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Linking digital, visual, and civic literacy in an era of mis/disinformation: Canadian teachers reflect on using the Questioning Images tool

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ABSTRACT

The spread of mis- and dis-information during elections creates an opportunity and an imperative to cultivate and develop critical civic literacy with young people. Leading up to the 2019 Canadian federal election, researchers worked with Canadian non-governmental organisation (NGO) CIVIX to translate research on visual media literacy into an innovative and timely teaching resource: Questioning Images. This paper explores what teachers' responses to using this particular resource can highlight about the links between visual literacy, digital literacy, and civic literacy, to support critical digital citizenship education. After setting up the background to the study, we present key themes from focus groups with teachers who used the resource and then consider implications. Overall, we found the tool supported teachers in deepening their understanding of, and approach to, digital literacy and highlighting the importance of visual literacy, and it supported political education and civic literacy during and beyond the 2019 election. We argue, however, that further resourcing is needed to support a comprehensive approach to visual culture where digital, visual, and civic literacies are mutually constitutive and where visual analysis goes beyond verification to offer ways of understanding visual disinformation in terms of its broader civic implications.

KEYWORDS

Digital literacy; civic literacy; misinformation and disinformation; citizenship education; visual literacy

Introduction

Images play a key role in the spread of online disinformation but are often ignored in disinformation research and are not often a focus of attempts to teach young people about mis- and disinformation (Peng, Lu, & Shen, 2023; Wardle & Derakhshan, 2017, Faulker et al., 2021; Weikmann & Lecheler, 2023).[1] To be sure, the issue of educating about disinformation itself has attracted enormous national and supranational attention as well as numerous calls for increased digital literacy programming. While the spread of disinformation through mediated channels is certainly not a new phenomenon, the torrent of disinformation that accompanied the 2016 United States Presidential election

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and the 2016 Brexit referendum forced governments and civil society organisations to take note of an increasingly polluted online information ecosystem as a threat to democracy (King, 2019). In 2019, for instance, the Canadian Government's Digital Citizen Initiative provided seven million dollars to support civil society programs, including in educational settings, "that strengthened citizens' critical thinking about online disinformation [and] their ability to be more resilient against online disinformation". UNESCO (2018) and the European Commission (2022) both released digital literacy resources to help educators tackle disinformation. Evaluating educational tools and programming around disinformation has emerged as a growing field of research (Kohnen, Mertens, & Boehm, 2020; Nygren, Frau-Meigs, Corbu, & Santoveña-Casal, 2022; Pavlounis, Johnston, Brodsky, & Brooks, 2021; Wineburg, Breakstone, McGrew, Smith, & Ortega, 2022). Yet these digital literacy interventions tend to emphasise source evaluation and verification and either ignore visual disinformation altogether or engage with visual culture only in terms of verifying the authenticity or credibility of a given object.[2] Verification skills, while essential, are alone not a complete measure of visual literacy, or one's ability to understand how images are produced and analyse critically how they make meaning in different contexts. Given that educating about disinformation is so often framed in terms of citizenship education and fostering informed citizenship, failing to consider the specificity of images and visual disinformation may ultimately miss a central element of contemporary civic culture.

To address these gaps, in 2019, researchers from Manchester Metropolitan University's Visual Social Media Lab (VSML) worked with Canadian NGO CIVIX to translate research on visual disinformation into a teaching tool to help educators connect traditional visual literacy with the demands of contemporary digital literacy: Questioning Images (QI). This was included among resources CIVIX distributed as part of the Student Vote programme for the 2019 Canadian Federal Elections which was engaged with by over 1.1 million young Canadians. An adaptation of VSML's "20 Questions: Interrogating the Social Media Image", QI takes the form of a poster (supported by an accompanying lesson plan, slide deck and example images) that guides students through a series of increasingly complex visual media literacy questions. First, students are asked to describe what they see and to reflect on how the image makes them feel. Second, students investigate the source and veracity of the image using best practices for evaluating online information. In the third step, students analyse how the image makes meaning, including how any accompanying text anchors the image or guides the viewer's interpretation. Finally, in the fourth step, students reflect on the social purpose of the image, ways in which other people might interpret the image, and ways in which the image might be remixed or repurposed as it flows through digital channels.

