DIGITAL MEDIA IN THE TIME OF COVID-19 PANDEMIC: USING CIVIC ONLINE REASONING CURRICULUM IN CLASSROOMS

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Abstract

Due to the COVID-19 pandemic, misinformation has circulated the internet causing an infodemic. With the information in the palm of our hands, it is significant to teach our students about digital literacy. Digital literacy is the ability to identify, evaluate, communicate, and use the information found in digital platforms. This project will focus on one aspect of digital literacy: civic online reasoning which are the skills needed to evaluate, find and judge the reliability of online content to make informed decisions about social/political issues. First, this capstone will demonstrate the significance of digital media literacy by examining studies on the number of youth without civic online reasoning abilities. Following that, this capstone will look at research to see how misinformation may be handled through curriculum content and pedagogical strategies. Lastly, this paper will examine three widely used digital literacy curriculum and propose an improved curriculum. This capstone will ultimately help students gain the skills in identifying misinformation and the findings from this project can be used to explore other avenues of digital literacy.

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DIGITAL MEDIA IN THE TIME OF COVID-19 PANDEMIC: USING CIVIC ONLINE REASONING CURRICULUM IN CLASSROOMS

Introduction

The Coronavirus Disease 2019 (COVID-19), according to the World Health Organization (2020), is the first pandemic in history where technology and social media are being utilized on a large scale to inform the public, protect citizens, and remain connected. However, the internet we rely on to be informed is fueling an "infodemic" (i.e., disinformation pandemic) spreading propaganda, unproven scientific claims, and conspiracy theories. It is creating a public health threat on the same level as the virus (Bin Naeem & Kamel Boulos, 2021; World Health Organization, 2021). Although youth are less likely to be infected with COVID-19, they are more prone to become uninformed citizens since they are the most engaged on social media, such as Twitter and Instagram, connecting with an average of five digital platforms on a daily basis (World Health Organization, 2021). According to Bin Naeem and Kamel Boulos (2021), during the pandemic, social media sources including Facebook, Youtube, and others have become key information searching and sharing platforms, with the use of social media platforms growing by 20-87 percent all over the world. Access to credible information is critical during a health crisis, but this infodemic prevents our youth from judging the legitimacy of sources and making critical judgments on social issues like "Are vaccinations safe?" Unfortunately, the ability to deal effectively with both misleading and credible information does not disappear as a person matures. Also, a person's inability to analyze, judge, and identify reliable information will have a long-term impact on their lives and decisions (Gasser et al., 2012). Vulnerable communities such as youth need to be protected from the effects of misinformation which emphasizes the need for digital media literacy, specifically civic online reasoning.

Digital media literacy refers to a set of skills that includes the ability to obtain, evaluate, review, generate content while employing critical thinking in the digital age (Kahne et al., 2012). These digital media literacy abilities are important aspects of digital citizenship. They allow individuals to apply for jobs, find relevant health information, identify resources, express their opinions, and become engaged in social issues. Youths must practice and develop these abilities in order to fully benefit from them (Kahne et al., 2012). This paper will investigate a subset of digital literacy known as civic online reasoning, with the goal of assisting our youth in becoming better decision-makers and aware citizens in today's technologically advanced society (Bell & Wineburg, 2018). Civic online reasoning relates to the capability to find, assess, and comprehend information to make informed decisions on social issues.

First, this paper will demonstrate the relevance of digital media literacy by analyzing research to demonstrate the severity of youth missing civic online reasoning abilities. Furthermore, this study will look at how misinformation may be handled through pedagogical approaches and curricula that educate our youth on how to recognize and assess credible information. The study will investigate three digital literacy curricula and propose an improved effective digital media literacy curriculum that can be used in classrooms to help students gain skills to spot misinformation and become more informed citizens. This study may also lead to the investigation of new digital literacy paths to increase student learning, digital citizenship, and further minimize COVID-19 and future pandemic impacts.

Literature Review

The Importance of Civic Online Reasoning

The importance of digital literacy, particularly civic online reasoning, will be explored further by examining the results of two studies and through a literature review. The overview of

findings conducted by Stanford History of Education Group (SHEG) in 2016 and 2018-2019 will help give a better understanding of how students deal with misinformation online and if they can distinguish between reliable and unreliable sources. Moreover, the meta-analysis provides information on how youth use digital media indicating the need for educational initiatives.

Study 1: Measuring Civic Online Reasoning. The Stanford History of Education Group assigned 56 exercises to middle, high school, and college students from 12 different states in inner-city Los Angeles and suburban classes in Minneapolis' south suburbs. In all, 7,804 student responses were gathered and evaluated, resulting in the general conclusion that "young people's ability to reason about information on the internet can be summed up in two words: needs improvement "(McGrew et al., 2017). The assessments were designed to evaluate civic online reasoning competencies such as (1) identify information source, (2) evaluate evidence, and (3) explore other sources of information using a rubric to measure the analysis. The student responses were put into three categories “beginning” to “emerging” to “mastery” (McGrew et al., 2017; Wineburg et al., 2016).

