Literacy Entanglements and Relationality, Time, Place, Space and Identity

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Tawaw, or welcome, to this special digital edition of the *Language and Literacy* journal. This issue is a direct result of the scholarship shared by participants and the development and management of the 18th annual, but first digital, Language and Literacy Researchers of Canada (LLRC/ACCLL) pre-conference by the co-chairs[1] (Jing Jin, Lara Polak, Velvalee Georges, and Yina Liu). The theme, ***Literacy Entanglements & Relationality: Time, Space, Place, and Identity***, aspires to engage researchers in moving beyond entanglement toward evolving relationality through and in the various dimensions of time, space, place, and identity. This theme was intended to create opportunities for researchers to attend to the complexities inherent in broadening and strengthening our understandings of language and literacy entanglement. We anticipated thoughtful conversation about how humans engage with literacy and language at various stages of relations, from superficial acknowledgment to exploring how our messages are transformed by identity, time, space, and place. We wondered how the course of literacy and language research might become more robust by attending to all dimensions, particularly as we move from face-to-face to virtual contexts and digital means.

[1] Names are in alphabetical order of the first name.

Figure 1. University of Alberta North Education Building Mural[2]

We aimed to provide pre-conference participants with a sense of the physical place from which the team originates by using a focal image, a mural, that dresses the wall of the University of Alberta's Education Building. Over time, this place has become an integral part of our evolving graduate student identities. We also use the Cree word 'tawaw', which loosely translates to 'welcome', to attend to the people whose lands we occupy, Treaty 6 Territory and the Metis homeland. The actual mural, which is an image of many smaller colored tiles, not only conveys the physical location but it simultaneously expresses the affordances and limitations of virtual space. Although we gathered on a virtual platform, we recognized the importance of the land on which participants were located by acknowledging the ancestral and unceded territory of all Inuit, First Nations, and Métis peoples from coast to coast to coast.

This special edition attends to the meanings of time, as temporal and successive, and identity as shifting and negotiated. It also considers place as geophysical and multidimensional, and space as generative, where social actors engage in literacy practices anew (Bucholz et al, 2018). This issue was also an opportunity to build upon the canceled LLRC 2020 pre-conference theme where researchers were encouraged to "think across disciplines, across communities, across venues, and across traditional barriers and

[2] Copyright permission for this photo has been granted from University of Alberta.

boundaries" (LLRC, 2019, p. 1). The 2021 virtual pre-conference looked a bit different from previous editions but the intent of involving one another in rich, deep conversations about literacy and language research and of advancing scholarship in this area remains front and centre.

We welcomed Dr. Sumara as our keynote speaker who engaged us in reflecting on our own experiences in storying and restorying ourselves, individually and collectively. Dr. Sumara led us through a personal narrative of time, place, and space, in exploring and reflecting on the entanglements and relationality we each have with stories and life experiences, to rethink and retell who we are, who we are becoming, and where and how we find ourselves in this world. He spoke of differing levels of awareness within and between us, of being conscious and unconscious, as well as our access to our subconscious, including associative thinking and the validity of dreams. In his keynote, Dr. Sumara encourages us to reflect and develop awareness of ourselves and our stories in time, place, and space as well as to extend ourselves by sharing our stories with others in ways that may bridge divides among us. He reminds us of how we are deeply and relationally entangled with one another, imprinting upon each other in small and large moments everyday.

In this issue, we bring articles together to look at the possibilities for online learning, to explore more deeply the relationships among time, place, space, and identity. Many of the articles take a look at the remote and online learning environment from different perspectives. We also see language as a medium to bring about cohesion among the "multis"-- multiliteracies, multimodal ways of meaning making, and multicultural literacy. The theme of this issue also sheds light on the relationships between teaching pedagogies and research in practice as well as the shifting of pedagogies to meet the needs of learners in this uncertain time. This year, we have four articles published in this special issue and below is a brief snapshot of each of them.