Together with partners at University of Alberta, the "Visual Media Literacy for Combatting Disinformation" project aimed to assess the impact of QI towards directing how to further improve it while gaining insights into teachers' perspectives and experiences applying QI in practice. In this paper, we review the rationale for creating a tool that links visual literacy, digital literacy, and civic literacy. Next, we present key themes from a set of focus groups with teachers who used the resource. The focus group discussions, we argue, reinforced the importance of paying explicit attention to visual media literacy within civic education when educating about disinformation. At the

same time, teacher responses revealed some of the challenges involved with teaching visual disinformation. Specifically, key themes emerging from the focus groups suggest that a focus on a narrow form of digital literacy, emphasising image verification (i.e. whether an image has been manipulated), often takes precedence over visual and civic literacies, ultimately disconnecting visual disinformation from its social and cultural import.[3]

Critical digital citizenship education: linking visual, digital, and civic literacy in an era of disinformation

Effectively educating about visual disinformation requires educators to teach at the intersection of visual, digital, and civic literacies. These are varied, overlapping, and contested fields of research which we do not have scope to fully describe, but here we relay how we positioned our research within them. Despite living in image-rich environments and making use of images as a form of communication, today's students are not necessarily *visually literate* in ways that enable critical understanding of images (Abas, 2019; Matusiak, Heinbach, Harper, & Bovee, 2019). Moreover, while visual literacy could be seen as implicit within digital literacy, we cannot assume that digital literacy or general media literacy education guarantees that students learn and practice the medium specific skills required to critically analyse and interpret images in terms of their production, use, and meanings. As Griffin (2008) has argued, frequently, "concepts of visual literacy and media literacy are unproductively conflated, and visual competencies are too often assumed on the part of those that exhibit familiarity with media culture". To make sense of their image-rich culture, and before they can begin to make claims about the socio-cultural implications of images, students require instruction in the basics of visual analysis and practice in analysing framing, composition, the relationship between objects, and the ways in which text may skew their interpretation (Griffin, 2008).

Students must of course also be attuned to the ways in which images can be digitally manipulated and to how they can be remixed and recontextualized as they circulate through digital channels (Messaris, 2012). While there are an ever changing and broad number of skills, competencies, and habits that can fall under its umbrella (Pérez-Escoda, García-Ruiz, & Aguaded, 2019), in the context of educating about disinformation, *digital literacy* is often defined in terms of the skills and habits required to effectively assess and evaluate online information. Verification is certainly an important digital skill and important for images, yet as David Buckingham (2019) reminds us, the problem of disinformation must be understood more broadly as a cultural, political, and economic phenomenon that resists individual solutions. Indeed, digital literacy education must not only equip students with the skills to evaluate information, but it must also push them to contend with the technical and economic infrastructure that supports and intensifies the flow of online disinformation.

Disinformation is commonly framed as a major threat to democracy, and educating around visual disinformation thus requires that teachers foreground *civic literacy*, or what some scholars refer to as civic media literacy (see Middaugh, 2019) for digital citizenship (Choi & Cristol, 2021). Some connections between visual disinformation and civic culture are explicit. For example, online

disinformation cannot be seen as wholly separate from how politicians use images for propagandistic purposes. Moreover, political information and civic debate increasingly take the form of online visual information, so alongside traditional civic literacy around political institutions and civic responsibilities, students need to be equipped with the skills to analyse visual elements of online data (Stoddard, Tunstall, Walker, & Wight, 2021). Scholars have argued, for instance, that many visual memes must be understood as a form of political communication, serving much the same function as political cartoons (Grygiel, 2019) or leaflets (Nieubuurt, 2021). Teaching students how to produce political memes, for instance, can help young people engage in meaningful political expression (Mihailidis, 2020; Wells, 2018), but this process can be counterproductive if students do not understand how their images create meaning and how they may affect others. Law, Chow, and Fu (2018) note that while, as a concept, digital citizenship is fluid and dynamic, digital citizenship education has tended to focus on safe and ethical online participation without a concern for wider social and political implications (see also Myers, 2022).

Our research thus draws across calls for visual literacy, digital literacy, and civic literacy to support *critical digital citizenship* (see McGillivray, McPherson, Jones, & McCandlish, 2016). To summarise, in an increasingly volatile world, teachers are faced with a civic crisis and the need to "provide civic and media education that prepares young people for responsible citizenship in a sharply divided and media-saturated society" (Mirra, McGrew, Kahne, Garcia, & Tynes, 2022, p. 31). Digital literacy is increasingly considered a key element of civic literacy and essential to both citizenship education (Stoddard, 2014) and the development of critical civic consciousness (Middaugh, 2019). However, research suggests a tendency for schools to address digital technology, the internet, and citizenship in simplistic and one-dimensional ways, such as by focusing on online etiquette and existing forms of mainstream participation (Middaugh, 2018). Thus, it is important to engage social and political issues directly alongside digital skills in order to foster civic engagement (Choi, 2016). As students apply their visual and digital literacy skills to analyse examples of visual disinformation, for example, they should be encouraged to frame their inquiry in terms of civic intentionality and consider how the spread of visual disinformation may perpetuate harmful power relations or disrupt the common good (Mihailidis, 2018) thereby supporting a critically reflexive understanding of digital citizenship.