(1)Identify the Information Source:Middle School Results. Middle school students were given a Slate's magazine website with news and advertising to see whether they could differentiate between a news piece and a native advertisement. Native advertisements are sponsored ads that look like news articles with visuals, headlines, and data. According to McGrew et al., (2017), the assignments produced disappointing findings, with 87 percent of students believing the item was a legitimate news report although it was marked "sponsored." This indicates that students lack the capacity to detect sponsored advertisements and ask the simple question, "Who is behind the information?"

(2) Evaluate Evidence: Middle School Results. To examine if middle school pupils can analyze evidence, they were assigned the task of evaluating internet comments as fake or trustworthy. The evaluation offered was based on a newspaper story on healthcare with an unverified commenter titled "Joe Smith," whose reply included figures but no citations, links, or evidence to back up the assertion (McGrew et al., 2017). Even though several criteria pointed to the claim being incorrect such as an unverified commentator and no citations, "40 percent of 201 middle school students said they would use Joe Smith's information in a research paper" (McGrew et al., 2017, para. 15). The responses of the students demonstrated that many believed the data presented by "Joe Smith" made the source highly reputable. This shows that our youth are more likely to be influenced by figures and statistics and accept information at face value rather than examining the source and who is providing it.

(3) Explore Other Sources: College Students Results. The task was given to undergraduates through Twitter, with a message from MoveOn.org providing a link to a webpage. This activity was designed to assess students' abilities to evaluate the information in the tweet and utilize the website link to determine whether the source was credible. However, only a few of the 44 students were able to dispute the polling's limits in broad comments. Furthermore, more than half of the students did not research the additional organizations mentioned in the tweet and did not visit the site provided in the tweet (Wineburg et al., 2016). This test demonstrated how quickly students might be duped into completely trusting a source and information without conducting their research.

Overall, as stated by McGrew et al., (2018) the civic online reasoning assessments showed that "across tasks and grade levels, students struggled to effectively evaluate online claims, sources, and evidence" (para.1). The tasks revealed a continuous trend in which

students do not question who is behind the material, make judgements based only on statistics, and do not pursue research on other websites when judging the credibility of a source. Furthermore, these findings suggest that curriculum resources that enhance students' cultivation of civic online reasoning abilities are necessary.

Study 2: Measuring Civic Online Reasoning Nationally. SHEG conducted an assessment of 3,446 pupils from 14 states from June 2018 to May 2019. This nationwide sample "better matched the racial/ethnic makeup of American public schools" (Breakstone et al., 2019; McGrew et al., 2018). Similarly to the SHEG research in 2015-2016, these assessments were based on three main civic online reasoning competencies. However, even at the national level the outcomes of the six evaluation exercises were classified as concerning (Breakstone et al., 2019). For one exercise, students were assigned an organization webpage that distributes real information on the consequences of carbon dioxide. ExxonMobil, a fossil fuel business, actually supports and finances the website. The students were tasked with determining whether or not this website was genuine and could use internet material to discover further information. Students were given a total of six tasks, all of which were graded using the rubric system utilized in the SHEG 2015-2016 research. Furthermore, scores were modified to account for systematic variations in geographical regions and demographic characteristics (gender, race, ethnicity, maternal education, language background, and free/reduced lunch) (Breakstone et al., 2019). The outcomes showed that students were challenged on all tasks; 2/3 student responses were scored as "beginning," on 4/6 tasks 90% of students did not receive any credit, with fewer than 3% of students earning full credit (Breakstone et al., 2019).

Meta-analysis: Searching Practices. Youth and Digital Media: From Credibility to Information Quality, released by Harvard University's Berkman Center for Internet & Society, is

a significant research report that investigates how young people look for and assess online information through five components. The study is a review of chosen literature on the interaction of digital media, youth, and information quality (Gasser et al., 2012). This first section of the examination of literature revealed insights of "key challenges are information overload, distraction, and complexity of information" (Gasser et al., 2012, p.9). The second component of the researched literature review, in which "relevance judgments" and "credibility judgments" were both looked at for uncovering trends: demonstrating youths employ indirect signals and heuristic - based to assess the legitimacy of sites, research noted youths have a loss of trust in websites ending in the URL .com, findings suggested that the most important aspect of web pages for younger people was the visual, illustrations, and interactive features, and lastly youth have a troubling time distinguishing between commercial from non-commercial digital content (Gasser et al., 2012). The development and transmission of knowledge is the third part of the literature study, and the last studied literature is on how adolescents learn behaviors. This feature revealed that information creation takes place across both individual and societal situations, as opposed to the learning associated with seeking and analyzing information. Since adolescents rely substantially on the Internet to obtain information, the findings from research imply that a public policy dialogue on youth, digital media, and information quality is needed (Gasser et al., 2012). Since young people use the internet to look for health information, it's more critical than ever for educational leaders and lawmakers to be alert of the consequences that come with it. Moreover, to equip and construct methods for our youth to acquire the essential digital literacy skills to become informed citizens.

