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Article abstract

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Literacy Education in the Post-Truth Era: The Pedagogical Potential of Multiliteracies

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Abstract

Current literacy curriculum often reflects an emphasis on traditions of print literacy. This focus is a concern in the post-truth era, as youth engage in diverse meaning-making practices that shape their habits as consumers and producers of information. This in-depth case study investigated the in-class and at-home online behaviors of high school students. We find that even when explicit learning about 'research' occurred in class, students are lacking sense-making strategies in their personal online engagements. We also find that curriculum relies on tradition with very little recognition of (multi)literacies as socially constructed and that teachers desire more professional development and guidance about how to engage these literacies more holistically.

Introduction

Youth increasingly participate in virtual worlds, changing their relationship to both schooling and traditional literacies. Adolescents are active producers and consumers of online content and are spending a good deal of their time in social media environments (Anderson & Jiang, 2018). This comes at a time when social media is at the heart of some of the more troubling trends of a post-truth era, characterized by misinformation, disinformation, and technological manipulations. The changing nature of how students spend their time has implications for how they make meaning in the world, form identities, build knowledge, and develop values (Greenhow et al., 2019; O'Keefe et al., 2011). In turn, these developments raise questions about how education, and particularly literacy education, might respond to changing conditions.

This study utilizes multiliteracies as a guiding framework to consider how the challenges of the post-truth era may be addressed holistically in education, in ways that account for the myriad implications that the rapidly changing information environment holds for young people's lives (Cope & Kalantzis, 2000; Cope & Kalantzis, 2015). It aims at the nexus of the changing information environment and evolving patterns of youth online engagement. We embedded ourselves in a senior English classroom at a large, public high school in a major urban center (Toronto, Canada) to conduct an interpretive case study. We examined how students engaged with information by observing in-class behaviors and by inquiring about at-home practices. We discussed issues of pedagogy and practice with teachers and analyzed current core curriculum documents to get a better sense of gaps and opportunities. More specifically, we were guided by the following research questions: What are students learning in school about navigating information online? What do

students think they should be learning in school about information sources, social media, and the news? What do teachers think they should teach? What supports are needed to address gaps in their own understanding? Findings reveal that although students appear to be fluent and proficient users of technology in the classroom, their learning about mis- and disinformation, and their literacies were incomplete and disjointed. This paper shares findings from this study with a purposeful emphasis on students' and teachers' voices to inform suggestions for future scholarship and refinements in pedagogy.

Theoretical Perspectives

This research draws from literature on the emerging information environment, characterized by the post-truth era, as well as the broad and developing field of multiliteracies. The former provides the context for the current study and the changing information environment, and also highlights the decidedly social and political ramifications of these conditions. The latter furnishes a multiliteracies framework that is at once coherent and inclusive of diversity. That is, multiliteracies considers the socially-constructed, emotional, critical, and pragmatic aspects of meaning-making, which is useful for analyzing student experience holistically. The survey of the literature in the three areas of post-truth, critical literacy, and digital literacy research suggests that while a substantial body of work is emerging (post-truth) or exists (critical and digital literacies), there needs to be more research where the three intersect.

The Post-truth Phenomenon and the New Information Environment

Conditions for the emergence of the post-truth era have been documented to include: a range of political, economic, and social issues, comprising economic instability, anxiety about terrorism, fear of the other and of being left behind (Suiter, 2016; Drexl, 2016); a growing preference for ease over substance, which places a lie on equal footing with a fact and resists the complexity of debate (Drexl, 2016); and the rise of the internet and social media that curb exposure to diverse points of view by making use of algorithms and filters to distil news and cultivate echo chambers based on existing patterns of use (Drexl, 2016; Pariser, 2011). This research also suggests a variety of factors underpinning the thinning out of the political center, ranging from economic anxiety (Suiter, 2016) to fears of immigration and globalization (Drexl, 2016). When living in a state of anxiety, perhaps one is less likely to make time and space for deliberation of complexities or nuance? Or maybe, as Drexl (2016) suggests, "these wonderlands of populism may often appear as the 'cheaper' option to the burdensome, and therefore expensive debate on solving complex issues" (p. 4). Whether the move away from the rigor of fact can be attributed to emotional appeal or whether it is because it is less taxing than engaging in uncertainty and debate, the outcome is the same: in a post-truth era, people seem less interested in, or less able to engage with, facts that interrupt their established beliefs.

Young people are implicated by these phenomena, as they increasingly use visual platforms designed with 'clickbait' for viral sharing such as Instagram and Tiktok to access information about the world, and are less likely to verify their information than adults (Nee, 2019). Ku et al. (2019) similarly found that while adolescents were able to understand news content, standpoints, and facts from claims, their evidence evaluation skills were lacking.

In a research report published by Pew Research Center (Anderson & Jiang, 2018), 31% of adolescents claimed that social media has a mostly positive impact on their lives, and 16% offered the ease of which they can find the news and information through social media as a reason *why* social media is mostly positive.

To contextualize how young people are thinking about traditional news outlets, we look towards a study conducted by Marchi (2012), that found that teenagers disavowed the concept of 'objectivity', and instead gravitated towards news circulated primarily by entertainment companies that offered commentary, satire, or opinion pieces on current events. One participant went so far as to claim that 'objectivity' aided journalists in avoiding a politicized stance rooted in justice (p. 256). While the definition of 'objectivity', as well as the value and potential harms that come from perceived objectivity, have been necessarily called into question (Haraway, 1988), the abundance of non-traditional media, the pervasiveness hidden technologies and the influence of neoliberal interests that weaponize news reporting further complicate what it means to assess information for truthfulness and validity. A lack of clarity around these issues—and a lack of pedagogic intervention—heightens the risk of young media consumers becoming trapped in echo chambers and increases their susceptibility to accepting mis- and disinformation as truthful.