Building from this existing scholarship, we contend that tackling disinformation in all forms thus presents a complex pedagogical challenge. While most digital literacy projects are understandably focused on outcomes for young people, the role of teachers and the needs they may have can get overlooked. Teachers are key agents in supporting a citizenry who can deal with online disinformation, and their needs should be seen as equally important to those of their students when it comes to navigating the digital world. Yet, recent research with teachers in France, Romania, Spain and Sweden found that understandings of mis/disinformation were not consistent among teachers, and the researchers found educators struggled to "live up to the high hopes about education against disinformation formulated by international organisations" (Nygren, Frau-Meigs, Corbu, & Santoveña-Casal, 2022, p. 49). Educators should be provided with resources and training regarding visual literacy, digital literacy and civic literacy for

critical digital citizenship, especially as schools are viewed as places that promote a democratic society (Mirra, McGrew, Kahne, Garcia, & Tynes, 2022).

The 2019 Canadian federal election and CIVIX's Student Vote programme further underscored the need to focus on the complex role images play in contemporary civic life and provided a unique opportunity to consider the links between visual, civic, and digital literacy. The QI tool provides a structured framework that supports students to develop their digital literacy and visual literacy skills in tandem so as to interpret and think critically about online images in terms of their civic implications. Grounded in emerging digital literacy best practices, the tool asks students to apply "lateral reading" skills to locate relevant context about an image. Lateral reading refers to the practice of evaluating a source by using the rest of the Web to conduct basic contextual research before engaging closely with the material. It responds to concerns about more traditional methods of source evaluation that foreground close reading which research has shown to be ineffective, if not counterproductive, when applied to online information and disinformation in particular (Wineburg & McGrew, 2019; Wineburg, Breakstone, McGrew, Smith, & Ortega, 2022). The tool then asks students to think beyond considerations of veracity and encourages them to interrogate how digital images function more broadly as objects of civic culture. A specific lesson using the tool was included in the curriculum materials sent to teachers to support Student Vote 2019. The follow-up study asking teachers about their experiences with the tool provided an opportunity to understand the ways teachers understand the relationship between visual digital media literacy and citizenship education and what additional resourcing is required to help them connect visual, digital, and civic literacies.

Project design

The participants for this study are teachers who took part in Student Vote as part of the 2019 Canadian federal elections. Together with researchers from University of Alberta, the Manchester Metropolitan University team and CIVIX received funding to follow up with teachers about how they used the Questioning Images tool. All teachers who registered for Student Vote were invited to participate in the focus groups. Due to complications related to the COVID pandemic in 2020, the project was delayed until 2021. We conducted a series of hour-long online focus groups with a total of 17 teachers in early 2021. We held five focus groups in total, with up to four teachers in each group. We organised the groups according to school level, with two groups containing primary school teachers, and three groups containing secondary social studies teachers.[4] Teachers were from British Columbia (2), Alberta (2), Saskatchewan (2), Manitoba (1), Ontario (8), and New Brunswick (2). They took place online via Zoom and were audio recorded and transcribed. Interviews were semi-structured, allowing participants to engage with each other and bring up themes they saw emerging with their students. The project went through ethics approval at the two participating universities, and participants consented to participation based on detailed information including the handling of data. Researchers also explained precise ways participants could withdraw from the study and explicitly encouraged critical feedback about the tool.

The project delay resulted in fewer teachers responding to the focus group invitation than expected. As such, while we were happy to have teachers from across the country participate, we were not able to select specifically to support any generalisable sample of educators, and teachers who opted-in were more likely to be those who were most engaged and committed to teaching about visual disinformation and who tended to prioritise civic education in their practice. The delay also meant that the initial use of the tool during the during the 2019 federal election was not as immediately present in the minds of the teachers, although they were able to share about its use then. The delay did provide an advantage, as teachers who participated were able to describe to us the extent to which the tool supported on-going work in disinformation and visual analysis beyond the 2019 federal election.