Education Addresses Misinformation

The seriousness of the problem is evident, as proven by Stanford History of Education Group's evaluations and the Berkman Center for Internet & Society's chosen literature review. The environment of internet information has shifted dramatically, adding significantly to the spread of misinformation. According to Bin Naeem and Kamel Boulos (2021), "112 million posts shared on social media related to COVID-19, and concluded that more than 40% of posts contained information from unreliable sources" (p. 2). Lee et al. (2020; as cited in Bin Naeem & Kamel Boulos, 2021) discovered that 67.68% of individuals surveyed encountered false information on COVID-19 on social media sites. Due to this, determining the authenticity of sources and determining whether information is true or incorrect has become highly difficult (p.2).

Nonetheless, research suggests "that civic media literacy education can be significantly beneficial" (Hodgin & Kahne, 2018; Kahne & Bowyer, 2017, p. 208). Throughout all demographics and geographies observed, all pupils lacked digital literacy abilities as they failed their evaluations, identifying them as vulnerable victims for misinformation (Breakstone et al., 2019). To help our youth, being educated through a designed curriculum is not only beneficial, but necessarily urgent. According to Bowyer and Kahne's 2017 study, youth who obtained more digital media literacy learning opportunities were far more likely to determine evidence-based posts as reliable versus a post with misinformation. This study revealed that media literacy learning aids in precise and reliable judgements and allows one to implement a critical perspective when assessing reasoning in the digital age (Kahne & Bowyer, 2017). Establishing digital media literacy learning opportunities in the curriculum would assist students in becoming

educated citizens who can comprehend their own patterns of thinking while building the skills and tactics to navigate through the internet.

Curriculum and Pedagogical Approaches

Research clearly shows that digital media literacy is the most effective way to stop the spread of misinformation. This occurs with implementing a structured curriculum that focuses on pedagogy to assess credibility. Pedagogical approaches in curriculum include teaching rhetorical ethics, i.e. in which real-life events are presented that students can relate to, have encountered, and connected with in order to get them thinking about the material they read on the internet (Lockhart et al., 2021). In one section of "Literacy and Pedagogy in an Age of Misinformation and Disinformation," Genevieve Garcia de Müeller and Randall W. Monty offer a pedagogical technique to navigate and analyze misinformation with mindfulness to employ in schools as "the front line of resistance." (p.154). Two courses were created in this pedagogical framework: a lower division composition course and an upper division analysis course utilizing comparable texts but different methodologies.

Lower Division Composition Course. Professor Monty's Lower Division Composition class focused on developing questions to validate whether the information is true or not, finding supporting resources linked to self-selected topic areas, examining and validating those sources for credibility, composing knowledgeable justifications of supporting information, and reflecting on their own research/writing practices (Lockhart et al., 2021). Students began the course by “reading two popular news pieces that challenged the credibility of sources that might otherwise be considered to be trustworthy” (Lockhart et al., 2021, p.155). The students were also provided SHEG's report on students' ability to assess information's validity, as well as Bethany Davila's study on ideologies, racial privileges, and intelligence preconceptions, to emphasize necessity

techniques for judging credibility in academia and in the real world. The students collaborated together and discovered that typical techniques such as identifying authors, themes, language, and publication date were insufficient. Moreover, "what would make a writer or speaker more credible?" became the driving question as a result. Students examined their own writing habits (blogging, social media, game chats, texting, or presentations made) to find an answer to the question (Lockhart et al., 2021). Students gathered their own data, reflecting within their own credibility as readers and authors, and highlighting how this impacted their personal ethos. The students used metacognition in order to enhance their critical thinking skills and see if they were aware of their own ability to be influenced by inaccurate information. Students were able to envision the trustworthiness of the writer, in this instance themselves, and “were able to see how the credibility of a writer comes not only from the source itself, but from the interconnectedness within and across networks,". (Lockhart et al., 2021, p.156). The findings revealed that in order for a writer to be credible, they must be able to demonstrate that their thoughts are linked to other people's ideas and are supported by facts. The pedagogy here helps students to train as journalists to learn how information is created and generated in order to have a better understanding of what credibility is and how it should be demonstrated. Furthermore, references and sources added to the reliability, leading to the conclusion that demonstrating where information came from was critical in building credibility.

