (Wineburg & McGrew, 2019). Using a small sample of experts that included fact-checkers, historians, and Stanford undergraduates, Wineburg & McGrew (2019) found that fact-checkers' source evaluation skills were superior. Wineburg & McGrew (2019) stated “when

given to unknown sources and asked which site was most dependable, fact-checkers were 100% accurate at determining the more unreliable source” (p. 11).

Separate studies reveal that intervention needs to focus on educational systems. Paisana et al. (2019) stated, “that people with higher levels of education typically had increased media literacy skills” (p. 112). Another study by Tully et al. (2019) attempted to determine if targeted social media messages could improve the general population's ability to discern authoritative sources. However, Tully et al. (2019) results were inconclusive. Current literature tells educators that they may be the best chance to create a more informed society. Using civic online reasoning, researchers at SHEG did another study with only university students. McGrew et al. (2019) found the following: “Results showed a significant interaction between condition and time, which points to a statistically significant difference between the treatment and control groups in the gains made from pre-test to post-test” (p. 492). The research results can give educators a framework to develop their own research studies to determine student improvement at this level is repeatable.

Statement of the Problem

The issue explored by this study is whether curriculum needs to be updated to fit into the modern digital world. Adams (2018) asks educators to approach misinformation like it is pollution. Students need to learn to be information environmentalists that approach information with healthy skepticism (Adams, 2018; Friesam, 2018; Hodgin & Kahne, 2018; Kassinger & Kenneth, 2018; Kohnen & Saul, 2018; McGrew et al., 2019; Paisana et al., 2020; Sperry, 2018; Tully et al., 2019; Waldrop, 2017; Wineburg & McGrew, 2019). Students need to approach online content with the mindset that information needs to have a viable claim, evidence, and

reasoning. This mindset will create the opportunity for source evaluation whenever students come across information outside of school (Colglazier, 2018). In the expanding digital landscape this is more difficult to accomplish. Students must be taught information assessment strategies that allow them to safely traverse the trapdoors of the internet (Breakstone et al., 2018; Wineburg & McGrew, 2019). This study identifies a growing need to teach modern source evaluation skills that direct people to find bearings online in the classroom.

Purpose of the Study

As a social studies teacher, I have had growing concern about the state of democracy in the United States. Polarization has only increased since I became more civically invested during my first year of college during the 2015-2016 academic year. Civil discourse is a practice I heavily value. As I entered my teaching career, I noticed that even exceptional students were failing to identify supported information throughout the year. This drastically reduced the ability to facilitate productive discussion within the classroom setting. It made me question how teachers approach information assessment strategies. The term “fake news” constantly circles the social studies classroom, yet students all have a different definition of what it is. I would like to know if the intervention strategies preached by collegiate studies have the capability to equip students with the ability to accurately engage in inquiry-based lessons. In this first study, I will be introducing skills to colleagues that help them find bearings online (Wineburg & McGrew, 2019).

Research Question

How does exposure to modern digital literacy skills affect one’s ability to assess information?

Definition of Variables

The following are the variables of study:

Independent Variable: Media literacy instruction that focuses on educating students about information assessment strategies is the independent variable. Instruction will include teaching students about the media bias spectrum, using information assessment strategies to evaluate online sources, and how to use the Claim Evidence Reasoning [CER] framework to form supported arguments. Information strategies will focus on teaching students how to find bearings online by utilizing lateral reading and click restraint (Banks, 2017; Breakstone et al., Brown & Golden, 2017; 2018; Colglazier, 2018; Hodgin & Kahne, 2018; Kohnen & Saul, 2018; McGrew et al., 2019, p. 487; Platts, 2019; Scheufele & Krause, 2019; Tynes et al., 2021; Waldrop, 2017; Wineburg & McGrew, 2019).

Dependent Variable: The dependent variable was measured using a test-retest research design. A qualitative approach using content analysis was utilized to calculate change in student responses to the questions upon completion of the media literacy lessons.

Significance of the Study

Students lack the ability to accurately determine information online. Sam Wineburg has stated that, “Nothing less than our capacity for online civic reasoning is at risk” (Banks, 2017, p. 18). The job of education is to prepare students for career readiness. With the increase of virtual positions on the rise, students will not be able to effectively engage online. Breakstone et al. (2018) examined the current curriculum for teaching source analysis and determined it was outdated. Digital technology has outpaced current information assessment methods. This study sparked Wineburg & McGrew (2019) to investigate experts in information analysis. Their

research identified a place for research studies to start determining best practices when educating the population on media literacy. Literature for the topic of media literacy continues to expand, and teachers can help improve daily lesson planning by employing action research in their classrooms. Once the body of work grows large enough, the United States will be able to establish a national curriculum that is best practice in schools.

Research Ethics

The researcher followed the necessary process to protect all human subjects involved in this research study. That process is outlined in the following sections.

Permission and Institutional Review Board Approval

To conduct this study, the researcher will seek MSUM's Institutional Review Board (IRB) approval to ensure the ethical conduct of research involving human subjects (Mills & Gay, 2019). The researcher has received training to protect human research subjects (Appendix A).

Informed Consent

Protection of human subjects participating in research will be assured. Participants will be informed of the purpose of the study via a Letter of Informed Consent (Appendix B) that participants will return to the researcher. Participants will be aware that this study is conducted as part of the researcher's Master's Degree Program and that it will benefit their teaching practice. Informed consent means that participants have been fully informed of the purpose and procedures of the study for which consent is sought and that they agree, in writing, to participate in the study. Confidentiality will be protected through the use of pseudonyms (e.g., Participant 1) without the utilization of any identifying information. The choice to participate or withdraw at any time will be outlined both verbally and in writing.

Limitations

Limitations of this study lie in the scope of the research. A limited number of teachers volunteered to participate. Seven took the pre-test and four completed the post-test. Because the study is qualitative in nature, it still completes the goal of the action research. However, more studies will need to be completed to establish curricular change statewide because the study cannot be generalized. The study used a purposive sample and the participants were colleagues of the researcher which could limit the validity of any performance data from pre-test to post-test.

Conclusion

This introduction provided an overview of this research study. The researcher will attempt to determine if implementing digital literacy curriculum can help increase the ability to assess information online. Literature on the subject is expanding rapidly due to increased demand for modern media literacy instruction. As the digital landscape grows indefinitely, it is to the benefit of democratic societies to have an accurately informed population. This chapter highlights the existing problem, significance of the study, and the purpose. The research performed requires IRB approval that follows a strict code of ethics and informed consent. The research question and the variables were explained. The next chapter will provide a deeper look at the literature produced on media literacy curriculum.

Part Two: Literature Review

The purpose of this study is to determine if implementing digital literacy curriculum can help increase the ability to assess information online. Information can present itself through multiple mediums. Common mediums include friends, family, technology, social media, search engines, school, and personal experience. To help people become better consumers of information, it is critical that young people develop information assessment strategies. If society can successfully identify authoritative information, it will improve the world's ability to have civil discourse.

Media Literacy Defined

People often misconstrue literacy as the ability to read and write. It is much more complicated than that. The definition of literacy is “the ability, confidence and willingness to engage with language to acquire, construct and communicate meaning in all aspects of daily living.” (What is literacy?, n.d.). Literacy is an umbrella term that encompasses the human ability to comprehend communication. The focus of this research will be the topic of media literacy.

The National Association for Media Literacy Education (n.d.) defines media literacy as “the ability to access, analyze, evaluate, create, and act using all forms of communications.” The two definitions are at the heart of the same topic: How people comprehend each other. A connotation media literacy uses to separate it from traditional literacy is its connection to other formats of information. The term “media” for the purpose of this research includes television, radio, newspaper, podcasts, and the internet. Media literacy is about what people do with the information they access. Media literacy requires both digital literacy and news literacy skills

because of how media is consumed today. Through application of media literacy skills, people can discern a biased source and whether that source is reputable.