Multiliteracies: Socially Constructed, Critical, and Digital

The theory of multiliteracies (New London Group, 1996) positions literacy practices as socially constructed and mediated; it also recognizes the political implications of literacy education and practices. Cope and Kalantzis (2009) note that multiliteracies "are embodied in new social practices—ways of working in new or transformed forms of employment, new ways of participating as a citizen in public spaces, and even perhaps, new forms of identity and personality" (p. 167). Lankshear and Knobel (2008) suggest that meaning-making is influenced by our social practices. Social practice is not limited to reading, but includes how we "talk about such texts in certain ways, hold certain beliefs and values about them, and socially interact over them" (Gee et al., 1996, p. 3). This expansive understanding suggests that how students come to make meaning from digital texts (or any texts, for that matter) evolves from the spaces in which they are permitted to discuss, share, and debate meaning. The premise of meaning being mediated in particular "spaces" has direct implications for the spaces of schooling and for shifting classroom pedagogy. Over the years, research has highlighted the value of multiliteracies theory as a frame for transforming practice. This was highlighted through the inclusion of case studies in Cope et al.'s (2000) key text and has been evident through a range of multiliteracies studies documenting changing classroom practice (Angay-Crowder et al., 2013; Brown et al., 2009; Serafini & Gee, 2017).

As a facet of multiliteracies theory, critical literacy provides a starting point to counter traditional definitions of print literacy and further acknowledge the implications of literacy practice for power, democracy, and justice (Albers et al., 2015; Janks, 2010; Shannon, 2011). Some salient characteristics of critical literacy include: (a.) multiple modalities, and cultural and linguistic diversity (Cope & Kalantzis, 2009; Lankshear & Knobel, 2006); (b.) encouraging students to "interrogate the relationship between language and power, and … engage in social action to promote social justice" (Albers et al., 2015,

p. 50); (c.) facilitating the emancipation of the oppressed (Freire, 1970); and (d.) transforming teachers as well as students (Edelsky, 2006). It should also be noted that ongoing research in the theory of multiliteracies extends the field through usefully pluralistic considerations of what constitutes critical literacies and literacies learning. For example, Leander and Boldt (2013) trouble what they see as the premise of rationality in early multiliteracies research, noting that textual engagements are often unpredictable, rhizomatic, and sensorial. They find that meaning-makers are active and agential when encountering texts. In a similar vein, scholars argue that emotion and affect are fundamental features of meaning-making (Parker, 2021; Hamston, 2006; Misson & Morgan, 2006).

Within these understandings of multiliteracies and critical literacy, digital literacies are delineated as a conceptual practice, rather than as an expression of standardized operations (Lankshear and Knobel, 2008). Locating digital literacies within sociocultural practice, they write "that engaging in these situated practices where we make meanings by relating texts to larger ways of doing and being is engaging in literacy" (p. 7). This particular understanding of digital literacies becomes especially notable when considering recent findings of digital literacy and social media. For example, Tagg and Sergeant (2021) found that social media users largely cater their sharing practices to suit their particular understanding of the social spaces that they occupy; the authors therefore advocate for a critical digital literacies education at the postsecondary level to combat the dangers of disinformation and political polarization. Gleason (2018) investigated the social implications of teens' literacy practices on Twitter and found that participants developed affinities of relation to friends, pop culture, and new knowledge through their engagements online. These affinity communities, new ways of building relationships, and changing pathways of accessing knowledge are crucial for educators to better understand in order to engage students in meaningful, responsive pedagogy.

Methodology

The study was guided by the overarching question: What is the role of literacy education in response to the post-truth phenomenon? While there are some large-scale, survey-based studies (Anderson & Jiang, 2018; Rideout & Robb, 2019) on youth online usage, we wanted to gain insight into the nuances of the literacy practices of teens in the classroom with their teachers. We also wanted to get to know the students over the course of a school semester so that they might feel more comfortable sharing their out-of-school online habits. For these reasons, we designed our study as a qualitative, interpretive, case study (Creswell & Poth, 2016), with an emphasis on building relationships, observing classroom learning in action, and developing nuanced insights into both student and teacher perspectives. The group encompassed 23 students in a Grade 12 English class and 3 teachers from English and Social Sciences at a diverse, urban high school in Toronto, Canada. Upon receiving research ethics clearance from both the university research ethics board and the school board, we employed a combination of in-class observations, student surveys collecting information on levels and type of social media engagement to enable purposive sampling for interviews, teacher interviews, and student interviews. A culturally diverse group of students, representative of the school's study body and with differing

levels of social media engagement, were interviewed in small groups of two to three students. Throughout the semi-structured interviews, we posed open-ended questions in order to learn about what students thought they should be learning in school, how they navigate social media and information online, and what gaps they see in their education. Teachers were interviewed individually. They were asked to share observations of how their students navigate the information landscape, reflect on their own pedagogical practice, and propose next steps for effective literacy pedagogy, curriculum reform, and professional development. We also accessed and reviewed curriculum documents for K-12 English Language in Ontario (Ontario Ministry of Education [OME], 2006; 2007a; 2007b), running a basic word count and content analysis (Kohlbacher, 2006) to get a sense of how (and if) multiliteracies, critical and digital literacies were framed. While the participants in this study were high school students and teachers, we examined elementary curriculum in order to better understand the trajectory of the students' literacy education. For the analysis, we used NVivo to code and triangulate the survey data, interview data, observational data, and content analysis of the curriculum documents in order to identify and interrogate themes. These themes were identified by collapsing codes into thematic categories with multiple examples in the data. In our findings, we made a decision to foreground the quotes from interview transcripts in the analysis as a means of valuing student and teacher voice. All participant names have been changed and quotations have only been edited for clarity.