The interviews included questions pertaining to teachers' use of the tool and if/how it influenced their practice teaching about visual literacy and disinformation in the context of civic literacy around the 2019 election or beyond. We analysed the transcripts through reflexive thematic analysis. Drawing from some key principles established by Braun and Clarke (2006) and reinforced as useful for education research (Xu & Zammit, 2020), we identified repeated meanings across the transcripts as part of a process of describing and interpreting. We took the view that thematic analysis is "creative, reflexive and subjective, with researcher subjectivity understood as a resource" (Braun & Clarke, 2019, p. 591). For us, this meant a mixture of inductive and deductive approaches decided on by the researchers (Braun, Clarke, & Weate, 2016). The inductive analysis emerged from multiple readings of the transcripts by three researchers where we identified emerging themes and described key patterns across the focus groups and selected several quotations as examples of these patterns. We co-created the themes shared below by also examining the data deductively, looking specifically at how teachers discussed the relationship between visual, civic, and digital literacy through a framework of critical digital citizenship education as described above. For this particular paper, and based on the relatively small sample, we focused on overarching themes rather than comparative analysis between jurisdictions, and although we indicate the level of teaching to help contextualise teacher quotations, we were not able to generalise about subject areas and levels. We did not have a generalisable sample as we depended on volunteers as indicated, and those who participated were likely more favourable towards the tool; however, the data nevertheless provided insight into how teachers think about teaching disinformation and its links to visual, digital, and civic literacy.

Key themes emerging from the focus groups

Teachers feels students lack basic visual literacy skills

All focus group participants emphasised their belief in the importance of visual literacy skills and in the centrality of visual culture to their students' lives. There was no discernible difference between how primary and secondary teachers in our sample discussed their students' visual literacy skills, although secondary teachers were much more likely to discuss images in terms of social media. Teachers described their current students as much more visually-oriented than the previous generation of students both

in terms of the media they consume as well as the media they produce. As one secondary teacher, echoing a common sentiment, noted, "I feel like we're moving into a different information age where it's more visual than it ever has been". Images, as many teachers remarked, are the lens through which students learn about the world, and many participants noted how class discussions about current events increasingly revolve around visual content drawn from Instagram, TikTok, or other social media platforms. Elaborating on the urgency of teaching students to think critically about images, a primary teacher was adamant that "we can't be sending students out … to find information if they're not able [to] critically analyse where that information is coming from. And a lot of that includes images".

Participant comments were consistent regarding the need for instruction in close visual analysis. Specifically, teachers noted that, when asked to describe images, many students struggled to apply basic observational skills and instead made inferences about meaning and even crafted entire narratives around the images, some of which were not supported by the details of the image itself. One primary teacher described how, upon showing students an uncaptioned image of a zookeeper with a white rhino and asking them to describe what they saw, the students "just ran away with it …. And I was like, guys, I don't want you to tell me the story of the relationship".

Primary school teachers made connections between this tendency of students to draw conclusions before analysing the images fully and the ways in which students are often taught to analyse media texts. As one teacher observed:

> I found that [students] were almost bringing in the wrong literacy skills when looking at an image, because when you teach kids how to read, a lot of times you teach them to infer meaning from the picture [that accompanies the text]. So a lot of the kids were inferring meaning when I just wanted them to tell me literally what their eyes saw.
> Reflecting further on the challenges of teaching visual literacy, focus group participants expressed how the tool addressed students' impulse to jump to conclusions by providing a structured set of steps to guide the visual analysis. One teacher who described her previous approach to teaching visual literacy as "scattershot", noted how the tool "did kind of transform how I approach the process of teaching this in a real structured way. And I found the structure of it to be more useful than anything I had done before". A secondary teacher also emphasized the value of a more process-driven approach to visual analysis, claiming that, after using the [tool] a number of times, the process "just kind of becomes the vernacular of your classroom".

Visual literacy builds critical digital civic literacy

Teachers frequently made connections between visual literacy and civic literacy when recounting how they applied the tool to journalistic, historical, or otherwise non-manipulated images. Although the tool was distributed as part of the Student Vote programme and was meant to use the election as a hook, all of the teachers mentioned using the resource outside of the election, and many noted how the resource helped students build civic literacy in relation to non-election events. Teachers in our sample felt that the resource's emphasis on current events and visual culture helped make politics a more approachable subject and that students became more engaged in applying the methods of visual analysis and sharing them with their families. Participants also claimed that using this tool sparked classroom conversations around

the importance of democracy and the relationship between democracy and online information. One teacher highlighted how students drastically change and evolve when moving from grades 4 & 5 to grades 7 & 8, as they increasingly get their information from social media and become attached to mobile devices. As such, the focus groups demonstrated the need for ongoing and responsive attention to digital images and for situating visual literacy as central to digital and civic literacy.