News literacy connects to information delivered to a population via news agencies. Following the definition of media literacy, people need to take in information, comprehend it, then utilize it to form supported arguments. If taught properly, students could gain tools to establish what topics are reported more often than others. Elmwood (2020) articulates an instructional model that applies what the researcher calls the journalistic approach (274-283). The framework of the journalistic approach follows question stems that include asking what, who, when, where, why, and how. This framework places importance on analysis of the source ahead of website design. This could be a solution for student understanding of the news cycle (Elmwood, 2020). Another group, The News Literacy Project, attempts to create understanding of the journalistic process. They claim that journalists ask: Is this timely, unique, interesting, or important? News reports will include stories that show traits from those four classifications. When students understand that journalists use this approach, it can explain why news often has a negative theme (News Literacy Project [NLP], n.d.). Students need to combine the knowledge of the journalistic approach with digital literacy skills, because younger people get most information online. News still occurs on print sources, yet people have turned to the internet for their information. McGrew et al. (2019) state, “The internet has radically changed how we access information. Vast quantities are easily accessible, and stories spread quickly no matter their accuracy” (p. 485). There is no escape from the effects of technology anymore. Constant connection has replaced the phenomenon of distance-decay. While this newfound access to information has increased information equity, people still need to know how to use it. Combining

digital literacy skills with news literacy skills has become a mandatory practice if society wants to bounce back from heavy political polarization (McGrew, 2019).

Reasoning for Increase in Media Literacy Literature

Misinformation (or false information) has always been around but there was a shift in literature regarding media literacy due to the 2016 election cycle in the United States in which the term “fake news” increased in prevalence (Adams, 2016; Breakstone et al., 2018; Friesam, 2018; Sperry, 2018; Tully et. al, 2019; Tynes et al., 2021; Waldrop, 2017). There is a concern in the scientific community that epistemic knowledge will start losing credibility in the public due to the hyper-polarization. An example includes public acceptance of vaccination falsehoods (Scheufele & Krause, 2019).

Society's distrust in expert opinion can have negative impacts on the population. If a person is politically engaged combined with spreading incorrect knowledge it can undermine beneficial information (Scheufele & Krause, 2019). According to survey data, 77% of people were not able to identify the correct needs for a scientific experiment (Scheufele & Krause, 2019). If people begin mistrusting media outlets that report on these scientific studies for the public, people will not be able to research on their own to collect the correct information. If people start to disagree with claims made by scientists that evidence supports that can create an issue. In societies with extreme polarization, the ability to use civil discourse could prove impossible (Scheufele & Krause, 2019). Social studies teachers are in a unique position to help students build their civil discourse skills to help combat distrust in supported epistemic beliefs.

Outdated Curriculum

Curriculum changes may be the best solution to this problem. Studies conducted in recent years evaluate media literacy skills of the United States population. One of the champions of research in the field is from the Stanford History Education Group. Sam Wineburg, Stanford Professor, created the group to battle misinformation commonly presented in history survey courses (Stanford History Education Group [SHEG], 2002). Wineburg has partnered with experts in the field to provide educators research on more effective training methods when students approach searching for information. Reflecting on the 2016 presidential campaigns, news networks attempted to create information for the public on fact-checking. These resources might help, but people still need the correct skills to use them. In an article published by Breakstone et al. (2018), 7,804 student survey responders struggled with identifying fake online content. One explanation offered is that students require a different form of training.

Information literacy educators have often used checklists to help students examine a piece of information. When most sources were in print, the checklists worked more efficiently than finding other supporting sources. One method used was the CRAAP test which asks students to answer questions based on currency, relevance, authority, accuracy, and purpose of a source. Students would need to take in the whole source to answer these questions. This is a time-consuming adventure. Adults also have difficulty reading entire sources of information. How can educators expect their students to do the same? (Alvin Sherman Library, Research, and Information Technology Center, 2022).

Breakstone et al. (2018) states, “It’s easy to understand the appeal of such checklists... On the other hand, as far as we can tell, none of the checklists is based on research about what

skilled people actually do when facing a computer screen. In fact, checklists may lead students astray” (p. 28). Computer design tools have advanced beyond the current curriculum. Anyone with a basic knowledge of web design could make a site that passes checklist criteria. A primary example of this would be a website created by the Employment Policies Institute, *minimumwage.com* (Employment policies Institute [EPI], n.d.). The website presents itself as a fact-based, non-partisan view of how minimum wage affects the United States. This is far from the case. Both are online resources created by Berman & Co. and funded by the food and beverage industry. Richard Berman, the owner, and operator of these online resources is notorious for creating think tanks that help corporate backers. Using tremendous amounts of money at their disposal they create websites that look legitimate. *Minimumwage.com* passes the CRAAP test but is misleading in nature due to bias against raising the minimum wage (Breakstone et al., 2018; Wineburg & McGrew, 2019).

Research on the population's poor media literacy skills have increased heavily in the last few years. Although formed from a small sample size, Wineburg & McGrew (2019) created a research study that compared Professional fact-checkers from reputable news organizations, university historians, and Stanford undergraduates in information assessment tasks. Fact-checkers were 100% effective in determining that the *American College of Pediatrics* was an unreliable source. Historians were only 50% effective in completing the same task. Students were only 20% effective. Researchers believe that the difference comes from curriculum training. Historians focused on their method of source evaluation to their detriment. They took more time than fact-checkers and they did not find as much valuable information. The individuals from the student and historian category are not less intelligent. The way students

experience information assessment curriculum needs to change because digital design technology has outpaced it (Wineburg & McGrew, 2019).

Information Assessment Strategies: How Curriculum Needs to Change

Current speculation of changing state curriculums highlights that the nation is aware that media literacy is vitally important to running a democratic society. Students still need to be able to vertically read sources traditionally as well (Wineburg & McGrew, 2019). The proposition is not to throw out what we have done, but to adapt and modify it to become more efficient when all people are deciding what information to grasp onto. Strategies researched by analyzing techniques of professional fact-checkers can give teachers clues to teaching valuable information assessment skills. Skills needed for improving civic online reasoning include the following: Finding bearings (online), lateral reading, click restraint, organizing arguments using CER framework, identifying sourcing, using a journalistic approach, finding reliable fact-checking resources, and media making (Banks, 2017; Breakstone et al., 2018; Brunsell, 2012; Colglazier, 2018; Elmwood, 2020; Ireland, 2018; McGrew et al., 2019; Roberson, 2018; Sperry, 2018; Waldrop, 2017; Wineburg & McGrew, 2019). These strategies should be built into the national curriculum to best prepare students for exploration online.

Information Assessment Strategies: Online Bearings

The American Press Institute (2015) reported that 74% of young people get their news online. Though more people have access to vital information, the population cannot always determine reliable sources. Scheufele & Krause (2019) determined the following, “A recent assessment of American students’ media literacy demonstrates that the vast majority of them struggle to (i) recognize possible biases of politically charged tweets and (ii) distinguish between

a news story and news-like advertisement” (p. 7664). The same survey found that 23% of American adults had knowingly shared false information on social media (Scheufele & Krause, 2019). This data supports an idea shared by Wineburg & McGrew (2019). When exploring online, just like exploring in the physical world, people need to find bearings (Wineburg & McGrew, 2019).

According to Wineburg & McGrew (2019), it is crucial that educators provide tools for students to navigate the dense online jungle. The first information assessment strategy is teaching students how to take bearings. According to Wineburg & McGrew (2019), Professional Fact-checkers gain a sense of direction online. Using their description of a fact-checker they studied, they script how fact-checker C approached an unfamiliar source.

Checker C’s approach exemplified the advantages of taking bearings. He spent a mere eight seconds on the College’s landing page before going elsewhere. “The first thing I would do is see if I can find anything on the organization,” he said as he typed the organization’s name into Google. He clicked on Wikipedia’s entry about the College and read that it is a ‘Socially conservative association of pediatricians . . . founded in 2002. . . as a protest against the [American Academy’s] support for adoption by gay couples.’ (p. 12)

To gain their bearings the fact-checker uses the second assessment strategy, *lateral reading*, in the example prior. As mentioned, they were only on the parent source for eight seconds before switching to another source (Wineburg & McGrew, 2019).