Findings

Our findings are thematized according to three key themes: high levels of student online engagement and low levels of critical information literacy; a desire for pedagogical supports; and gaps in the formal curriculum.

A Gap in Student Online Literacy Skills

Through our in-class observations, we observed the students demonstrating a remarkable amount of fluidity in navigating complex technology, sophisticated multimodal and multimedia skills, and collaborative online networking. Some of these skills emerged as a partial function of explicit teaching and others were ascribed to self-teaching through years of direct engagement. Despite these diverse literacy strengths, one notable finding was the disconnect between students' lived experiences with social media and their existing critical literacies, especially with respect to how to make decisions about information. Our in-class observations and interviews with students show that students engage with social media to learn about the world, to understand current events, and to develop opinions. Because of the nature of social media, students in our study acknowledged that they self-select accounts to follow based on affinity, which can result in an increasingly narrow set of perspectives and beliefs that are more closely held and emotionally defended. When students were asked if they follow social media accounts that align with their own political beliefs and values, one student reported that he "definitely" followed accounts that aligned with his politics and purposefully chose not to follow accounts that did not. Other students, when asked about how they chose accounts to follow, reported that they followed friends' recommendations and also linked to accounts that were algorithmically selected based on

previously followed accounts. This suggests that the self-selection bias begins at the outset of social media engagement, and largely extends by virtue of algorithms. While the students acknowledged that they probably should "look for perspectives on both sides," their *de facto* practices suggested the emergence of inchoate echo chambers. Despite high levels of engagement over long periods of time and years of usage, students did not organically develop the inclination, strategies, and awareness around how information could be manipulated, technologically or otherwise.

Despite demonstrating a variety of skills for online research in class and receiving explicit teaching about how to test research sources for veracity for academic writing (e.g., checking author background, cross-referencing multiple sources, using reputable websites and URLs like .org and .edu), students acknowledged that they did not apply these techniques to their personal engagements with information on social media. For example, when students were asked how they learned about current events in the survey, the majority indicated that they access the news through various social media applications (20), and follow links sent to them by friends and family (15). They admitted that the content they receive is largely curated since they are able to choose which accounts they follow. In this vein, most of the students surveyed described getting their information from Instagram and, to a lesser extent, Twitter. In an interview, one of the students, Tamara, acknowledged that not all information that she receives through the Instagram accounts that she follows will be reliable, but admits that she does not always check her sources before accepting the information she encounters as truth. Two of Tamara's classmates, Charlie and Felipe, similarly shared that they did not always verify the information they accessed through social media, and the methods that they used to check for accuracy were not consistently effective. They were more likely to take on the additional task of evaluating sources if the source they were reading *seemed* like it could be untruthful:

> **Charlie:** *Most of my knowledge about what's happening comes from social media, specifically Twitter because I'm on there a lot. Of course, I do acknowledge as a social media platform, everyone can post their own thoughts and opinions—not all information is good information, nor is it reliable. So, most of that I take with like a grain of salt [...] So it's not that I'll just take everything as it is. It's kind of like pick and choose and then add your own opinions, [and] if I'm more interested [I will] look more into it.*

> **Felipe:** *The first thing that I try to do is…it's kind of like how Charlie said like if you see news you kind of don't believe it at first right? Because obviously you'll see it pop up more and more, and more discussions will open up because I also use Reddit a lot. So, then you see that happening a lot where the discussion just keeps flowing, or there's just you know, I don't know how to say it fully but…Reddit there's just a lot of users.*

Even during classroom observations, it was common for students to attempt to verify their information through checking to see how frequently a claim was being made across various online spaces. If more people were claiming something was true, then the

students interviewed believed it was more likely the information was factual. However, since the methods that students used to check for accuracy were erratic, and/or relied on trusting the opinions of the largest, most vocal group of people they encountered online without evidence to support such claims, it appears that the students did not assess information they encounter in their personal social media use with consistent criticality. Since students often accessed information through accounts they choose to follow, they are also at risk of operating in an echo chamber, since the content they are receiving is significantly curated to their personal networks, and implicated by their engagement with specific social media accounts.

It is important to acknowledge that the students featured in this study have grown up in a time where social media use is common, and many of them have had their own social media accounts from a young age. They express a great deal of agency in participating as both consumers and producers in this space. It is, therefore, crucial for educators and researchers alike to acknowledge that the practice of accessing information through Instagram and Twitter may be somewhat normalized for this particular age group. Their English teacher, Ms. Atkins, articulates a discrepancy she has observed between the ways in which current high school students learn about the world online, and the ways that previous generations of students learned about current events. When asked how she observed her students accessing the news, Ms. Atkins corroborated what we had heard from her students:

> **Ms. Atkins:** *It is definitely Instagram. …. I once had a student say, "you learn on Instagram, but then if you want to make sure it's true you go on Twitter". They have the ability to [go] from one social media to another, [but] are they visiting [other] websites? I don't know if they visit any websites. I don't think they do.*

She further posits a disconnect between what schools focus on in their literacy programming and what students access. She notes that when news resources were less abundant, they were more likely to be shared, increasingly the opportunities for those same resources to be incorporated into classroom lessons:

> **Ms. Atkins:** *{It's] not the way it was when I was growing up. We weren't that different from adults. We consumed much of the same things. We watched television together, you know, there was, there's always this [shared] thing…*

While Ms. Atkins acknowledged that students are increasingly engaged in digital life from an early age, she commented that their engagement does not effectively translate into the application of critical literacies. Further, her concern about the loss of shared sites of meaning-making—watching television together or reading the same local newspapers—reflects the significance of the loss of space for meaning-making, which Gee et al. (1996) highlights as essential to literacy as social practice. On one hand, that young people are engaged as both consumers and producers with literacy as social practice in their virtual worlds cannot be disputed. Scholars have noted these examples through fandom cultures and communities (Aragon & Davis, 2019) and through the use of social media to

collectively organize social justice initiatives and action (Boulianne et al., 2020). On the other hand, what Ms. Atkins highlights here is the gap between those literacy practices—whether beneficial (cultivating communities) or harmful (becoming radicalized)—and what is engaged pedagogically in schools.