Upper Division Analysis Course. Professor Garca de Müeller's Upper Division Analysis Course focused on "a means to teach discourse analysis as a paradigm for navigating media and advocating for action" (Lockhart et al., 2021, p. 159). The first objective required the students to complete one Harvard Implicit Basis Online Study exam, which allowed them to learn about their personal biases while assessing material. Following that, the students generated definitions

for terminology and topics such as credibility, news methods, and the values of news on the internet (Lockhart et al., 2021). This indicated that the greater qualities an article included, the more reliable it was thought to be. These tactics were examined in a number of well-known news outlets, including Fox News, The Washington Post, and The New York Times, among others. As a result, the students devised questions to assess the reliability of content while keeping reader prejudice in mind. The four parts of the questions that the students came up with were credibility, appeals and proof, perspectives and audience, and choice of words. As a result, the class devised a procedure for dealing with misinformation: clarifying the distinction between truth and opinion, identifying the author's prejudice, stating the implications of accepting an argument, comparing and contrasting outcomes, and focusing on impact rather than purpose (Lockhart et al., 2021, p.161). Finally, finding a solution to the question "how can authors make fake news consumable and popular?" was the last course component (Lockhart et al., 2021, p.161). The students discovered false news on the internet and applied the procedure outlined above, indicating that all five tactics were required to assess whether or not the information was fake news. This section also covered how students would respond to fake information they found on the internet.

The pedagogical approaches to online credibility assessment were applied in two distinct ways, but the basic elements were similar. Professor Garca de Müeller's course centered on students' encounters investigating political themes that they were engaged in. The students in Professor Monty's class worked on assessing their everyday writings and developing tactics for dealing with misinformation while using metacognition to understand how their thinking process can be used to address misinformation. Both approaches were successful because they centered learning opportunities on the students' interests. This study explained how different pedagogies

in curriculum can be designed for judging credibility by improving the quality of learning. Moreover, it enables students to develop their own understanding of how to comprehend and assess the accuracy of sources through a way of learning in which students develop digital media literacy skills.

Reviewing Digital Media Literacy Curriculum

Low digital media literacy is a key contributor to the spread of COVID-19 misinformation, and it significantly impacts our youth, making them highly vulnerable to the deception of online misinformation (Bin Naeem & Kamel Boulos, 2021). According to Hobbs (2010), the moment has come to bring digital media literacy into the core of American communities, especially mainstream education in the United States (p.7, 9). Moreover, to slow the spread of misinformation the competencies of digital media literacy must be developed in educational institutions, especially in K-12 education (Hobbs, 2010, p.7). With this being said, there is a wide support to integrate digital media literacy into education and there are three widely used curriculum designed for this purpose. This paper will examine the three widely used curriculum- the Stanford History Education Group's Civic Online Reasoning Curriculum, Common Sense Media's Digital Citizenship Curriculum, and the News Literacy Project.

In the next section, each curriculum will be analyzed by describing the curriculum and objectives, assessing how the goals correspond to the literature on what educational techniques are required, and examining the effectiveness of each curriculum via studies or experts.

Stanford History Education Group's Civic Online Reasoning Curriculum

Overview of Curriculum and Goals. The Civic Online Reasoning (COR) Curriculum is an educational initiative through the Stanford History Education Group (SHEG), which is a research and development team in Stanford's Graduate School of Education (Civic Online

Reasoning, n.d.). SHEG created brief assessments in 2014 to examine young people's abilities to evaluate internet content. According to Civic Online Reasoning, the assessments were created to examine civic online reasoning abilities, which is defined as "the ability to effectively search for, evaluate, and verify social and political information online." The COR curriculum was developed after prominent media sources such as the New York Times, Time magazine, and others saw the alarming findings of the assessments in November 2016. Furthermore, expert fact checkers from the nation's main news organizations contributed to the formation of the COR curriculum's theoretical framework focusing on prioritizing three main questions to be a part of the curriculum(Civic Online Reasoning, n.d.).

At the center of the COR curriculum are three fundamental questions: (1) Who's behind the information? (2) What's the evidence? and (3) What do other sources say? Expert fact checkers designed the COR curriculum's questions and techniques based on how they evaluate online material. The COR curriculum includes thirty free lessons to help instructors educate students on how to use the internet to find credible and accurate information. The broad usage of Wikipedia, assessing claims in social media, judging website dependability, and recognizing trustworthy proof are all subjects covered in the curriculum. Furthermore, depending on the educator, the courses are adaptable and may be taught through a variety of subject matters. One of the key goals of the COR curriculum is to "equip students with skills that are easy to master and that will allow them to avoid the most common errors," enabling them to make informed choices throughout their lives (Civic Online Reasoning, n.d.). Furthermore, the curriculum contains assessments that the educator may provide to students to see whether they've improved their ability to judge internet material or even be utilized for classroom discussions. Following the assessment, the COR curriculum includes a rubric to help teachers interpret the assessment

findings and identify students who need more help from those that are doing well. Also, a crash course series by John Green is included in the curriculum to teach students about fact checking, lateral reading, Wikipedia, and other topics. The COR curriculum has been tested in classrooms and the free resources allow students to practice and develop these critical skills through organized exercises (Civic Online Reasoning, n.d.).