Healthy Skepticism versus Cynicism

Using assessment strategies to find bearings online is only the first step. Students need to be able to find the information that establishes the purpose of a source. Understanding bias is the next step. Students often hear that they need to avoid biased information because they cannot trust it. This promotes a society that incorporates “us” and “them” mentalities. Merriam-Webster defines bias as “an inclination of temperament or outlook” (Merriam-Webster, n.d.). This definition gives a simplistic idea that bias is based on choice due to preference. To help students adjust to the complexity of bias in the media, the News Literacy Project (n.d.), teaches five types of bias. These types of bias include partisan bias, demographic bias, corporate bias, big-story bias, and neutrality bias (News Literacy Project, n.d.). When students become familiar with these types of bias, they will become more comfortable identifying their own viewpoints. This is a necessary skill that will allow the development of civil discourse (Adams, 2018; Friesam, 2018; Hodgins & Kahne, 2018; Kassinger & Kenneth, 2018; Kohnen & Saul, 2018; Scheufele & Krause, 2019; Sperry, 2018; Waldrop, 2017).

Bias is an “inclination of temperament or outlook” (Merriam-Webster, n.d.). When educators unpack that definition, students have the potential to realize bias is a person's opinion. If everything has bias, how can anyone trust anything? This realization can become counterproductive. Educators should guide students out of cynicism by guiding their experiences when they are researching material. Friesam states (2018), “There are several strategies for letting the complexity into our media literacy classrooms... They include: (1) focusing on power imbalances, (2) exploring economic interests, (3) determining intentions, (4) having students reflect on their biases, and (5) engaging in empathy-based dialogue that leads to social action”

(Friesam, 2018, p. 229). The strategies outlined can help students determine if a source is authoritative. Does the source follow strict journalism standards and ethics? Does it have a history of credibility? If the answer is yes, students can comfortably engage in using those sources reliably in classroom discussions regardless of bias. That still does not mean students can ignore the bias, they still need to be able to identify it (Friesam, 2018).

As students make progress through different skills, they need to become responsibly engaged by developing healthy skepticism instead of cynicism (Adams, 2018; Friesam, 2018; Kassinger & Kenneth, 2018; Kohnen & Saul, 2018). In Wineburg & McGrew's research (2019), fact-checkers always check the unfamiliar even if things appear trustworthy. Students must begin to do the same in the classroom to improve the quality of inquiry-based instruction. Information assessment strategies that help students find bearings online will be essential in curriculum design of the future (Wineburg & McGrew, 2019).

Education as the Solution for Lack of Literacy

More research on media literacy can determine the effect of revamped media literacy curriculum. The hope is that people who are media literate will more positively civically engage in society and promote civil discourse amongst their peers. Research studies can give educators clues about the positive effect teaching media literacy can have. Using a case study from Portugal, findings indicate that levels of education have a critical impact on acquisition of news literacy skills (Paisana et al., 2020). One cannot directly compare the population of Portugal to the United States, but a study performed by Tully et al. (2019) on the U.S. population indicated that blanket social media messages out to the public did not have significant impact. The researchers hoped to develop a strategy that would counter the rising tides of misinformation.

Their data indicates that prevention of a media illiterate population could fall to education systems. Even more telling, in a Youth Participatory Politics (2017) survey, 84% of young people surveyed would like to know how to determine trustworthiness of the news. From that same research group, young people who received media literacy instruction were 26% more likely to judge an accurate post as true than students who had not received media literacy instruction. These are all the signs the people need to make concerted efforts to improve the education system. Development of mandatory media literacy curriculum is necessary for every content area and students are thirsting for it (Hodgin & Kahne, 2018; Tully et al., 2019).

Theoretical Framework

Information online continues to expand infinitely. Without an ability to control what develops on the internet, educators must turn towards curriculum to make sure the population can find quality information. Civic online reasoning includes multiple information assessment strategies that people can use to discern credible source material faster than before (Breakstone et al., 2018; Stanford History Education Group [SHEG], n.d.). A theory and mode of curriculum delivery developed by Stanford Professor, Sam Wineburg, civic online reasoning is “the ability to effectively search for, evaluate, and verify social and political information online.” (SHEG, n.d.). Distinguishing between methods that have the most significant improvement of information evaluation skills will prove critical to accessing civil discourse in society (Banks, 2017; Breakstone et al., 2018; Colglazier, 2017; McGrew et al., 2019; Hodgin & Kahne, 2018; Kohnen & Saul, 2018; Platts, 2019; Scheufele & Krause, 2019; Tynes et al., 2021; Waldrop, 2017; Wineburg & McGrew, 2019). For this study, the independent variable will be media literacy lessons. Qualitative measures will determine the effect on the dependent variable which

is middle school teachers' responses to the pre-test and post-test questions. Answers will be based on quality of response.

Research Question

How does exposure to modern digital literacy skills affect one's ability to assess information?

Conclusion

This chapter provided an overview of the current literature that discusses the topic of media literacy in society. There is minimal widespread evidence of the effect of media literacy curriculum on improving information assessment strategies online in the classroom. Researchers require more empirical evidence to reach the national level where they could make a larger push for development of a national curriculum. Evidence does exist that shows the U.S. population cannot easily navigate online. By furthering research, educators will be able to better implement a curriculum that prepares all students for the ever-expanding virtual landscape. The next chapter will outline the methodology of this study.

Part Three: Methods

Students lack the skill to find bearings in an expansive digital landscape (Wineburg & McGrew, 2018). Curriculum development must fill this need. Literature that provides resources for teachers has increased in recent years. These resources do not have enough data to support the impact of media literacy instruction on secondary students. Secondary school teachers need to turn to action research that expands on existing studies. Research teams have been working to find efficient information assessment strategies that allow improvement of digital forensics. Even modest interventions have created statistically significant results when students were taught source evaluation strategies such as lateral reading, click restraint, and evidence analysis (McGrew et al., 2019). Secondary teachers need to expand on curriculum models like SHEG's civic online reasoning (SHEG, n.d.). If teachers understand what methods work best to establish information assessment strategies, they can begin developing students that are ready for informed civic engagement.

Research Question

How does exposure to modern digital literacy skills affect one's ability to assess information?

Research Design

The test-retest design adopted by this study followed tasks developed by the research team at SHEG (McGrew et al., 2019). The paradigm explored followed the mission behind the civic online reasoning curriculum (SHEG, n.d.). At the beginning of the study, participants performed three tasks that measured their ability to accurately determine the purpose of an unknown source before the first lesson in the form of a pre-test. To participate in the study,

participants needed uninhibited access to the internet. An example task asked participants to determine whether the site minimumwage.com was a biased source. When participants declared the bias of the source, they needed to explain their reasoning behind their choice. If the source was declared unbiased, they identified why they believed the source is unbiased. After the pre-test, the researcher provided asynchronous instruction on information assessment strategies. Lessons included how to utilize lateral research, click restraint, and how to understand bias. After participation in these lessons, participants had to complete a parallel assessment to the pre-test.

The researcher used qualitative data assessment in the form of content-analysis using rubrics that rank participants from limited, approaching, to applying (McGrew et al., 2019). This research method allowed a variety of ways to show how participants gathered information on a novel source. Reflecting on open-ended responses can allow the opportunity for the researcher to clearly understand the participants' thought process. Question design focused on drawing out participant thought processes. Calculation of lesson impact occurred by comparing participant performance on the rubrics as well as responses to survey questions within the pre and post-test.