Teachers expressed how the tool encouraged students to think critically and intentionally about what they are looking at, which opened up broader conversations about political perspectives and the civic importance of images. One secondary teacher, for instance, remarked how the tool helped students analyse images beyond their own biases by providing a structure through which students could think more deeply about how political images try to persuade the public. Specifically, she used the tool to prevent a purely reactionary response from students when looking at political campaign images from different federal parties:

> It was during the [2019] election. Students here have a real big difficulty ascertaining bias and the purpose of everything that they see. And this is a very homogenous town … So I told them, 'Look, I don't care what your political beliefs are, you can believe whatever you want so long as you have the right information. Do you know who put this here? Who wants you to think what? It took some time and we looked at these images of who benefits from this, what they want you to think.

Another way teachers encouraged students to continually practice their visual literacy skills was by linking political examples to broader popular culture examples or social justice issues. One secondary teacher described how the tool can be applied to engage with social justice issues students "are really passionate about these days". The teacher noted, "I've never seen this level of engagement with social issues" and was impressed by how students were "able to extend [the tool to images related to social justice] and then reapply it to the political aspect of it and see how there's connective tissue". Many teachers commented on how they applied the tool it to contemporary issues. A secondary teacher described this with enthusiasm:

> February of [2020], we had blockades going up around the pipelines, the Wet'suwet'en. And I was just thinking about conversations we had in class [when] we had looked at the images. We had done the unit back in the fall. And it was great because our students were able to look at those images critically and ask, well, what's going on in the background? Like who are these people? Why are they upset? What is the history behind this?

Echoing this teacher's experience, a secondary History teacher noted she is now using the framework to connect social issues from today with those in the past, "using events such as the Holocaust to Christie Pits riots in Toronto and making those connections from past to present". Another secondary teacher said "We came back to it and we … really just used it to look at things that were coming up in the news, things related to COVID, things related to the government. We use the framework as … scaffolds [so that] that students wouldn't jump to the end point and would be able to … critically analyse the media".

According to participants, the tool enabled a centring of students' own views and analysis. One secondary teacher noted, "the framework allowed me to hear [student voices] as opposed to me just coming in with my bias and my attitude. Inviting the kids

to respond to these questions forced me to have to step back and hear their ideas as opposed to kind of putting forth what I think". A primary teacher mentioned how the framework was a "huge breakthrough" for her students in terms of "teamwork and collaboration" as well as being able "to negotiate differences of opinion and supporting their differences or supporting their own opinion in a very productive way". These responses suggest the tool provided a support to teachers' existing commitment to student voice and social issues of their interest and to teachers' growing understanding of the importance of visual literacy to civic literacy. At the same time, among many of the teacher participants – including those who explicitly acknowledged the importance of social media in their students' lives – there was a lack of attention to the specifics of digital circulation of images, and teachers rarely made explicit connections between visual literacy and digital literacy. They described in-depth, nuanced conversations with students about the images themselves as civic objects, but they rarely described having conversations about images as specifically *digital* civic objects that can take on new meanings as they are circulated, remixed, or recontextualized online. This gap became even more apparent in discussions around disinformation.

Disinformation is a major concern, but teachers tend to emphasize verification

When explaining how they used the tool in class, all focus group participants discussed the tool in the context of disinformation. Across the focus groups, teachers agreed that disinformation was increasingly a major concern for them and their students. One respondent who teaches both elementary and secondary grades mentioned that he has not focused on "fake news" before, but now that it is a much more serious issue, having QI included in the Student Vote materials sparked an interest and helps keep him "tuned-in" with current issues in media literacy.

Importantly, the teachers themselves expressed having developed a heightened concern about disinformation through their own application of the tool in their teaching. A teacher who described himself as "sort of old news guy" and "not really an active user of social media" noted that the tool gave him the confidence to begin integrating "different social media pieces" into his teaching to help them understand how "everything [they] see on social media is not real, necessarily". Another teacher described how the tool promoted their own digital civic literacy, saying "You know, looking at Questioning Images got me to start thinking about the slant on everything that is posted … .I think it made a huge impact on me just actually sitting back. You really have to be more critical".

Several teachers described using the tool to discuss major events that courted a lot of online disinformation. A secondary teacher, for example, described the usefulness of the tool during the 2020 U.S Presidential election where students would bring images into class to discuss. The teacher saw this as evidence that students have developed their digital literacy beyond the original use for the 2019 federal election in Canada:

> What's really nice is I found, especially since we've had some of these students for two years, that the burdens moved from me. They check each other. It's very common for them to say, "What's the source?" or "Did you find that on social media?"

This teacher's statement followed a striking trend among focus group participants to emphasise source evaluation when discussing teaching about images in the context of disinformation. Whereas, when explaining how they used the tool to analyse photojournalistic, political, or historical images, teachers frequently referenced how the tool helped their students think about the images within their broader political and cultural contexts; when articulating the tool's relationship to disinformation, nearly all teachers described it primarily in terms of its ability to help teach students to distinguish between "real" and "fake" images. They put much less emphasis on how the tool attempts to frame all images as part of a broader media ecosystem and instead emphasised the second step of the analysis – the verification step – as an end in itself.