A Gap in Language Curricula

A second finding is that formal curriculum is out of step with the reality of how students make meaning. Despite strands on reading, writing, oral language and media literacy, the contemporary curriculum serving Canada's most populous and diverse districts does not address the changing information environment.

What is in the curriculum? To situate the experiences of students and teachers interviewed in this study in a curricular context, we conducted an analysis of the three curriculum documents that comprise the trajectory of literacy education in the province: *The Ontario Curriculum, Grades 1-8, Language* (Ontario Ministry of Education [OME], 2006), *The Ontario Curriculum, Grades 9-10, English* (OME, 2007a), and the *The Ontario Curriculum, Grades 11-12, English* (OME, 2007b). Our first concern is that the curriculum is divided into strands, with most emphasis on bias and information relegated to a section in the Media Literacy strand. This curriculum organization often—as was the case in the classroom lessons observed in this study—translates to teachers parceling media literacy units into standalone components of their program, without incorporating strategies more broadly into reading and writing.

Another concern arises when considering the disconnect between the general framing and specific curricular expectations across grades. In the preamble of the Elementary curriculum document, for example, the Ministry suggests: "Students must be able to differentiate between fact and opinion; evaluate the credibility of sources; recognize bias; be attuned to discriminatory portrayals of individuals and groups, including women and minorities; and question depictions of violence and crime" (OME, 2006, p. 13). The curriculum also notes that students will learn to be critical media consumers and producers, and that they should engage with a wide variety of media texts and forms in order to learn how to create meaning from these texts. However, despite these broad and seemingly important goals, there are few expectations that engage directly with the concepts.

Throughout each grade, students are expected to interpret points of view that are present in a media text and consider alternative perspectives. However, while students are expected to develop increasingly sophisticated critical analysis skills, the language used to frame these curricular expectations does not account for the complexities that the new information environment imposes, especially as the flow of mis/disinformation cannot be simplified into a dichotomy of "fact" and "opinion." Thinking through this dichotomy negates nuance, and fails to account for the pervasive ways in which neoliberal forces utilize information, misinformation, and disinformation strategically to achieve particular goals by corporations or special interest groups.

For the Media strand in the Grades 9 and 10 English curriculum, students are similarly expected to engage critically with a variety of media texts and create their own. In Grade 9 Academic English, students are expected to develop critical literacy skills by identifying "the perspectives and/or biases evident in both simple and complex media texts

and comment on any questions they may raise about beliefs, values, and identity" (OME, 2007a, p.53). The Grade 12 University Preparation critical literacy expectation uses similar language, and is somewhat more complex: "identify and analyze the perspectives and/or biases evident in texts, including complex and challenging texts, commenting with understanding and increasing insight on any questions they may raise about beliefs, values, identity, and power" (OME, 2007b, p.106). Once again the expectations are relegated to a particular strand and do not recognize the pervasiveness of youth online behaviors, or the impact of these environments on identity formation and values.

What is missing from the curriculum? The curriculum does not currently draw from multiliteracies frameworks, ignores the role of affect in meaning-making, and fails to address the new information environment. Unlike a multiliteracies approach, which foregrounds social constructivism and multimodalities, the designation of Media Literacy or Media Studies as a curricular silo centers outmoded understandings of print literacy. Students and teachers in our study both noted that the current curriculum seemed bound by historical conventions and traditional canon. One student expressed both his frustration with this status quo approach and also a sense of powerlessness, saying:

> **Felipe:** *I feel like schools are very consistent in a way. But at the same time, change is something that schools fear, right? There's not much change that schools want to do. They would like to stick to the traditional.*

His concern here, echoed by the three teachers in the study, is that literacy education will become increasingly irrelevant to youth practices as it fails to engage authentically with what students are actually reading, hearing, and viewing. Felipe's observation of the slow pace of which schools respond to emerging pedagogical challenges may contextualize one of the reasons why students are independently developing their own literacy practices through personal use of social media, news sources, and information online.

Another lacuna, which can also be understood as a failure to reflect multiliteracies complexity, is the lack of recognition of the role of affect in meaning-making. While the curriculum encourages teachers to engage students in thinking about concepts such as identity, power, and bias, it does not adequately account for the social and emotional implications of students' processes of online consumption and production (Parker, 2021). One of the teachers we interviewed, Ms. Brooks, discussed some of the challenges that she faces in addressing the emotional entanglements that characterize the ways in which students engage with and assess information. Ms. Brooks shared that, at times, students can be resistant to critically question information they encounter:

> **Ms. Brooks:** *[Getting information on social media] is emotional in that sense. That's the piece that we're trying to sort of create a wedge between, saying: "Look, I know you're having that emotional response. I know you and your friends are having this discussion and it sounds really real and everybody's sort of like: 'yeah, yeah, you're right, you're right.'" ... And that's what's very complicated because that's also about acceptance, that's about being part of a group. That's about asserting your identity in a space where you've been accepted*

for a long time and you have a way of being and existing in that space, right? ... It's not always bad, it's not always wrong with what's being generated in that space. It's just getting them to question and to sift through information. And that's the important piece that I think as English teachers we're trying to get at. Their thinking process and why they hear this or hear that or what information to take and leave behind and why some resources may not be as legitimate as others.