Setting

The setting of this study was a large school district in the metro region of Minnesota. The 6-8 school had a total enrollment of around 2000 students. Most of the surrounding population lived in suburban areas. The municipalities are to the Northwest of Minneapolis. The demographics of the school included a 51% minority enrollment rate, coupled with 32% of the students being economically disadvantaged (U.S. News, n.d.). The rate of diversity has increased in the past decade and there has been a stronger focus on building social equity within the school

district. Surrounding communities of the Minnesota Metro were heavily affected by recent events involving police violence towards people of color. In response, professional development has had a strong focus on culturally responsive teaching for educators employed within the district.

Participants

The total number of participants included 4 teachers employed within the district. They volunteered their time outside of contract hours to participate in the study. Two of the participants taught social studies. The other participants taught math and family and consumer science.

Sampling

The researcher used a purposeful sample for this study. This is customary practice in action research because the researcher can access data more easily. The study can not be generalized due to this sampling. The results of the study will still help the researcher inform their teaching practice.

Instrumentation

The instrument used for this action research was an assessment delivered through Google Forms. Participants took assessments at the beginning and end of the lessons. The three tasks used on the assessment mirror tasks created by the research team at SHEG. These tasks determined if ability to evaluate source credibility increased when the researcher introduced media literacy lessons (McGrew et al., 2019). The authors of the extant research gave permission to mirror their study methods. Evaluation of the tasks used rubrics to determine change in

response from pre-test to post-test. Questions used were open-ended and required participants to explain their reasoning (Appendix C).

Data Collection

The open-ended assessment questions created by the researcher were delivered through a pre and post-test. Students took the assessment at the beginning and end of the lessons provided online. The medium of the assessment was online through Google Forms. Participants accessed the assessment via a link delivered via email or Google Classroom. A digital survey ensured efficient data evaluation. The researcher kept data confidential when assigning scores within a rubric for each participant.

Data Analysis

Rubrics modeled after those used in McGrew et al. (2019) determined if participants were limited, approaching, or applying source evaluation strategies introduced to them in the asynchronous lessons based on content-analysis of responses. An answer's placement within the rubrics determined if participants increased their information assessment skills after delivery of instruction. Survey questions embedded within the pre- and post-test required participants to identify their prior exposure to source evaluation strategies, if they had heard of lateral reading prior to the study, and how they could potentially use the lessons within their own classrooms.

Research Question and System Alignment

The table below provides a description of the alignment between the study Research Question and the methods used in this study to ensure that variables of study are accounted for (Figure 1).

Figure 1

Research Question Alignment

Research Question	How does exposure to modern digital literacy skills affect one's ability to assess information?
Variables	The dependent variable in this study was middle school teachers' responses to digital literacy lessons and how it impacted their ability to evaluate resources online. The independent variable is the delivery of digital literacy lessons.
Design	The study used content-analysis qualitative research within the scope of action research. Researcher evaluated participants using the test/retest method.
Instrument	An assessment that utilized survey questions and 3 Tasks that required students to determine the purpose and credibility of an unknown piece of information.
Validity & Reliability	The assessment model mirrored research studies run by McGrew et al. (2019). These researchers have been analyzing instructional strategies for their civic online reasoning curriculum.
Technique	Google Forms was the assessment medium. Responses were evaluated using rubrics that determined if participants were able to accurately complete the tasks. Content-analysis of results from pre-test to post-test informed the researcher of current levels of interaction by middle school teachers with digital literacy curriculum.
Source	A total of seven middle school teachers. Three of the seven completed the whole study.

Procedures

Action research took place asynchronously over the course of the month of April in the year 2023. Colleagues of the researcher were asked to volunteer to make up the sample size of the study. Participants were asked to fill out a letter of informed consent. The letter described what would be expected of the participants to take part in the study. Participants would need to work during off-contract hours to complete four hours of activities that included a pre-test, a Screencastify video further describing to participants the purpose of the study, online lesson modules through Checkology, and a parallel post-test.

Completion of the research study materials was self-paced and required sequential delivery of the materials. Participants were delivered the pre-test through a link that was emailed to them. The researcher provided instructions to take no longer than twenty minutes to complete the pre-test. As each participant completed the pre-test, the researcher accessed the results online and evaluated responses. After a participant completed the pre-test, they were sent a link via Google Classroom. In the Google Classroom participants had access to the following: the pre-test rubric, a Screencastify introduction video, and the link to access Checkology.

The Screencastify video further explained the purpose of the study and modeled how to use source evaluation skills using the minimumwage.com example from the pre-test. Participants could choose to use the pre-test rubric to reflect on their current knowledge of source evaluation skills and compare that to the modeled approach in the video. The video also explained to the participants how to access and navigate Checkology to complete the digital literacy lessons prior to taking the post-test.

The researcher included three main modules within the Checkology course created for the study. The three main lessons included understanding bias, misinformation, and evaluating sources online. The understanding bias module discusses how bias impacts the material one views online. The lesson provides participants with examples of types and forms of bias. The misinformation explains how malicious content creators purposefully distribute disinformation online to manipulate behavior. The lesson provides participants with examples on how content could misinform people online. Using the skills from the understanding bias and misinformation lessons, participants need to complete the evaluating sources online module to complete the Checkology portion of the study.

The researcher can track participant progress through Checkology and can provide participants who have completed their lessons with the post-test. The post-test was provided via the same method as the pre-test. Once the post-test was completed, participants were completed with the study.

Ethical Considerations

The well-being of the participants was pivotal when conducting this research. Attempts to reduce the amount of personal time required from the participants were at the forefront of the research design. The study required no synchronous meeting times for participants so that they could complete the study materials at their own pace. Participants were aware they could withdraw participation from the study at any time. These factors display that the study caused no further increase in stress than the normal demands of the participants' profession.

Conclusion

This chapter summarized how action research was used to collect, analyze, and interpret data. The setting of the study and the participants were described. The reason behind the research design and how it aligned with the research question was examined. The procedures included a description of the asynchronous research study design that allowed participants to complete the study self-paced. The researcher was able to gather qualitative data that further established the importance for implementing modern digital literacy skills in the secondary classroom. The following chapter includes the results of the research study described.

Part Four: Data Analysis and Interpretation

This study approaches the idea that curriculum in the United States needs to be updated to accommodate for the improvement of technology and the increase in the number of people accessing information online. Researchers have found that even well-educated individuals are struggling to determine credibility of information online (McGrew et al., 2019). The purpose of this study is to determine if exposure to updated digital forensics skills can increase a person's ability to assess information online.

Data Collection

A purposeful sample of middle school teachers volunteered to participate in the research study. All participants were sent the link to a Google Form pre-test to begin participation in the study. The pre-test consisted of one survey style question and three tasks that required open-ended responses from the participants. The goal of the pre-test was to have the participants provide their thought-processes so the researcher could use qualitative content-analysis of participant responses. To help organize responses, the three tasks were embedded into a rubric to evaluate each participant's answers. After the researcher evaluated each response, participants were provided access to digital literacy lessons through Checkology. After participants were given time to complete the instructional material, they were provided with a link to a Google Form post-test that was a parallel assessment to the pre-test. The post-test consisted of the same three tasks as the pre-test except the topic of the tasks was changed from minimum wage to pediatrics. The post-test also included three closing survey questions so participants could offer their feelings about the content of the study. The responses from both the pre-test and post-test were used to analyze the themes of the study.