Goals Comparison to Literature. The COR curriculum includes lessons and assessments that provide students with the opportunity to apply the three main fact-checker questions to real life examples (*Civic Online Reasoning*, n.d.). As seen in the literature, "Literacy and Pedagogy in an Age of Misinformation and Disinformation," real-world examples allow students to think more deeply because they can connect or relate to the information presented (Lockhart et al., 2021). Since youths frequently use Twitter to obtain information, one assessment in the COR curriculum, under Who's behind the information?, allows students to determine if a Twitter post came from a reputable source. The Twitter tweet was about Ferguson Police Chief Jackson resigning. This assessment allows students to relate to the material because it creates learning opportunities based on the student's interests especially since systemic racial bias and racial profiling are so prevalent. Furthermore, as pointed out by Hodgin & Kahne (2018), an important educational approach needed is to help students build the ability to identify the right things through strategies and skills, which the COR curriculum provides through civic online reasoning. The COR curriculum also focuses on two other strategies which is lateral reading (finding out who's behind a source by leaving the site and checking other credible sources to know more about the source) and clicker restraint (restraining students from clicking on the first result) to aid students in judging the credibility of sources.

On the other hand, metacognition is one paramount educational approach that allows students to be aware of their own thinking process and personal biases when evaluating online content, however the COR curriculum does not include this approach (Hodgin & Kahne, 2018; Lockhart et al., 2021).

Effectiveness of the Curriculum. The outcomes from COR classes that used the COR curriculum revealed that pupils improved by more than two points from pre- to post-test out of fourteen points (Wineburg et al., 2016, p.8). Furthermore, students in the COR classes demonstrated a shift in thinking by asking additional questions to determine if the material was credible or not. For example, in the Evaluating Evidence task students who had first accepted the uncredible photo during the pretest now “became more discerning on the posttest” (Wineburg et al., 2016, p.9). The curriculum was also introduced in Nebraska's Lincoln Public Schools, where high school instructors were taught six courses to help students make accurate internet content judgements (Ali, 2022). Students who had completed the COR education "grew significantly in their ability to judge the credibility of digital content," showcased the findings in Nebraska highschool (Ali, 2022, para.6)

Common Sense Media’s Digital Citizenship Curriculum

Overview Curriculum and Goals. This curriculum, the first complete digital citizenship curriculum, is based upon the research done at Project Zero at Harvard University Graduate School of Education “on how young people engage with moral and ethical issues in digital life” which include cyberbullying, hate speech, misinformation, etc (*Digital Citizenship*, 2017). Digital Citizenship is the “the responsible use of technology to learn, create, and participate,”, which can be achieved when a person understands how to navigate issues in gray areas (*Digital Citizenship*, 2017). The curriculum has lesson plans created for grades K-12 which

instructs students how to utilize digital media. The lessons are purposefully created to foster abilities and attitudes that will assist youths in succeeding in the digital media age. This is especially significant since children and teenagers face numerous decisions and challenges using media and technology. For instance, for Kindergarten students there is a lesson on when to know that you need to take a break from the computer. There are step-by-step instructions presented to the educator on how to execute the lesson to the students. The lessons also urge students to reflect on what they have learned in order to reinforce the objectives taught. There are 6 lesson plans in the course framework: Media Balance and Well-Being, Privacy & Security, Digital Footprint & Identity, Relationships & Communication, Cyberbullying, Digital Drama & Hate Speech, and News & Media Literacy (James et al., 2019). The curriculum lessons are differentiated at each grade level based upon the research done at Project Zero which shows that usage of technology changes as one grows older.