Ms. Brooks highlights some of the intricacies of how students' emotional lives are necessarily connected to the information they choose to consume both within educational spaces, and in their personal use. These intricacies are particularly significant when students are using information sources that are not held to the same journalistic standards of reliability as television news networks, newspapers, and other forms of public broadcasting. While educators are increasingly encouraged to utilize diverse texts that cater to the various lived experiences of students, the curriculum does not provide a holistic or nuanced framework for considering the implications of information abundance and mis/disinformation for students' affective reactions and values development. This lack of attention in the curriculum is exacerbated by the challenges of online learning during the COVID-19 pandemic. For example, at the time of interviewing, Mr. Callaway was teaching his classes remotely. The Black Lives Matter movement was gaining traction and he felt that the previous opportunities he had to support his students' emotional experiences while processing current events were no longer possible:

> **Mr. Callaway:** *It would have been so interesting to handle or deal with the whole protest movement and the history of policing. ...Where I work it's a mostly Black area, right? So, a kid's hand would go up and say, "I had this experience, sir" and then another kid responds to that kid, and then another kid has this idea and you could have these wonderful times when the bell would ring and nobody wants to leave, you know? And then a kid [would be] coming up to you after class and saying, "Oh you know, sir I just want to talk to you." Or you get a kid approaching you quietly [if] something's happened ... All of this is gone right? It's gone.*

It is evident that the teachers we interviewed made their own individual efforts to support students' social and emotional learning in their classrooms and were able to build positive relationships with the young people entrusted to their care. However, it is crucial that curricular reform accounts for the various ways in which students make meaning from current events.

Finally, teachers indicated that the formal curriculum did not permit them to become aware of or respond to the rapidly changing demands of the emerging online environment. Teachers felt that students did not understand the intricacies of how algorithms, filter bubbles, and echo chambers shape their experiences with locating information online; however, they also indicated that they needed additional resources in order to understand these phenomena themselves. Ms. Atkins offered her nascent reflections, saying:

Ms. Atkins: The other piece I think is this algorithm stuff, but that's really not something I've been thinking intensely about, it's more from the conversation we're having now. I know it's sinister ... so I've thought about it more in my own intellectual reading and things like that. How it works for radicalization ... There are these suicide blogs on Tumblr where it creates these suicide communities among teens. So, I've done that reading, but very underdeveloped...almost non-existent in my practice.

It is not uncommon for adolescents to form online communities with fellow youth that they have something in common with, and as algorithms and filter bubbles increasingly curate a digital trajectory for young consumers to follow, it is inevitable that they will find themselves suspended in echo chambers created from their social media use, search histories, and online engagement more generally (Nee, 2019). While the students who participated in our study expressed an awareness of algorithms impacting what content is made visible to them based on their social media use—for example, through YouTube using their watch history to suggest other videos that may be of interest to them—they did not demonstrate a thorough understanding of how algorithms work, and the ways in which their digital habits can lead them into echo chambers. While our study primarily focused on how young people navigate the current information landscape, this research is necessarily entangled with the social and emotional implications of digital life. Ms. Atkins succinctly captured some of the more extreme risks that hidden technologies can pose to young people if left unaddressed, from political radicalization to deteriorating mental health. The high stakes outcomes of meaning-making in online environments rife with information abundance, misinformation, disinformation and technological manipulations suggest that more curricular attention is needed more broadly, and not just in compartmentalized units on "media studies."

A Gap in Pedagogy

Sometimes, even with outdated or vague curriculum, teachers are able to find ways to render their pedagogy responsive and authentic. At other times, curricular gaps translate into absence of focus in the lived pedagogy of classrooms. Our third finding suggested that the issues presented by the new information environment are not fully on teacher and educational policymaker radars. As such, there is not simply a gap in pedagogy, but a commensurate lack of recognition of the educational need. Both students and teachers shared their concern that there is no particular learning associated with navigating information online. Some of the teachers we interviewed mentioned teaching themselves, reading on their own time, or developing special interest projects to explore some of the complications of information manipulation and technology, but there was no single resource, training, or program to update their skills.

The three teachers we interviewed all shared specific ways in which they are renewing their pedagogical practice to respond to the shifting needs of today's students. This includes some explicit teaching of transmediation using social media texts (e.g., memes), using digital tools in creative ways, addressing current events to further develop

critical thinking skills, and creating lessons and assessments about specific social media applications such as Twitter and TikTok. While each educator expressed a commitment to adapting their pedagogy in response to the influence of social media in their students' lives, they felt that their own knowledge of the new information environment was lacking. Ms. Atkins and Ms. Brooks noted:

> **Ms. Atkins***: There have to be some guidelines because everything that I've changed has come from just thoughts and experiences I've had with my students and in my own life, and not so much from within professional development.*

> **Ms. Brooks:** *To get knowledge to students about how information is filtered and like we need to be trained as well. We don't know, we're just getting the information bits and pieces ourselves.*

Both teachers and students that we interviewed in this study shared that they did not have a deep understanding of the ways in which algorithms, filter bubbles, and echo chambers influence their access to and engagement with information. Teachers felt that they were hindered in bringing authentic learning about the new information environment into their practice due to having inadequate knowledge of these hidden technologies themselves. They additionally felt that they were struggling to cover all of the curriculum expectations already in place, and that the media strand of the English curriculum usually received the least amount of time and attention; even prior to the emergence and widespread use of social media.