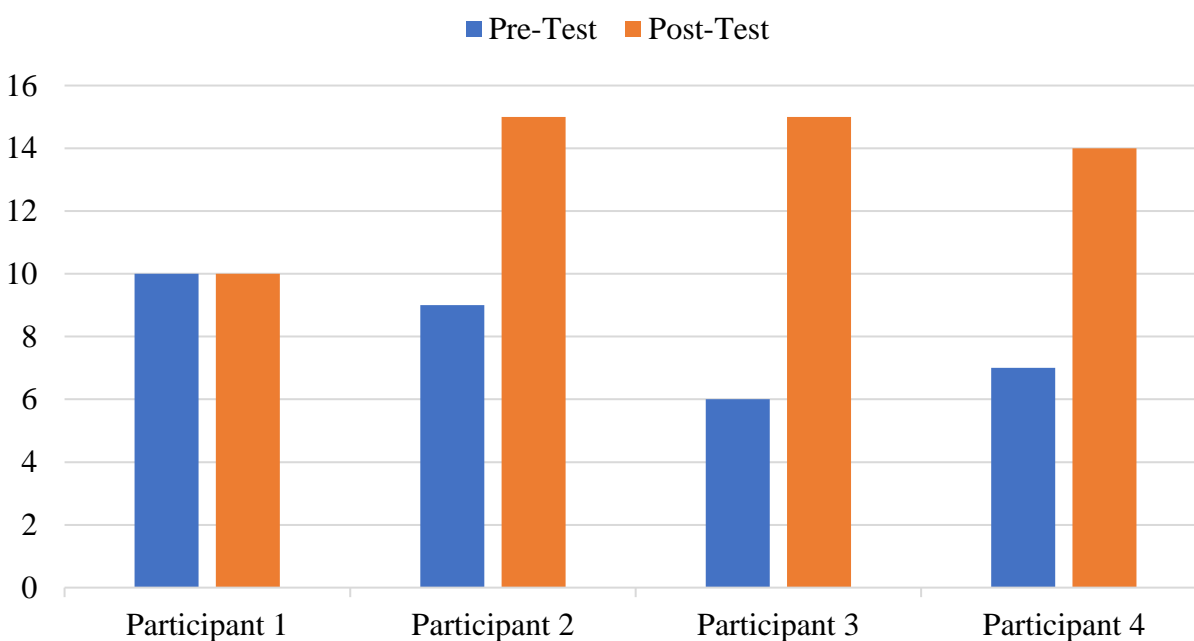
Results

How does exposure to modern digital literacy skills affect one's ability to assess information?

Performance on the pre-test and post-test for participants that completed the full study are displayed in Figure 2. The performance of both Participant 2 and Participant 3 improved their scores to applying on all three tasks. Participant 1 did not show any change from pre-test to post-test. Participant 4 was able to improve their performance on each task except task 1.

Figure 2

Participant's Pre-Test Score Compared to Post-Test Score



Task 1 of the pre and post-test asked participants to write a response based on three questions. What is the difference between bias and reliability? How are bias and reliability connected? If something is biased, does that always mean it is unreliable? Figure 3 displays quotes from each participant for task 1 from pre-test to post-test. Throughout task 1, most

participants were able to discuss bias accurately. What was missing was the context of the media. Connection to bias in the media came out more in post-test responses. Participant 2 mentioned checking other sources to compare information which is a great strategy to practice. Determining the reliability of a source can come from seeing that information repeated on other reputable news sources. It should be noted that no participant discussed bias and reliability falling on a spectrum.

Figure 3

Participant Task 1 Responses

Task 1	Pre-test Response Quotes	Post-test Response Quotes
Participant 1	“Bias does not always mean a source is unreliable, you can prove your source is reliable by providing evidence for your information being truthful”	Response from pre-test to post-test did not change
Participant 2	“Bias is when someone is in favor of a certain side/argument” “someone could be biased but they are still knowledgeable about a topic”	“Reliability is if the source can be trusted. Is it a well-known media source or is it just someone's blog/post/video of their own opinion.” “Even if something is biased, it may still be reliable. The source could still present accurate information, it just might be one sided.” “you would want to check other sources as well to compare the information”
Participant 3	“No, Bias can be reliable if that is what the observer is looking for. Ultimately it comes down to what the goal of the observation of said (biased) material would be.”	“Bias is the sway of a writer to either share information involving their own beliefs or on topics of their interest, whereas reliability is whether or not the writing was intended to be factual or not.”

Participant 4	“I don’t necessarily believe that if something is biased it makes it unreliable. Everyone has biases whether they admit it or not.”	“Bias and reliability are connected by the way an article or piece of information is written, who it is written by, and the intended framing of information.”
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Task 2 for both the pre-test and post-test used a source that was unreliable. Participants needed to determine the purpose behind the source to effectively respond to the task. Figure 4 displays highlighted responses for each participant from task 2 for both the pre-test and the post-test. All of the participants failed to discover the true source material behind minimumwage.com from task 2. They guessed that the source was biased but had misguided reasoning or only used the website itself to discuss the bias it contained. For example, participant 2 argued that the website only provided benefits for increasing the minimum wage. This is the opposite of what the website is trying to accomplish. Participant 4 claimed that the website would be reliable to use for discussions on the minimum wage. On the post-test, three out of the four participants discovered the purpose behind the American College of Pediatricians. Participant 1 was the only response that did not provide evidence of lateral reading to evaluate the source. They claimed that the source was biased, but not because of their philosophies on American family structure. The three participants that utilized lateral reading were able to accurately determine that the American College of Pediatricians is a group that supports “mother-father family” groups only. Because of this stance, participant 4 highlighted their use of demographic bias. Participants that utilized source evaluation strategies from the study had more accurate responses and specific details to support their claims.

Figure 4*Participant Task 2 Responses*

Task 2	Pre-test Response Quotes	Post-test Response Quotes
Participant 1	<p>“I do believe the source was biased, but reliable. They were able to support their claim with statistics and evidence, providing information about the benefits of providing a minimum wage to increase employment levels.”</p>	<p>“The American College of Pediatricians is a national organization of pediatricians and other healthcare professionals dedicated to the health and well-being of children.”</p>
Participant 2	<p>“I think it is biased because some of the articles I was reading on the website seemed to provide heavy arguments for one specific side”</p> <p>“the article I read provided many examples for the benefit of raising the minimum wage, but very few for the opposite side.”</p>	<p>“before I even explored the website I used lateral reading to find a few articles stating that this website is promoting a certain agenda.”</p> <p>“This means they are going to leave out any scientific articles that do not go along with their theory that a ‘mother-father family’ is the best way to raise a child.”</p>
Participant 3	<p>“It is important to note their research itself isn’t biased as they are looking and working with nonpartisan individuals to view and share the data of their research from a variety of different research institutes.”</p> <p>“The bias seems focused toward lower income individuals and benefiting them through legislation”</p>	<p>“After lateral reading and other fact checking it is clear that this organization has very strong biases against certain issues such as abortion or LGBTQ community adoption”</p> <p>“there is framing and tonal bias as the site focuses on the later faces of pediatrics and not on their more controversial issues”</p>

Participant 4	<p>“When I read “Joe Biden wants to increase taxes for tipped workers” it led me to conclude that the webpage had some biases.”</p> <p>“I would like to think that this is a reliable website to use for minimum wage.”</p>	<p>“After googling the source, I found that the American college of pediatricians is a conservative advocacy-based group that has a history of being anti LGBTQ”</p> <p>“demographic bias- The organization presents biases towards a certain group of people”</p>
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Task 3 for both the pre-test and post-test provided participants with a credible source to evaluate. To effectively respond to this task, participants needed to identify that the source was from a reputable agency. Figure 5 provides responses from both the pre-test and post-test for each participant. In task three of the pre-test, Participant 1 shows an excellent understanding of the media and determines the pre-test source was not biased. For the post-test, because the source was not from a major news network website, Participant 1 was not able to determine the validity of the American Academy of Pediatrics. Participant 1 did not reference use of any study specific source evaluation skills. Participant 3 and Participant 4 showed great improvement from the pre-test to the post-test. Both participants let their understanding of bias skew their responses. Participant 4 believes that any major news would be unreliable because of a common notion that all news sources are biased. What the response fails to discuss is how the specific article in question is biased towards the topic of minimum wage. Participant 3 targets the idea of corporate bias because modern political news casting has an agenda to accomplish. These responses were not able to determine that the article selected was from CNN online news that must follow a strict code of journalism. The post-test models improvement for Participants 2, 3, and 4 because they all site lateral reading within their answers. Each participant, excluding Participant 1, was

able to determine that the American Academy of Pediatrics was a reliable source for pediatric information.