Due to the changes that the pandemic brought, shifting from in-person to emergency remote teaching, Eugenia Vasilopoulos and Francis Bangou explored the disruption of space, place and material conditions in language teaching. Specifically, drawing on the Deleuzian concept of assemblage and post-qualitative inquiry, the researchers engaged with English for Academic Purposes (EAP) classrooms and looked at the perceptions of student engagement and student academic integrity in the emergency online classes in a higher education context. This article shared insights about the relationality between technology affordability and the absence of embodied connection.

Using a duo-ethnographic approach, Tanya Manning-Lewis and Kathy Sanford focused on the entanglement of teacher candidates' learning of multiliteracies pedagogy and their literacy identities. These two researchers reimagined multiliteracies practices in their online teaching and looked at how the shift to online learning impacted the teacher candidates' attitudes. The researchers aim to further the engagement of teacher candidates from the disciplines of science and mathematics education in the field of multiliteracies.

Dany Dias investigated the relationalities among time, space, place and identity in adolescent learners' literacy practices while using multicultural literature in classrooms. In her article, Dany Dias explores the potential for multicultural literature to expand the worldviews of adolescent students from the lens of her visually represented "metamorphic" theoretical framework. Her work also seeks to foster and enhance student perceptions of global citizenship, through the lens of time, space, place and identity.

Terry Loerts explored the ways that Bachelor of Education undergraduate students use multimodal meaning making to re-conceptualize their learning of literacy practices. A deeper understanding about multiliteracies and assessment techniques were enhanced by life experiences, transmediation processes, peer group sharing and facility with modes and media. Learning opportunities also enriched identity formation through transcendence of disciplines, spaces, and time.

Our team enjoyed the process over the past two years and found the LLRC to be instrumental in our growth as scholars, researchers, and educators – it has been through this publication and conference that we have been able to connect with such a helpful and thoughtful community. It is both a privilege and honor to have this opportunity to serve the LLRC/ACCLL.

Notes

The authors' order is based on the alphabetical order of the first name. Each author has equal contribution to this editorial and the whole editorial process.

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Author's Biography

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THE INTERSECTIONS OF STUDENT ENGAGEMENT AND ACADEMIC INTEGRITY IN THE EMERGENCY REMOTE 'ENGLISH FOR ACADEMIC PURPOSES' ASSEMBLAGE

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Abstract

This paper explores the disruption of space, place, and material conditions brought on by the migration of traditional on-site language teaching to emergency remote teaching (ERT) in an English for Academic Purposes (EAP) program designed to bridge international students into higher education. We focus on two aspects of language teaching considered essential to academic success: student engagement and academic integrity. Through the Deleuzian concept of assemblage and post-qualitative inquiry, data vignettes from interviews with 12 teacher participants are presented to examine the contingency and relationality between the affordances of technological tools and the absence of embodied connection brought on by the move to ERT. Data vignettes are linked to map how instructors' perceptions of student engagement mediated through space, place, and materials, inadvertently shape/are shaped by perceptions of academic dishonesty.

Introduction

In Spring 2020, universities and schools around the world experienced an unprecedented mass migration from traditional in-person face-to-face learning to online education because of the COVID-19 pandemic. Emergency remote teaching (ERT) (Hodges et al., 2020) was implemented as a sudden and temporary remedy to the closure of schools, radically disrupting the place, space, and material conditions of language teaching and learning. With little time or warning, in-person course offerings were reconfigured to ERT delivery through existing tools (i.e. video-conferencing, learning management systems, digital textbooks), online pedagogy, and resources developed for distance learning in general (Hodges et al., 2020).

Nowhere has the transition to ERT been more far-reaching than for international students who would typically relocate to host institutions to experience on-campus learning, but given pandemic restrictions, must now take courses from their home country, without the experience of international travel. In this paper, we focus on the disruption of space, place, and material conditions brought on by migrating traditional on-site language teaching to ERT in an English for Academic Purposes (EAP) program designed to bridge international students into higher education (herein referred to as ERT-EAP). We examine how the absence of coveted face-to-face interaction, shared space, and trust that comes from embodied experience transformed EAP teaching in relation to two aspects of language learning and higher education preparation: (1) perceptions of student

engagement; and (2) student academic integrity. Herein, the relationality EAP instructors' perceptions of student engagement and academic integrity are framed through the Deleuzian concept of assemblage, a concept that can account for the interconnectivity between space, place, and material conditions of EAP through ERT.