Goals Comparison to Literature. The Common Sense's Digital Citizenship Curriculum uses a series of lesson plans based upon 6 topics that help students become better digital citizens. One of the main necessities that the literature states is that curriculum should reflect real life examples because it provides, "ongoing learning opportunities that are relevant, authentic, and related to students' interests is critical"(Hodgin & Kahne, 2018) . The Common Sense Media's Digital Citizenship curriculum does this by asking students about their own personal opinions. However, there should be greater emphasis on real life world examples to ensure students can make connections. Furthermore, Common Sense also has lesson plans centered around hate speech. There is one lesson plan that is focused on understanding what Xenophobia is and this goes hand in hand with the literature becuase it allows students to understand how to combat racism and recognize it. This moves us on how the curriculum also focuses on determining

credibility and misinformation via civic online reasoning and how to utilize strategies to evaluate online content. Furthermore, the curriculum also focuses on metacognition via the dispositions in which students reflect about their choices that they make and the consequences. An example of this in the "News & Media Literacy" topic in which students are taught about confirmation biases. This lesson is created for 10th grade students and presents them with how to recognize confirmation bias and how to overcome it. This goes hand in hand with metacognition because students are taught how to be aware of their thought processes when filtering through information online. However, one downside is that there are several questions asked during each lesson to make the students learn which makes the curriculum a bit tedious and may prevent students from retaining information.

Effectiveness of the Curriculum. Common Sense Education has more than 1.3 million educators registered worldwide and has been highly successful, states James et al., (2021), p. 5). Educators trust the digital citizenship curriculum causing it to be implemented in more than half of the schools across the United States today. The case studies of school districts implementing digital citizenship in classrooms shows how schools across the country have successfully integrated digital citizenship into their curriculum and earned Common Sense Recognition, when a school is committed to helping students think critically and use technology responsibly (*Digital Citizenship*, 2017).

The News Literacy Project

Overview Curriculum and Goals. The News Literacy Project (NLP) was formed as a solution to have news literacy skills taught in education to deal with the plague of misinformation online because as stated by Sam Wineberg, "the ability to determine what is reliable or not reliable-that is the new basic skill needed in society" (*NLP Strategic Framework*

FY19-FY22 - Report, 2018). The News Literacy Project, is a nonpartisan national education nonprofit, which provides educators resources to teach and for students to learn about how to be active smart citizens in our democracy. The focus of this educational nonprofit, as indicated by the project's name, news literacy, which is described "as the ability to determine the credibility of news or other content, recognize different kinds of information, and use authoritative fact-based journalism standards to determine what to trust, share, and act on" (*News Literacy Project*, 2008).

The News Literacy Project offers free materials to educators and the general population that explains how to teach news literacy and build skills and tactics. Checkology, an e-learning platform built for both educators and the general public, is included as a part of the curricular resource. NLP's Checkology program includes guidance and tools for identifying reliable information and applying critical thinking skills. (*News Literacy Project*, 2008). Over a dozen lessons offered by journalists and specialists on digital media, ranging from disinformation to identifying prejudice, are included in the customized Checkology for instructors. Formative and summative assessments are included in lessons plus supplementary tasks to track students' progress. Additionally, students have the ability to answer reflective and free response objective questions in addition to the assessments. (*News Literacy Project*, 2008). Students receive feedback and extra prompts for each completed objective question for each wrong answer in order to arrive at the correct answer. Students can conduct exercises, engage in contests, and take on challenges to reinforce the skills they've acquired in the lessons. In addition, Checkology includes poll questions in several of the sessions to gauge the students' views and ideas about the subject.

Goals Comparison to Literature. As previously mentioned, real-world examples included in digital media literacy curriculum is a critical educational method to make learning more effective and engaging, according to the literature (Hodgin & Kahne, 2018; Lockhart et al., 2021). NLP's Checkology includes real-world examples from social media, the news, and other sources so that students may gain news literacy skills and understand what they could encounter while looking for information online. Additionally, metacognition, which helps students understand their own personal prejudices and cognitive process before analyzing material, is another teaching strategy that is essential in digital media literacy. NLP's Checkology contains lessons on bias as well as ways for reducing it. This curriculum also allows students to train as editors and learn how viewpoints and goals influence the material generated (News Literacy Project, 2008).

Effectiveness of the Curriculum. According to the News Literacy Project, a Checkology poll indicated that 94% of instructors thought this platform was better than any other e-learning platform (News Literacy Project, 2008). Also, throughout the 2020-2021 school year, NLP's Checkology assessed students' performance before and after the lessons were delivered, and the findings were promising. "61 percent of students could accurately identify qualities of great journalism, 81 percent of students could correctly name five First Amendment freedoms, and twice as many students exhibited a knowledge of the press's watchdog function," based on the findings (News Literacy Project, 2008).

Overall, all three curriculum provide students with techniques and abilities for developing critical thinking in order to properly analyze internet content and discover trustworthy information. However, I believe the Civic Online Reasoning Curriculum developed by the Stanford History Education Group is the most effective because it teaches students skills they

can use on their own when evaluating online content, focuses directly on the source's reliability, and is simple to follow because it is based on the three core competencies of civic online reasoning. This paper will use the SHEG's COR curriculum to show why it is a successful curriculum for teaching students digital media literacy, as well as how two educational approaches might strengthen it.