In all focus groups, teachers referenced the importance of teaching students to fact-check images. According to one secondary teacher, "if [students] are looking at their phone and they can talk to their friend about why an image is either true or not true, then that's half the battle". Other teachers concurred that the resource was perhaps most useful for helping students determine the veracity of images. A secondary teacher, for instance, mentioned how the resource has been useful when students bring images to class, since it offers a structured way "to teach how to find out if that information is real or not", while another noted that her class "used the tool especially when we're talking about the use of social media and misinformation … It really did lead to some good discussions over how we determine if something is sort of [true]". Other teachers identified learning how to trace the history of an image using online tools like Google reverse image search as the most empowering aspect of the resource. As a primary school teacher noted,

> I love that I now know those things. And I can with friends or with my family, say, well, you know that there's a way to do that. Right. Like, you know that you actually can trace it … .It's very empowering because these are certainly not skills I grew up with.

Many teachers mentioned returning to the tool frequently over the course of the semester, but when describing their continued use of QI, some of them tended to highlight it solely in the context of verification. One secondary teacher referenced being in the computer lab with his students and challenging them to "find a photo and let's see if it's real or not and how would we find out". A secondary teacher used the tool as part of an assignment where students were asked to "reverse engineer" examples of visual disinformation. For this assignment, the teacher asked students to "go to Snopes [a major fact-checking website], find an image that they think is either true or false, but then set [up a prompt] as if they were the teacher who create a worksheet to demonstrate that they can do all of the [verification] skills".

Similarly, when discussing how students have continued to use concepts learned in the QI lesson, a number of teachers noted how the fact-checking portion of the lesson resonated most with students. For instance, a secondary teacher noted how her students now "check each other. It's very common for them to say, "What's the source?" or 'Did you check it?" Other teachers emphasised how students shared their new "debunking" skills with their family members and enjoyed using these skills to, as one secondary teacher put it, "prove their parents wrong". A secondary teacher in the same focus group agreed, noting,

> I've heard from a lot of parents of my students that they love when we're doing this unit because it transfers to home. The students will go home and tell their parents, tell their grandparents, like, "You can't be sharing that!" . . . . 'Did you know that people put things up that are untrue?' "Do you know how to check a source?"

Perhaps most illustrative was an example from a secondary teacher who recounted showing his virtual class a number of images from social media following the 6 January 2021 attack on the U.S. Capitol. One of the students noticed that a man in one of the photos was wearing a shirt that said "Camp Auschwitz":

> It was the first time that my students all turned their cameras on right away. [. . .] And one of my students said, "Well, that can't be real. That guy didn't wear that shirt. There's no way". And so [the students] wanted to go through all the steps and walk themselves through it . . . They didn't believe it at first. They thought that it was the media making it up. So I didn't even have to do anything. I just showed the picture and they took it from there".

The teacher continued to mention that his students had an engaged conversation about this image, but the conversation did not go beyond assessing the credibility of the image. Bringing an image like this into the classroom could spur discussions around the specific visual aspects of the image and how they produce emotional responses. The discussion could then potentially broach more potent civic questions about the legacy of antisemitism, the increasing normalisation of extremism, the reasons why someone might feel empowered to wear this shirt in public, or the ethical implications of calling attention to and circulating such an image online where it may not always meet a negative reception. Yet in this case, the discussion began and ended with the question of whether the image was manipulated.

Only two teachers mentioned using the tool to facilitate broader discussions around visual disinformation with their students. One secondary teacher, also referencing images from the attack on the U.S. Capitol, described how his students discussed the extent to which those who tweeted or shared images in support of Trump and "MAGA" were complicit in the attempted insurrection. In this sense, students' ability to consider the spread of information and images in regards to disinformation opened up an ethical conversation about the role of "liking" or sharing posts as an activity that had wider political implications. He determined that using the framework had made a real difference: "It was definitely, I think, a more sophisticated and analytical conversation this time around as opposed to four or five years ago". Another secondary teacher similarly commented on how the tool prompted her students to engage with the political stakes of visual disinformation. She describes a discussion about a manipulated image that went viral during the 2016 U.S. Presidential election showing comedian Aziz Ansari holding a sign telling voters to "Save time, avoid the line, vote from home". The teacher noted that the image "really resonated with the kids about how easily you can be fooled and how that could have disenfranchised so many people who saw that on their social media feed". All other participants only discussed visual disinformation in terms of verification.