Figure 5

Participant Task 3 Responses

Task 3	Pre-test Response Quotes	Post-test Response Quotes
Participant 1	“I believed the CNN website was unbiased, because they were able to quote research from both points of view.”	“Because they are focusing on providing information that will make the American Academy of Pediatrics a group that you will want to join and purchase a membership”
Participant 2	“Unbiased because the article presents even arguments for raising minimum wage as well as the harmful effects it could have. It states how raising the minimum wage would provide much needed money for the lowest paid employees, but it could also cause a loss of jobs.”	“Unbiased because I first used lateral reading on Google and found other websites stating that this is in fact a reliable source.”
Participant 3	“The answer is that this writer, following the means of modern political news casting is obligated to fulfill the narrative of her bosses and her bosses bosses. The reason in which this can clearly be sold as biased is the wording, and font changes that follow the actual article”	“Based on again lateral reading and other fact checking tools, I was able to see that in regard to this source they are rather unbiased and straight forward on news and research regarding pediatric health.” “I believe that this source would in fact be reliable as there are several branches of this organization throughout the United States with fundamental basis to their research.”

Participant 4	<p>“Based on my observation, it did not appear to be a biased webpage. With that said, CNN does have a reputation for being extremely biased favoring a specific political party.”</p> <p>“I would argue that any major news outlet would be unreliable because of the common notion that most news sources are biased in one way or another.”</p>	<p>“After googling AAP, I found no information that the organization/website was biased. There were credible sources involved with AAP. Under many of the top results on google, it was found that AAP has over 67,000 medical professionals which is the largest association of pediatricians in the US.”</p>
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Given the performance results from the three tasks, responses to the closing questions from participants were encouraging. Figure 6 displays the answers to closing questions one and two from the four participants. Participant 1 and Participant 2 both enjoyed the website Checkology. They explained that it was a great resource to learn about bias in the media and how to gather information. All four participants stated that they could see this being beneficial to share with students. Participant 3 acknowledges that misinformation and disinformation are going to continue to grow. Participant 3 claimed that they should be able to tell the difference between credible sources and unreliable sources. They believe that sharing this with their students is also important to building student skills to differentiate sources. Participant 2 and Participant 4 agreed that these information evaluation tools would be important when students participate in research projects for their given subjects.

Figure 6

Participant Closing Question Responses

Question	P1	P2	P3	P4
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<p>Q1: What value, if any, did you find from the resources shared with you during this research study?</p>	<p>“I did find some value in the lesson to help kids understand bias in media and website they may use to gather research. I though the checkology platform was a cool tool to use to run your lesson. It was visually appealing, gave you the ability to insert a variety of response questions (multiple choice, multiple mark, open response)”</p>	<p>“I enjoyed the checkology content, I thought it provided good information on the. types of bias as well as the way those affect the information provided in sources. I also thought it was good to go through and actually look at real sources to determine what type of bias, if any was present.”</p>	<p>“I found the value of taking time to actually see if there are any misleading in regard to the many different forms of media I take in on a daily basis.”</p>	<p>“I found all of the resources shared with me in the research study valuable. I am confident I am more suited to find reliable resources after completion of this research study.”</p>
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<p>Q2: Would you use the strategies discussed in the study with your own students? Why or why not?</p>	<p>“I think I could use some of the strategies to help students understand bias. I will say the checkology website was not the easiest to navigate. When I was in a lesson and needed to go back and look up definitions or previous answers, I really could not. When I was in the lesson and needed to exit to use the check center, I could not find a way to navigate back to the dashboard without closing the lesson, then going back to the check center, then once I used it I had to log back in and find my way back to the section I was working on.”</p>	<p>“I teach math so it may not be relevant to the everyday content, but if students were to complete any sort of research project I would want to use the strategies of determining bias to help them find reliable sources. I especially liked the idea of lateral reading to find out more about the website. I think this is something I would want to teach my students about.”</p>	<p>“I would, I think that it is important not only for myself to grow as an educator but to also pass along the information I have gained as a teacher to my students so that they can continue to add tools to a toolbox. Going forward these types of misinformation or disinformation are only going to continue and they will certainly need to be prepared for how to tell the difference between them.”</p>	<p>“I would absolutely use the strategies discussed in the study with my students. Specifically what to look for on websites (images, photoshop, lateral reading). I would use the strategies because I think this can help students find good resources when researching a specific topic”</p>
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Data Analysis

The data received from participant responses follows the path that the researcher expected. Anytime a person is given a pre-test and then a post-test the expectation is to see improvement of performance. Three out of the four participants showed the desired response

after they were exposed to the digital literacy skills highlighted within the literature used for this study. Performance was not the most important aspect of this study. Quality of participant responses did improve after exposed to the digital forensics' skills highlighted by SHEG's civic online reasoning platform (Banks, 2017; Breakstone et al., 2018; Colglazier, 2018; Hodgin & Kahne, 2018; Kohnen & Saul, 2018; McGrew et al., 2019, p. 487; Platts, 2019; Scheufele & Krause, 2019; Tynes et al., 2021; Waldrop, 2017; Wineburg & McGrew, 2019). In Sam Wineburg and Sarah McGrew's case study on civic online reasoning, they found that supposed experts were not the best at determining the validity of a source. Professional fact-checkers employed the skills necessary to examine an online piece of information quickly and accurately. West-coast history professors and Stanford students that participated in the study were not able to complete the tasks to the same degree of skill as the fact-checkers (Wineburg & McGrew, 2019).

The four participants in the current study displayed an inability to determine the purpose and intent behind sources that had hidden bias prior to lessons on modern source evaluation tactics used by professional fact-checkers. Even though the participants are all educated and employed within a large middle school in Minnesota, they had not been taught how to explore online content the way fact-checkers had been. The results of the pre-test were not surprising for this reason. Participant 1 was the only responder who did not emphasize the use of lateral reading in their post-test response. Participant 1 was the only responder who did not distinguish the difference between the American College of Pediatricians and the American Academy of Pediatrics. The former being a splinter group that believes only in the validity of mother-father family structures. The latter being a well-renowned group of pediatricians within the United

States. Participant 2, Participant 3, and Participant 4 were all able to highlight accurate details for each source on the post-test after only briefly learning about strategies like lateral reading from the study. The only problem encountered based on the design of the study was the lack of total participants. With a larger sample size, the study could depend more on performance data to determine the effectiveness of the digital literacy lessons and techniques. Delivering the instruction completely asynchronously also got in the way of some participants' ability to participate without guidance from the researcher. Technological issues with any of the study instruments were difficult to solve when the participants completed the lessons on their own.

Conclusion

This study researched the effect that exposure to modern digital literacy skills had on one's ability to assess information. A total of four participants completed the study in its entirety asynchronously throughout the month of April in 2023. The research method included qualitative content-analysis using a pre-test/post-test method. Using performance rubrics for parallel assessments, participant responses were evaluated from pre-test to post-test. More importantly, participants' responses were compared for each of the three tasks they completed on each assessment. The results of this study cannot be generalized or prove the effectiveness of using the civic online reasoning framework to teach source evaluation skills due to a small sample size. This study does support the growing body of extant research surrounding the topic of digital literacy curriculum. The results highlight the importance of the researcher to continue exploring and expanding their access to digital literacy curriculum in an expanding digital age. Future studies would utilize a larger sample size of secondary students within the context of a class unit.

Growing numbers of studies in this area could increase the necessity for mandating digital literacy instruction throughout secondary schools.

Part Five: Implications for Practice

The purpose of this study was to explore how exposure to modern digital literacy strategies influences a person's ability to assess information. An increasing number of the population are gathering information from online resources. Due to advancement in technology, it has grown easier to spread disinformation online that intentionally misleads consumers of that information. All people need to be taught twenty-first century digital sleuthing skills that allow them to determine the reliability of information quickly and accurately that they access online. The results of this study aligned with the results of extant research that displays expert ability to determine validity of online sources is lacking. Prior to lessons on digital literacy strategies used within the scope of this study, four participants were not able to effectively determine why an unreliable source was not credible. After accessing lessons on digital literacy skills like lateral reading, three of the four participants were able to provide accurate details behind why a source was unreliable. This study alone cannot promote larger changes in state or national curriculum but encourages continued efforts to research the effects of modern digital literacy curriculum in education.