An Improved Digital Media Literacy Curriculum: Strengthening Stanford History Education Group's Civic Online Reasoning Curriculum

The COVID-19 pandemic has been accompanied by a plague of misinformation overtaking the internet (Bin Naeem & Kamel Boulos, 2021). Due to this, our youth are more susceptible to misinformation, need to become informed citizens, and must have the ability to judge online information. With this being said, Stanford's History Research Group's Civic Online Reasoning has created a curriculum that focuses specifically on civic online reasoning which encompasses all the skills and strategies a student needs to find credible information. Moreover, civic online reasoning is more narrowly focused on evaluating, analyzing, and using online information to make decisions on both social and political matters (McGrew et al., 2018).

First, SHEG's COR Curriculum has three questions for civic online reasoning at the center. When finding information, students must follow the following questions to evaluate the content they find online: Who is behind the information? What is the evidence? and What do other sources say? These questions make the curriculum more effective than the other two because it is more easy to follow and does not consist of checklist that is hard to remember. Moreover, when comparing the COR curriculum to the Common Sense Media curriculum, the Common Sense Media curriculum focus on hypothetical situations asking students what they should do. "For example, a lesson plan on 'Identifying High Quality Sites,' teachers ended the

lesson with asking students three questions, including, 'How do you know whether you can trust information you find on a website?'" (McGrew et al., 2018, p. 169). Despite the fact that this question focuses on civic online reasoning, it asks students what they would do rather than what they will do (McGrew et al., 2018). So, a student may answer the question correctly in class, but when encountering online information a student might answer the same question differently. Saying this, through the COR curriculum a student can evaluate online content independently by asking the three main questions. According to the research done by the Stanford History Research Group, "students need to be taught, first and foremost, that determining the author or sponsoring organizations of a story is critical, next they [students] need support how to investigate digital sources, and lastly need support in learning how to consider multiple sources of information (lateral reading) as they investigate online content" in order to become informed citizens and the COR curriculum provides that (p.186). Most importantly, it is clear that many resources to assess credibility center the focus on checklists ranging from five to twenty questions to help students determine a source is reliable (McGrew et al., 2017). Many of these checklists questions consist of surface features of websites such as "is there spelling errors?" Nonetheless, "providing an author, throwing up a reference list, and ensuring a site is free of typos hardly establishes it as a credible source" (McGrew et al., 2017, para. 23). Moreover, students do not have the patience to spend more than ten minutes going through a checklist when looking at information, voices McGrew et al. (2017). The checklist approach simply does not work anymore and the most effective and efficient way to learn if a site is reliable is by harnessing the power of the internet. This is the biggest lesson that was learned by Stanford History Research Group when watching expert fact checkers evaluate online content (McGrew et al., 2017, 2018).

The Civic Online Reasoning program developed by the Stanford History Research Group is a successful digital media literacy curriculum, but it can be improved through two educational approaches: metacognition and race.

Improving COR Curriculum through Metacognition

According to Hodgin and Kahne (2018), metacognition is a necessary educational approach because it allows students to develop skills to know what is accurate. Moreover, it will allow young people to see how their thinking process can affect how they evaluate information online. It also allows young people to be aware of their own biases and how this can play a role in how one can view information. One way the COR curriculum can include metacognition is by adding a lesson on the importance of bias and how to be aware of your thinking process. Moreover, for an educator it can include a similar scenario like the classroom example presented by Hodgin & Kahne (2018) in which an educator can share their thinking process out loud when evaluating information online. In the classroom example, students saw Mr.Dudley search on websites for information while he was asking questions out loud about the webpage to show students how they can use the same strategy when finding accurate information. Another example of how metacognition can be embedded in the curriculum is through an exercise part of the lesson where students use their own everyday writings to answer the question: What makes a writer more credible? Answering this question will allow the students to be in the shoes of a journalist (Lockhart et al., 2021). Doing this, students can see what credibility looks like, but also be aware of how their biases can affect their writing and use that when looking at information online. Moreover, in Lockhart et al., (2021) students doing this activity learned that credibility of the source not only comes from the author but the references made in the sources as well showing the importance of citing evidence.