While determining whether an image has been manipulated or used out of context is certainly a useful skill and a central component of the QI tool, teachers' comments

suggest that zeroing in on questions related to verification could have the unintended consequence of de-emphasising the broader cultural impact and civic implications of disinformation. One teacher, for instance, articulated a potential consequence of treating the verification of content as an end in itself:

> I got to a certain point where the Grade 8s got pretty savvy about being able to figure out what's real, what's not real. But then they also really didn't care … .So it's taking it one step further to what's the social detriment of not caring or not dealing with it because they see it as humour.

Discussion

Educator responses in focus groups about the QI tool revealed significant possibilities for critical digital citizenship education through an emphasis on visual disinformation as well as a need for explicit attention to visual and digital literacy within citizenship education. Participants' contributions to the focus groups implicitly reinforced recent arguments emerging from research in social studies education that developing students' visual literacy skills is essential for helping them become engaged citizens who are able to critically navigate the world and interrogate their place within in, including their relationship with power Callahan (2015); Cruz and Ellerbrock (2015); Lundy and Stephens (2015); Colley (2019). Their responses also indicated a perception that their students tend to lack these skills and that their students are ill-equipped to analyse visual media critically through a civic lens despite consuming information that is overwhelmingly visual. Teachers frequently commented on students' tendency to leap to interpretation before even observing the content of an image fully, and they were especially concerned with their students' susceptibility to visual disinformation. Given how visual disinformation, and much online visual culture in general, is actively designed to bypass close observation and encourage snap judgement, the development of visual literacy skills seems all the more urgent.

Although the QI tool and lesson were designed to help teachers address visual disinformation, significantly, teachers most clearly articulated its relationship to developing critical civic consciousness when discussing its use outside the context of disinformation. When recounting how they applied the tool to journalistic images or images from social media that they knew to be unmanipulated, teachers mentioned how it opened up broader conversations about civic responsibility and political perspectives and encouraged students to make connections between the past and present. On the other hand, when speaking about analysing images within the context of visual disinformation specifically, most teachers in the focus group discussions tended to emphasise the process of verification, and very few mentioned using these examples to open up conversations about how visual disinformation more broadly affects civic culture.

Educator focus on verification is understandable, as discussions around the disinformation problem tend to centre on being able to know what is "true" or "real", and media literacy literature increasingly emphasises the ability to assess the credibility of media messages (von Gillern, Korona, Wright, Gould, & Haskey-Valerius, 2024). Nonetheless, this emphasis can significantly limit students' critical engagement with images. Teachers in the focus groups were clear that their students learned some key

verification techniques for investigating visual information, but they were more ambivalent about whether students understood how these images may cause harm, with one teacher reflecting explicitly on how students did not seem to care about online disinformation. The fact that so few teachers mentioned having broader conversations about the civic implications of online images when discussing them in the context of disinformation, even when they did use the QI tool to facilitate these discussions around other forms of visual culture, speaks perhaps to a limitation of how the tool was framed for teachers and to the need for further support and professional development.

Teaching about disinformation is certainly not easy. The complexity of the topic asks teachers to bring together knowledge and skills associated with visual, digital, and civic literacies. Many teachers may have never received formal training in these literacies or could use updating. This requires instructional support. For example, McGrew and Byrne (2022) have shown that, when faced with new approaches to teaching digital literacy, even teachers equipped with resources may not deliver the material in a way that best supports student learning. In terms of preparing educators to teach about visual disinformation, our results echo those of McGrew and Byrne by highlighting the necessity of additional in-classroom research to better understand what types of supports teachers require.

The implications of teachers not being properly supported to discuss visual disinformation in a more nuanced way were evident in the examples teachers raised relating to the January 6th U.S. Capitol attack. Even though those images turned out to be unmanipulated, because they were framed for students in the context of potentially being examples of disinformation, students' engagement with them began and ended with verification, and they were not prompted to discuss the images further. Like these images, many images discussed in the context of disinformation relate to major news events (Guy, 2022; Thomson, Angus, Dootson, Hurcombe, & Smith, 2020), increasing the likelihood that students may be exposed to images that are traumatic or that provoke strong emotional responses. Such images cannot be reduced to a question of veracity. Instead, educators should be encouraged and supported to bring the same attention to these images that Miles (2019) argues educators should bring to all difficult images. For Miles, educators must carefully curate and contextualise difficult images for students and "attend to the emotional and affective forces difficult images arrive with", including those that may not conform to the teacher's expectations, such as indifference (490).