Action Plan

This action research mirrors the findings of extant research involving society's current ability to analyze online information. It is crucial that educators begin adding curriculum to their courses that requires students to determine whether the information they are accessing is credible. In secondary education, it is common for teachers to provide students with all the information they need to complete a project. This method is not preparing students for the modern world. When people are outside the structure of education, they do not have an expert

facilitator to tell them that a social media message is not the best source of information. Students need to have the ability to determine credible sources of information on their own. Teachers should have projects that require students to compile their own research. From their research, students need to provide supported evidence and reasoning behind why their sources are credible.

Students that are not prepared to enter the digital world are in danger. Individuals that make decisions based on faulty information can have detrimental effects on society. Automatically believing information viewed online is true is harmful, but automatically believing everything online is false is equally bad. People need to be taught how to approach information they consume with healthy skepticism. Twenty-first century information assessment strategies emphasize the need to identify who is behind a source and the purpose behind why it was distributed. Do the contributors have expertise on the topic? What analysis is being used outside of just the facts? What is the effect of the information if it is true? Understanding of bias and reliability will impact the nature of democracy in the United States if fundamental change does not occur on how the population processes online information (Adams, 2018; Friesam, 2018; Hodgin & Kahne, 2018; Kassinger & Kenneth, 2018; Kohnen & Saul, 2018; McGrew et al., 2019; Paisana et al., 2020; Sperry, 2018; Tully et al., 2019; Waldrop, 2017; Wineburg & McGrew, 2019).

Plan for Sharing

I will share the results of this study across my content area in the school district that I work. Challenges were encountered at the district level regarding the use of supplemental materials. The materials required by this study were not approved to be used by the school

district I am employed in. Based on the results of the study, I would pursue getting the materials approved for classroom use. After the materials from this study are approved for classroom use, I will create a unit specific to the topic of media literacy curriculum to teach my students how to quickly evaluate online resources. I will incorporate questioning strategies that probe students to use evidence and reasoning that support their decisions to use certain sources. Eventually, I would like to use my expertise in media literacy curriculum to create an inquiry based cross-content elective course that requires students to create their own media. Students would then publish their media so that it is accessible to the surrounding community. Students would select their topic based on a public policy that interests them. The social studies portion of the course would require them to complete rigorous research to develop their own expertise and credibility on the subject they have chosen. The English portion of the course would help students select a mode of media to publish and utilize the peer editing process to finalize their media drafts for public consumption. This course could help students see the positive impact of credible information on their community. I would like the importance of media literacy to help establish school systems that create students that are responsibly civically engaged in the communities they live in.

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Appendices

APPENDIX 1. CITI Training Certification to Protect Human Subjects and IRB Approval

		Completion Date 20-Sep-2021 Expiration Date 19-Sep-2024 Record ID 44811493
This is to certify that:		
Joshua Woodley		
Has completed the following CITI Program course:		Not valid for renewal of certification through CME.
Social & Behavioral Research - Basic/Refresher (Curriculum Group)		
Social & Behavioral Research (Course Learner Group)		
1 - Basic Course (Stage)		
Under requirements set by:		
Minnesota State University Moorhead		
		
Verify at www.citiprogram.org/verify/?wfa0cf5bc-f674-4208-ad26-7010899ce71d-44811493		

APPENDIX 2: Letter of Informed Consent

February 15, 2023

6000 109th Ave N,

Champlin, MN 55316

Dear Research Study Participant,

You have been invited to participate in a study to see if modern media literacy instruction increases ability to accurately find supported data online.

You were selected because you are a colleague of mine and I would like to see your thoughts on the instructional strategies I have been researching. If you decide to participate, please understand that you will be asked to do the following.

1. You will be asked to complete asynchronous instructional materials during the window of March 24th—April 3rd. These materials will take approximately 2-4 hours during that timeline.
2. You will be given a pre & post-test to see how you responded to the asynchronous lessons.
3. Give me permission to anonymously use this data for my published research paper through Minnesota State University of Moorhead.

Although I have been given approval to invite you to participate in this study by our principal, the understanding is that you complete the instructional material outside of contract hours. You would be volunteering your time to me out of your own goodwill.

Please feel free to ask me any questions regarding the study. You may contact me through email at josh.woodley@ahschools.us

You will be offered a copy of this form to keep. You are deciding whether to participate. Your signature indicates that you have read the information provided and have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue your student's participation in this study.

Signature of Participant

Date

Signature of Investigator

Date

APPENDIX 3: Research Instrument for Pre-Assessment

Pre-Test questions, tasks, and performance rubric.

Evaluating Sources Pre-Assessment

* Indicates required question

1. **Preferred non-school email address:** *

2. **Preliminary Question:** What prior experience or training do you have regarding source evaluation skills? *

3. **Task 1:** Write a response based on the three questions below * 3 points

1. What is the difference between bias and reliability?
2. How are bias and reliability connected?
3. If something is biased, does that always mean it is unreliable?

4. **Task 2:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

1. Is the source linked to the question biased or unbiased?
2. **Based on your answer for the first question**, what is the reasoning behind your answer? Please list specific things that you noticed and explain your thought process.

- Task 2:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

If you answered biased for question 1

3a. If you believe the source is biased, what types & forms of bias are present? Provide reasoning for each type & form you listed. Would this be a reliable website to use for the issue of minimum wage? Why or why not?

If you answered unbiased for question 1

3b. If you believe the source is unbiased, what informed you it is an unbiased source? Please provide reasoning for each example listed. Would this be a reliable website to use for the issue of minimum wage? Why or why not?

6. **Task 3:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage.

* 3 points

[Click Here](#)

1. Is the source linked to the question biased or unbiased?
2. **Based on your answer for the first question**, what is the reasoning behind your answer? Please list specific things that you noticed and explain your thought process.

Task 1			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>No answer was recorded</p> <p>No attempt to answer the question is in their response</p>	<p>Answer does not respond to all parts of Task 1</p> <p>Response to parts of Task 1 are inaccurate.</p> <p>Explanation does not adequately explain bias & reliability.</p>	<p>Answer responds to all parts of Task 1</p> <p>Response displays partial understanding of bias & reliability. Response accurately describes bias or reliability but does not show understanding of how they are connected</p>	<p>Response identifies the differences between bias & reliability</p> <p>Response provides examples that explain how bias & reliability are connected</p> <p>Response shows understanding of how bias & reliability function in the context of the media</p>

Task 2: Question 1 & 2			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
"No answer was	"Response is	"Response is correct	"Response is correct

<p>recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>incorrect in determining the bias of the source</p> <p>Response is correct in determining the bias of the website but gives little or no reasoning behind the decision</p> <p>Response shows use of inefficient methods to determine the bias of the website"</p>	<p>in determining the bias of the website</p> <p>Response shows inefficient methods to determine the bias of the website, but provides correct reasoning for deciding the bias of the website"</p>	<p>in determining the bias of the website</p> <p>Response displays the use of efficient methods of evaluating online resources</p> <p>Reasoning provided aligns with available resources regarding the website"</p>
Task 2: Question 3a or 3b			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"3a: Response does not accurately describe types and forms of bias related to the source</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of minimum wage</p> <p>3b: Response shows no further analysis of the website beyond response to the previous question. Reasoning behind why the website is</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation may be lacking</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of minimum wage. However, explanation of the sources reliability is limited</p> <p>3b: Response shows further analysis of the website. Reasoning</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation provided shows efficient analysis of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of minimum wage. Reasoning is connected to an understanding of bias and reliability</p>