Improving COR Curriculum to Engage with Race-Related Media

Youth engage in politics online at increasing higher rates than adults (Garcia et al., 2021). With this, our youth need to know how to be more aware and have the skills to effectively engage with race-related media online and also understand "how technologies impact social positioning of different groups and challenge structural inequities" (Lee & White, 2021, p. 15). Moreover, as stated in Garcia et al., (2021), the current digital media literacy resources do have value, but "often focus on individual skills, behaviors, and orientations and fail to prepare students to understand, recognize, and respond to structural factors, particularly racism" (p.320). With the help of social media platforms, anyone can share their political beliefs and ideas on a broader scale and young people engage heavily with this because their news comes from social media. Moreover, research shows that youth engagement has powered the most important social movements changing answers to questions like "how should the police behave?" (Garcia et al., 2021, p.321) This showcases the importance of technology and how social media has now turned to an institutional influence of news and where political participation occurs. However, as voiced in Garcia et al., (2021), the place where information is shared matters because it shapes the interactions, beliefs, and perceptions that one encounters. Furthermore, the combination of posting anonymously, increased partisanship, easy circulation of information, and lack of trust in institutions (government, news media, school etc.) has led to the creation of disrespectful discourse often ingrained in racism (Garcia et al., 2021). This has resulted in an increase in animosity, with which one disagrees with is pertinent because these emotions, reasoning, and discourse inject significant biases into the thinking process (Garcia et al., 2021). Furthermore, it causes people to seek evidence that supports their preconceived notions, dismiss viewpoints that

contradict their convictions, and reduces the possibility of learning via discourse and other perspectives leading to the decrease of understanding of one another. Due to this, our youth not only need to develop their skills for digital literacy, but also digital reasoning and discourse – "capacities for collaboration, participation, critique, and expression – is substantial" (Garcia et al., 2021, p. 324). Despite the development of digital media literacy curriculum, Garcia et al., (2021) argue that more is necessary given the prominence of divisive social and political online information. Furthermore, existing digital media literacy initiatives such as SHEG must be broadened to include lessons that engage with "politically charged topics" and assist youth to comprehend on how "mis- and disinformation is often produced and spread purposefully for political or ideological gain" (p.332). Furthermore, the SHEG COR curriculum focuses solely on analyzing online sources, ignoring the role of racism in the online world and how misinformation is utilized to reinforce systemic inequities. To help students deal with race-related media, the COR curriculum can include lessons on how American culture and history were developed around race and how this fuels misinformation online due to political gain. Moreover, the COR curriculum should incorporate critical race digital literacy skills which is defined as "the knowledge, skill, and awareness required to access, identify, organize, integrate, evaluate, synthesize, critique, create, counter, and cope with race-related media and technologies" so youth can develop critical reasoning to analyze race both online and in the real world. (Tynes et al. 2020; as cited in Garcia et al., 202, p.337). By integrating critical race digital literacy and embedding digital civic reasoning and discourse to acknowledge the hierarchies of power and privilege into the COR curriculum, youth will be able to deal with race-related information effectively to become civic informed citizens.

Conclusion

As misinformation about COVID-19 spreads, our leaders and educators must have a conversation to help solve this issue immediately. Social media platforms have become important sources of information as technology has advanced. Youth now, more than ever, require digital media literacy abilities to evaluate, assess, and identify credible material on the internet. In this paper, I concentrated on a subset of digital media literacy known as civic online reasoning, with the purpose of educating our youth to become informed citizens. In this study, I first looked at evidence to analyze the magnitude of the problem of youth lacking civic online reasoning skills.The results revealed that students lacked digital media literacy skills across all demographics and geographies, making them susceptible targets of misinformation. The study then investigated how education, specifically curriculum and pedagogical approaches, may be utilized to educate our youth in dealing with misinformation by examining the effectiveness of two courses: Lower Division Composition and Upper Division Analysis. The pedagogical techniques were used in diverse manners, but both were effective, suggesting that pedagogies in curriculum can increase student performance. Furthermore, it demonstrated how metacognition can be utilized to comprehend one's own thought process, which supports pupils in gaining digital media literacy abilities. Following that, this paper examined three widely used digital media literacy curriculum — Stanford History Education Group's Civic Online Reasoning , Common Sense Media, and The News Literacy Project. Each curriculum was evaluated by explaining its objectives/goals, how it aligns with the literary goals of educational strategies required, and the effectiveness of each curriculum relying on experts and data. Based upon the analysis, the Stanford History Research Group's Civic Online Reasoning Curriculum was the most successful since it was primarily focused on civic online reasoning and particularly

contained three questions at the core, making it more simple and clear to understand. Lastly, the paper proposes an improved digital media literacy curriculum by redesigning the Stanford History Research Group's Civic Online Reasoning curriculum to include two educational techniques: metacognition and dealing with race-related media. The paper went into depth on and provided examples of how metacognition and race-related media may be integrated into the curriculum to improve its effectiveness. This research paper may be expanded to demonstrate the relevance of digital media literacy and to begin a discussion about introducing a digital media literacy curriculum in grades K-12 throughout the country. Furthermore, it can lead to the incorporation of lessons on metacognition and dealing with race-related media in the present digital literacy curriculum, as well as the development of new educational techniques to increase student learning. This research report may contribute to further reducing the consequences of COVID-19 misinformation and preparing for future pandemic misinformation.

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