Teachers also raised the issue of equity. Ms. Atkins and Ms. Brooks were concerned that students were learning about the new information environment in unequal ways and through a process of trial and error. They acknowledged that, because these lessons largely depend on individual teacher expertise, not all students would be given opportunities to explore these literacies. Ms. Brooks was also concerned that students from higher socioeconomic circumstances were more likely to learn about these topics due to increased access to resources, such as private tutoring or extracurricular activities. Ms. Atkins echoed the sentiments of concern about how issues of marginalization, class, and capital potentially impact early social media engagement:

> **Ms. Atkins:** *The thing is there's a real equity piece in all of this, right? Where people of a certain class, and sometimes race, are really controlling what their kids' inputs are, you know, and then you have some of my students [who say] "I got Instagram when I was 10 and I live on this app." ... I read about this this thing in Silicon Valley where they have this school for all these kids of these technocrats, and they have no screens. They have no screens for their own children. And I was like wait a minute.*

These concerns about inequitable exposure further establish that the gap in pedagogy can exacerbate harms for vulnerable students. It suggests that education, pedagogy and

curricula, has an active role to play in supporting families as they navigate the changing virtual landscape.

In that vein, Ms. Atkins remarked that a failure of institutional coordination would entrench inequitable learning outcomes, stating, "*[the] next revolution is happening, I think just led by people who are interested. But there has to be some sort of official or institutionalized approach to revising the curriculum because it's happening very unevenly for students.*" This teacher's explicit call for curriculum reform illustrates one way that educational policymakers can take up the task of supporting teachers in their efforts to prepare students for engaging with the seemingly infinite flow of information in virtual worlds. Her assertion that an educational revolution is being taken up primarily by teachers who are interested, but not at the curricular level, further illuminates the inequitable distribution of this learning for students.

Discussion

The impacts of teaching in the post-truth era necessitate a reconceptualization of literacy education with attention to the effects of mis- and disinformation. Evolving conceptions of literacy have focused on the pedagogical potential for multiliteracies (Hibbert, 2013), critical literacies (Asher Golden & Zacher Pandya, 2019; Bonsor-Kurki, 2015), and digital literacies (Martin, 2008; Prinsloo & Rowsell, 2012). While the emergence of "fake news" into the sociocultural lexicon has propelled researchers to investigate pedagogy of information literacy (Cherner & Curry, 2019; Farmer, 2019; Frechette, 2019), more research is needed to explore how young people make meaning while navigating the new information environment. Our study reveals that while students think they are able to navigate digital information environments independently, their practices lack consistent criticality. Porat et al. (2018) similarly found that students overestimated their digital literacy competencies: the students ranked their social-emotional skills in the context of digital literacies the highest, but this was the area students achieved the lowest level of understanding.

Our study highlights the complex relationship between literacy practices and affect. As Hamston (2006) suggests, "a complex dialectic emerges between intellect and emotion, between what is concrete and what can only be sensed" (p. 44). She argues, with Misson and Morgan (2006), that these dialectical positions deepen meaning-making engagement with texts. Consideration of the affective dimension of literacy is especially relevant in the post-truth era, since emotion can play a critical role in how we engage with information, make meaning, and enact decisions (Parker, 2021). Ms. Brooks regularly navigated tensions that arose when grappling with contentious issues. Mr. Callaway emphasized the significance of being emotionally available and proximate to students to attend to current events. Students acknowledged that their digital lives were entangled with their personal identities and that much of their engagement was shaped by affinity. This poses new challenges for educators and researchers alike in defining what "literacy" means in the new information environment. A study with undergraduate students revealed that emotional intelligence was a significant predictor of students' informational literacy scores (Matteson, 2014). These findings demonstrate how young adults are engaged in meaning-making after high school and illustrate the importance of investigating literacy instruction

that considers emotional affect more deeply. Sivek (2018) similarly calls for literacy pedagogy that moves away from a cognitive framework, toward a model of mindfulness that considers how consumers' emotions shape their encounters with information. While there is a breadth of literature about the implications of social media use for youth mental health (Barry et al., 2017; O'Reilly, 2020), there is an urgent need for scholars to explore how misinformation, disinformation, and information abundance explicitly seek to draw on and manipulate emotion, and to translate the implications of that work into the pedagogical space.

Misinformation and disinformation on social media also pose risks to democracy that a literacy education cannot ignore. Mason et al.'s (2018) 'media ecology' offers a framework for understanding the dynamic between media consumption and larger sociopolitical shifts; they contend that for a society to be truly democratic, there must be a politically informed citizenry capable of making autonomous decisions based on truthful information. To that end, our work adds to the educational literature foregrounding the relationship between literacy and democracy. Kahne and Bowyer (2017) illuminate hopeful possibilities for how researchers might explore the potential of literacy education for democracy, in which considerations for the new information environment are paramount. They found that while participants' political knowledge did not improve their judgements of information accuracy, media literacy education did. This finding highlights the importance of further study about how young people are navigating, or failing to navigate, digital environments in which algorithms, filter bubbles, and echo chambers largely tailor the information that they are exposed to, which can impact their development as political agents.

It is notable that Ontario's language and English curriculum documents were last revised in 2006 and 2007, and therefore cannot account for the challenges that post-truthism and hidden technologies pose to education. This dearth in meaningful pedagogy is not unique to Canadian contexts. Bulger and Davison (2018) found that most media literacy training in the United States focused on PD for teachers, often through grassroots initiatives led by passionate educators, echoing the concerns of teachers interviewed in our study. They found that there is no standardized curriculum for media literacy, signifying that students' learning in this area is dependent on individual teachers. Butterfield and Kindle (2017) found that amongst two groups of teacher participants, 56% and 64% of teachers respectively felt that the common core standards did not connect to students' lives. These findings mirror our own: students in our study did not see meaningful connections between what they learn at school, and their personal engagements with social media and information. A revised curriculum that accounts for the relationships between literacy, the new information environment, affect, and implications for democracy is sorely needed.