Scholars have also expressed concern that an increased focus on the evidentiary nature of online images may detract from a deeper understanding of their ideological or propagandistic function. Giotta (2020), for instance, argues that contemporary digital visual literacy approaches to disinformation eschew a "critical literacy concerned with the rhetorical or ideological dimensions of images" (39) in favour of a forensic approach that focuses on using digital tools to verify the veracity of an image. Faulkner, Vis, and D'Orazio (2018) are similarly critical of an approach to visual literacy that prioritises verification. Instead of analysing images in terms of "true" or "false", they argue that images must be understood in terms of their socio-political contexts and their cultural function. To simply dismiss a manipulated image as "false" ignores the complex ways in which a "fake" image can still shape how people understand the world. Furthermore, while images can certainly be manipulated, fabricated, or used out of context; many politicised images, including image-based memes, resist verification. For students to understand how these images make meaning and evoke

emotional responses, they must develop skills that are distinct from those required for identifying veracity (Elmore & Coleman, 2019).

Moreover, while many teachers in the focus groups made connections between teaching verification and encouraging informed citizenship, we cannot assume that the ability to detect false information necessarily translates into better decisions within day-to-day practices, including civic engagement. Inevitably, digital literacy must go beyond the accuracy of information because "factual information" can still perpetuate the production of stereotypes, inequities, and misrepresentations of different groups of people (Stoddard, Tunstall, Walker, & Wight, 2021). Similarly, all images, regardless of veracity, can communicate particular worldviews, perpetuate power imbalances, shape how people understand the world, or produce complex, and often contradictory, meanings as they circulate among audiences. Civic education must engage with and prepare learners for current levels of prejudice, disinformation, and political polarisation to develop understandings of embedded power imbalances and how they impact societies worldwide (Mirra, McGrew, Kahne, Garcia, & Tynes, 2022), and a focus on visual literacy more broadly could support this.

Becoming attuned to how images function as social and civic objects requires an approach to online visual analysis that emphasises what Phillips and Milner (2021) call "ecological" thinking. For Phillips and Milner, thinking about information ecologically requires us to consider how our engagement with online information affects the entire information ecosystem and how the content we like, share or create can produce unintended harms. Such an approach resists the common tendency to frame the problem of disinformation in terms of an individual's ability to determine whether a piece of information is "true" (Bulger & Davison, 2018) and instead reframes it in terms of mass political communication. As some of the teacher responses suggested, foregrounding the pleasures of digital forensics can hinder students' ability to think in a politically nuanced manner by perpetuating a binary understanding of political discourse where the ultimate goal is to prove that one's interpretation is "right" and, by implication, the other's is "wrong" or misguided. Ecological thinking, on the other hand, applies a citizenship lens to disinformation that centres "network ethics" (Phillips & Milner, 2021, p. 14) and community-oriented thinking.

Despite the QI tool being developed to encourage a more ecological approach to visual disinformation, our focus groups seem to suggest that the urgency with which teachers want to tackle disinformation in the name of citizenship education often results in visual disinformation being discussed as separate from issues that matter to students, potentially contributing to apathy. Detecting and disregarding disinformation is only one part of how youth integrate information into an understanding of a key issue, and examining verification alone ignores the ways in which young people contextualise the media they consume and make decisions about what to care about. Existing research suggests students tend to move between tasks and apply scrutiny in a variety of ways, and social and emotional considerations about what resonates for youth and what is morally compelling is important (Middaugh, 2018). The ability to verify images, or any online content, is meaningless in a vacuum, and students cannot be expected to care about images unless they are first attuned to the specificities of images and how their production, reception, and networked circulation function as part of a far-reaching political vernacular. Such an approach to teaching visual disinformation requires treating visual, digital, and civic literacies as

mutually constitutive and reinforcing. It requires, in other words, providing teachers with further supports to facilitate discussions around disinformation that move beyond verification to foreground civic intentionality in support of critical digital citizenship education.

Notes

1. Scholars of disinformation often distinguish between misinformation, defined as false information spread unintentionally, and disinformation, defined as false information spread with the intent to deceive (Wardle & Derakhshan, 2017). While the teachers interviewed in this study were aware of the distinction, the difficulty of determining the intent behind online information resulted in these terms being used interchangeably unless stated otherwise.
2. We use "verification" rather than "fact-checking" to describe the informal practice of evaluating and contextualising online information in order to differentiate it from the process of professional fact-checkers.
3. We use "verification" rather than "fact-checking" to describe the informal practice of evaluating and contextualising online information in order to differentiate it from the process of professional fact-checkers.
4. There is no Canadian system of education as each province has jurisdiction over education. It is outside of the scope of this paper to explain the differences and overlaps between provinces in terms of structures and curricula, but generally primary education is for ages 5–12 and secondary education is for ages 13 to 18.

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