	<p>unbiased is misguided</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of minimum wage"</p>	<p>behind why the website is unbiased is logical, but does not provide further detail</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of minimum wage. However, explanation of the sources reliability is limited"</p>	<p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is backed by evidence from efficient evaluation strategies of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of minimum wage. Reasoning is connected to an understanding of bias and reliability"</p>
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Task 3: Question 1 & 2			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"Response is incorrect in determining the bias of the source</p> <p>Response is correct in determining the bias of the website but gives little or no reasoning behind the decision</p> <p>Response shows use</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response shows inefficient methods to determine the bias of the website, but provides correct reasoning for deciding the bias of the website"</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response displays the use of efficient methods of evaluating online resources</p> <p>Reasoning provided aligns with available resources regarding the website"</p>

	of inefficient methods to determine the bias of the website"		
Task 3: Question 3a or 3b			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"3a: Response does not accurately describe types and forms of bias related to the source</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of minimum wage</p> <p>3b: Response shows no further analysis of the website beyond response to the previous question. Reasoning behind why the website is unbiased is misguided</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of minimum wage"</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation may be lacking</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of minimum wage. However, explanation of the sources reliability is limited</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is logical, but does not provide further detail</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of minimum wage. However, explanation of the</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation provided shows efficient analysis of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of minimum wage. Reasoning is connected to an understanding of bias and reliability</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is backed by evidence from efficient evaluation strategies of the website</p> <p>Response logically explains why the</p>

		sources reliability is limited"	website would be reliable or unreliable to use on the issue of minimum wage. Reasoning is connected to an understanding of bias and reliability"
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APPENDIX 4: Research Instrument for Post-Assessment

Post-test questions, tasks, and performance rubric.

Evaluating Sources Post-Assessment

* Indicates required question

1. **Task 1:** Write a response based on the three questions below * 3 points

1. What is the difference between bias and reliability?
2. How are bias and reliability connected?
3. If something is biased, does that always mean it is unreliable?

2. **Task 2:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

1. Is the source linked to the question biased or unbiased?
2. **Based on your answer for the first question**, what is the reasoning behind your answer? Please list specific things that you noticed and explain your thought process.

3. **Task 2:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

If you answered biased for question 1

3a. If you believe the source is biased, what types & forms of bias are present? Provide reasoning for each type & form you listed. Would this be a reliable website to use for issues relating to pediatric health? Why or why not?

If you answered unbiased for question 1

3b. If you believe the source is unbiased, what informed you it is an unbiased source? Please provide reasoning for each example listed. Would this be a reliable website to use for issues relating to pediatric health? Why or why not?

4. **Task 3:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

1. Is the website linked to the question biased or unbiased?

2. **Based on your answer for the first question**, what is the reasoning behind your answer? Please list specific things that you noticed and explain your thought process.

5. **Task 3:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage. * 3 points

[Click Here](#)

If you answered biased for question 1

3a. If you believe the source is biased, what types & forms of bias are present? Provide reasoning for each type & form you listed. Would this be a reliable website to use for issues relating to pediatric health? Why or why not?

If you answered unbiased for question 1

3b. If you believe the source is unbiased, what informed you it is an unbiased source? Please provide reasoning for each example listed. Would this be a reliable website to use for issues relating to pediatric health? Why or why not?

6. **Closing Questions:**

*

1. What value, if any, did you find from the resources shared with you during the course of this research study?

7. 2. Would you use the strategies discussed in the study with your own students? Why or why not? *

8. 3. Prior to this research study had you heard of strategies such as lateral reading and finding bearings online? *

7. **Task 3:** Examine the webpage linked below. You may use any resources necessary to answer the questions regarding the webpage.

* 3 points

[Click Here](#)**If you answered biased for question 1**

3a. If you believe the source is biased, what types & forms of bias are present? Provide reasoning for each type & form you listed. Would this be a reliable website to use for the issue of minimum wage? Why or why not?

If you answered unbiased for question 1

3b. If you believe the source is unbiased, what informed you it is an unbiased source? Please provide reasoning for each example listed. Would this be a reliable website to use for the issue of minimum wage? Why or why not?

Task 1			
0	1	2	3

Missing/No Answer	Limited	Approaching	Applying
<p>No answer was recorded</p> <p>No attempt to answer the question is in their response</p>	<p>Answer does not respond to all parts of Task 1</p> <p>Response to parts of Task 1 are inaccurate. Explanation does not adequately explain bias & reliability.</p>	<p>Answer responds to all parts of Task 1</p> <p>Response displays partial understanding of bias & reliability. Response accurately describes bias or reliability but does not show understanding of how they are connected</p>	<p>Response identifies the differences between bias & reliability</p> <p>Response provides examples that explain how bias & reliability are connected</p> <p>Response shows understanding of how bias & reliability function in the context of the media</p>

Task 2: Question 1 & 2			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"Response is incorrect in determining the bias of the source</p> <p>Response is correct in determining the bias of the website but gives little or no reasoning behind the decision</p> <p>Response shows use of inefficient methods to determine the bias of the website"</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response shows inefficient methods to determine the bias of the website, but provides correct reasoning for deciding the bias of the website"</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response displays the use of efficient methods of evaluating online resources</p> <p>Reasoning provided aligns with available resources regarding the website"</p>

Task 2: Question 3a or 3b			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"3a: Response does not accurately describe types and forms of bias related to the source</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of pediatrics</p> <p>3b: Response shows no further analysis of the website beyond response to the previous question. Reasoning behind why the website is unbiased is misguided</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of pediatrics"</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation may be lacking</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of pediatrics. However, explanation of the sources reliability is limited</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is logical, but does not provide further detail</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of pediatrics. However, explanation of the sources reliability is limited"</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation provided shows efficient analysis of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of pediatrics. Reasoning is connected to an understanding of bias and reliability</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is backed by evidence from efficient evaluation strategies of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of pediatrics. Reasoning is connected to an understanding of bias</p>

			and reliability"
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Task 3: Question 1 & 2			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"Response is incorrect in determining the bias of the source</p> <p>Response is correct in determining the bias of the website but gives little or no reasoning behind the decision</p> <p>Response shows use of inefficient methods to determine the bias of the website"</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response shows inefficient methods to determine the bias of the website, but provides correct reasoning for deciding the bias of the website"</p>	<p>"Response is correct in determining the bias of the website</p> <p>Response displays the use of efficient methods of evaluating online resources</p> <p>Reasoning provided aligns with available resources regarding the website"</p>

Task 3: Question 3a or 3b			
0	1	2	3
Missing/No Answer	Limited	Approaching	Applying
<p>"No answer was recorded</p> <p>No attempt to answer the question is in their response"</p>	<p>"3a: Response does not accurately describe types and forms of bias related to the source</p> <p>Response does not include logical</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation may be lacking</p> <p>Response uses logic</p>	<p>"3a: Response identifies types and forms of bias related to the website. Explanation provided shows efficient analysis of the website</p>

	<p>explanation regarding the reliability of the website on the issue of pediatrics</p> <p>3b: Response shows no further analysis of the website beyond response to the previous question. Reasoning behind why the website is unbiased is misguided</p> <p>Response does not include logical explanation regarding the reliability of the website on the issue of pediatrics"</p>	<p>to establish if the website would be reliable to use on the issue of pediatrics. However, explanation of the sources reliability is limited</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is logical, but does not provide further detail</p> <p>Response uses logic to establish if the website would be reliable to use on the issue of pediatrics. However, explanation of the sources reliability is limited"</p>	<p>Response logically explains why the website would be reliable or unreliable to use on the issue of pediatrics. Reasoning is connected to an understanding of bias and reliability</p> <p>3b: Response shows further analysis of the website. Reasoning behind why the website is unbiased is backed by evidence from efficient evaluation strategies of the website</p> <p>Response logically explains why the website would be reliable or unreliable to use on the issue of pediatrics. Reasoning is connected to an understanding of bias and reliability"</p>
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