Finally, teachers interviewed told us that they felt ill equipped to meet the demands of teaching students how to navigate the new information environment. They wanted professional development (PD) that accounts for pedagogical challenges posed by mis- and disinformation, the prominence of social media in students' lives, and the ways that hidden technologies influence online engagement. In tandem with curriculum reform, an effective approach to creating meaningful PD for teachers might be devised through an explicit reference to the multiliteracies framework and premised on an understanding of literacies

as "a different kind of pedagogy…in which language and other modes of meaning are dynamic representational resources, constantly being remade by their users as they work to achieve their various cultural purposes" (Cope & Kalantzis, 2000, p.5). The rapid speed at which mis- and disinformation circulate calls for a holistic approach that equips teachers with the knowledge and tools necessary to engage students in this learning. Damasceno (2021) offers a model grounded in the concept of a 'functional literacy', which includes acquiring knowledge on how these technologies operate, and how they influence social behavior. Since teachers in our study claimed that they first needed to know how algorithms, filter bubbles, and echo chambers worked themselves before they could effectively bring this knowledge into their practice, we propose that PD should address how these technologies operate and include strategies that teachers can use to teach about the new information environment through a multiliteracies framework. Further, and in recognition of the role multiliteracies can play in support an emancipatory pedagogy (Cope & Kalantzis, 2009), renewed critical, digital literacies PD would foreground educational space and time for shared meaning-making. Cope and Kalantzis (2009) write:

> A pedagogy of multiliteracies can be agnostic about the stance learners and teachers may wish to take in relation to changing social conditions. For example, they might take the route of compliance or that of critique. If they take the former route, education will help them develop capacities that will enable them to access the new economy and share in its benefits. Or they may reject its values and their consequences in the name of an emancipatory view of education's possibilities. Whichever stance they take, their choices will be more explicit and open to scrutiny.

In this way, teaching multiliteracies in the post-truth era becomes less about teacher authority and student obedience, or about what Lankshear and Knobel (2008) refer to as "standardized operational" learning, and more about cultivating space and time for authentic exploration of the dialectical real and virtual world.

Acknowledgements

References

Albers, P., Cho, A. R., Shin, J. H., Pang, M. E., Angay-Crowder, T., Odo, D. M., & Turnbull, S. (2015). Critical spaces for critical times: Global conversations in literacy research as an open professional development and practices resource. *Global Education Review*, *2*(3), 46-67.

Anderson, M., & Jiang, J. (2018). *Teens, social media & technology 2018.* Pew Research Center. http://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/

Aragon, C., & Davis, K. (2019). *Writers in the secret garden: Fanfiction, youth, and new forms of mentoring*. MIT Press.

Asher Golden, N., & Zacher Pandya, J. (2019). Understanding identity and positioning for responsive critical literacies. *Language and Education*, *33*(3), 211-225.

Barry, C.T., Sidoti, C.L., Briggs, S.M, Reiter, S.R., Lindsey, R.A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence, 61*, 1-11.

Bonsor-Kurki, S. (2015). Investigating youth critical literacy engagement. *Language and Literacy,17*(3), 13-33.

Boulianne, S., Lalancette, M., & Ilkiw, D. (2020). "School strike 4 climate": Social media and the international youth protest on climate change. *Media and Communication, 8*(2), 208-218.

Brown, I., Lockyer, L., & Caputi, P. (2009). Multiliteracies and assessment practice. In D. R. Cole & D. E. Pullen (Eds.), *Multiliteracies in motion* (pp. 203-218). Routledge.

Bulger, M., & Davison, P. (2018). The promises, challenges, and futures of media literacy. *Journal of Media Literacy Education, 10*(1), 1-21.

Butterfield, C.L., & Kindle, S.P. (2017). How much is enough? Teachers' perceptions of literacy instruction and common core standards. *Journal of Higher Education Theory and Practice, 17*(9), 69-80.

Cherner, T. S., & Curry, K. (2019). Preparing pre-service teachers to teach media literacy: A response to "fake news". *Journal of Media Literacy Education, 11*(1), 1-31.

Cope, B., & Kalantzis, M. (2009). "Multiliteracies": New literacies, new learning. *Pedagogies: An International Journal*, *4*(3), 164-195.

Cope, B., & Kalantzis, M. (2013). New media, new learning and new assessments. *E-learning and digital media, 10*(4), 328-331.

Cope, B., Kalantzis, M., & New London Group. (2000). *Multiliteracies: Literacy learning and the design of social futures.* Routledge.

Cope, B., & Kalantzis, M. (2015). *A pedagogy of multiliteracies: Learning by design.* Springer. Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage.

Damasceno, C. S. (2021). Multiliteracies for combating information disorder and fostering civic dialogue. *Social Media + Society, 7*(1), 1-10.

Drexl J. (2016). Economic efficiency versus democracy: On the potential role of competition policy in regulating digital markets in times of post-truth politics (Research Paper No. 16-16). Max Planck Institute for Innovation and Competition, Ludwig Maximilian University of Munich. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2881191

Edelsky, C. (2006). *With literacy and justice for all: Rethinking the social in language and education* (3rd Ed.). Routledge.

Farmer, L. (2019). News literacy and fake news curriculum: School librarians' perceptions of pedagogical practices. *Journal of Media Literacy Education, 11*(3), 1-11.

Frechette, J. (2019). Keeping media literacy critical during the post-truth crisis over fake News. *The International Journal of Critical Media Literacy*, *1*(1), 51-65.

Freire, P. (1970). *Pedagogy of the oppressed*. Penguin.

Gee, J. P., Hull, G., & Lankshear, C. (1996). *The new work order: Behind the language*

of new capitalism. Allen & Unwin.

Gleason, B. (2018). Thinking in hashtags: Exploring teenagers' new literacies practices
  on Twitter. *Learning, Media and Technology*, *43*(2), 165-180.

Greenhow, C., Galvin, S. & Staudt Willet, K. B. (2019). What should be the role of social
  media in education? *Policy Insights from the Behavioral and Brain Sciences, 6*(2),
  178-185.

Hamston, J. (2006). Pathways to multiliteracies: Student teachers' critical reflections on a
  multimodal text. *Australian Journal of Language and Literacy, 29*(1), 38-51.

Haraway, D. (1988). Situated knowledges: The science question in feminism and the
  privilege of partial perspective. *Feminist Studies, 14*(3), 575-599.

Hibbert, K. (2013). Finding wisdom in practice: The genesis of the salty chip, a Canadian
  multiliteracies collaborative. *Language and Literacy, 15*(1), 22-38.

Janks, H. (2010). *Literacy and power*. Routledge.

Kahne, J., & Bowyer, B. (2017). Educating for democracy in a partisan age: Confronting
  the challenges of motivated reasoning and misinformation. *American Educational
  Research Journal*, *54*(1), 3–34.

Kohlbacher, F. (2006). The use of qualitative content analysis in case study
  research. *Forum Qualitative Sozialforschung / Forum: Qualitative Social
  Research*, *7*(1).
https://doi.org/10.17169/fqs-7.1.75

Ku, K. Y., Kong, Q., Song, Y., Deng, L., Kang, Y., & Hu, A. (2019). What predicts
  adolescents' critical thinking about real-life news? The roles of social media news
  consumption and news media literacy. *Thinking Skills and Creativity*, *33*, 1-12.

Lankshear, C., & Knobel, M. (2006). *New literacies* (2nd ed.). Open University Press.

Lankshear, C., & Knobel, M. (2008). *Digital literacies: Concepts, policies and practices*.
  Peter Lang.

Lankshear, C., McLaren, P.L. (1993). *Critical literacy: Politics, praxis, and the
  postmodern*. SUNY Press.

Leander, K., & Boldt, G. (2013). Rereading "A pedagogy of multiliteracies": Bodies,
  texts, and emergence. *Journal of Literacy Research*, *45*(1), 22-46.

Marchi, R. (2012). With Facebook, blogs, and fake news, teens reject journalistic
  "objectivity". *Journal of communication inquiry*, *36*(3), 246-262.

Martin, A. (2008). Digital literacy and the "digital society". *Digital literacies: Concepts,
  policies and practices*, *30*, 151-176.

Mason, L. E., Krutka, D., & Stoddard, J. (2018). Media Literacy, Democracy, and the
  Challenge of Fake News. *Journal of Media Literacy Education, 10*(2), 1-10.

Misson, R. & Morgan W. (2006). Critical literacy and the aesthetic: Transforming the
  English classroom. Urbana, IL: National Council of Teachers of English.

Nee, R. C. (2019). Youthquakes in a post-truth era: Exploring social media news use and
  information verification actions among global teens and young adults. *Journalism &
  Mass Communication Educator*, *74*(2), 171-184.

Ontario Ministry of Education (2006). *The Ontario curriculum: Grades 1-8 language*.
  Queen's Printer for Ontario.

http://www.edu.gov.on.ca/eng/curriculum/elementary/ language18currb.pdf

Ontario Ministry of Education (2007a). *The Ontario curriculum: Grades 9-10 English*. Queen's Printer for Ontario. http://www.edu.gov.on.ca/eng/curriculum/secondary/ english910currb.pdf

Ontario Ministry of Education (2007b). *The Ontario curriculum: Grades 11-12 English*. Queen's Printer for Ontario. http://www.edu.gov.on.ca/eng/curriculum/secondary/ english1112currb.pdf

O'Keefe, E. B., & Copeland, S. R. (2011). What is literacy? The power of a definition. *Research and Practice for Persons with Severe Disabilities, 36*(3–4), 92–99.

O'Reilly, M. (2020) Social media and adolescent mental health: The good, the bad and the ugly.*Journal of Mental Health, 29*(2), 200-206.

Pariser, E. (2011). *The filter bubble: What the Internet is hiding from you*. Penguin.

Parker. L. (2021) Literacy in the post-truth era: The significance of affect and the ethical encounter. *Educational Philosophy and Theory, 53*(6), 613-623.

Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: Junior high-school students' perceived competencies versus actual performance. *Computers in Education, 126*, 23-36.

Prinsloo, M., & Rowsell, J. (2012). Digital literacies as placed resources in the globalised periphery. *Language and Education*, *26*(4), 271-277.

Rideout, V., & Robb, M. B. (2019). The Common Sense census: Media use by tweens and teens, 2019. Common Sense Media. https://www.commonsensemedia.org/sites/default/files/research/report/2019- census-8-to-18-full-report-updated.pdf

Serafini, F., & Gee, E. (Eds.). (2017). *Remixing multiliteracies: Theory and practice from New London to new times*. Teachers College Press.

Shannon, P. (2011). *Reading wide awake: Politics, pedagogies, & possibilities*. Teachers College Press.

Sivek, S.C. (2018). Both facts and feelings: Emotion and news literacy. *Journal of Media Literacy Education, 10*(2), 123-138.

Suiter, J. (2016). Post-truth politics. *Political Insight*, *7*(3), 25-27.

Tagg, C., & Seargeant, P. (2021). Context design and critical language/media awareness: Implications for a social digital literacies education. *Linguistics and Education, 62*, 1-9.

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