Contextualizing the Issue

Engagement in Online Language Learning

Language learning has a distinct connection to space and place, a connection evidenced in the presumption that a language is best learned in the target community through engagement with target community members. As with in-person learning, in distance learning, the principle of authentic and meaningful interaction underlies effective language acquisition. Educators, teaching online (or in-person), must foster communicative learner-centered classrooms that create opportunities for interaction (Hampel & Stickler, 2015). Meaningful and authentic classroom interaction helps students develop active participation skills, interpersonal connection, and a sense of community, again elements that are essential to successful online language learning (Heins et al., 2007). Effective interaction also fosters active learning and a student's sense of responsibility for their own learning, a mindset necessary for autonomous learning, and the development of learner accountability. Creating the conditions for meaningful engagement in online learning communities demands extra attention. Teachers must be aware of how technology and digital communications re-shapes the demands of learner autonomy and accountability, and to this effect, teachers also need to be aware of how to exploit technology to transform online spaces into spaces for online learning (Stickler et al., 2020).

Early research on online language teaching revealed technological challenges, including working across different time zones, dealing with insecure and unstable internet connections, and tolerating technical glitches such as frozen screens and distorted audio/video, all of which limits students' ability to communicate and interact in class (Le & Troung, 2021). Prolonged technical difficulties often lead to impacted students feeling excluded, and overall decreasing students' attentiveness (Sevencan, 2021). Technical problems also make it difficult for teachers and students to facilitate interaction (Sun, 2014), collaboration, and socialization (Kainat & Adnan, 2020). Additionally, while online language learning brings the convenience of space and place to a greater number of students, ERT research on language learner motivation, interaction, and engagement has been critical of the quality and quantity of interaction in ERT contexts, consequently, reaffirming the irreplaceability of face-to-face language teaching/learning through ERT delivery (Le & Truong, 2021).

Academic Integrity in Higher Education and L2 Writing Assessment

Upholding academic integrity is not a new concern for institutions of higher education. Academic integrity is particularly relevant in EAP bridging programs where teachers are expected to prepare students for academic readiness, the norms of the academic community, and the conventions of academic writing. In EAP writing assessment, academic integrity relates to the tradition of "language competence" in language teaching. In L2 (second language) assessment, students' written or oral work is expected to be reflective of their own linguistic ability as natural and spontaneous authentic

production. Language assessment must therefore occur in controlled conditions, free of external sources of input, to determine the test taker's proficiency (Shin et al., 2021).

This principle of L2 language assessment can be seen in commercial language testing services, such as the International English Language Testing Systems (IELTS) and the Test of English as a Foreign language (TOEFL), operated by agencies such as Educational Testing Services (ETS), which serve as gatekeepers for university admission. Language testing, through these providers, occurs in heavily controlled contexts where test-takers have little to no access to external tools or linguistic input (Huang, 2018). Expectations of test validity transfer over to ERT-EAP teaching where the assessment of L2 writing proficiency must be students' individual performance produced without the immediate influence of external input (Al-bargi, 2022). Indeed, completion of university-affiliated EAP courses as part of conditional admission to degree-granting programs often acts in lieu of a standardized test score as fulfilling university admission requirements.

In EAP instruction, the concern with authentic and ethical writing is compounded by uninhibited access to digital tools and resources to support students' learning and written production (Oh, 2020; Shin et al., 2021). Associated with this range of assistive tools and resources are academic transgressions such as textual plagiarism, the use of translation tools, and the hiring of ghost-writers or contract-cheating, transgressions which can largely go undetected (Eaton, 2021). Concerns of academic integrity are not unique to language learners, but incidents of academic dishonesty are disproportionately attributed to international students (Pecorari & Petric, 2014).

To counteract growing academic dishonesty in online delivery, universities have invested in controversial (and imperfect) technologies such as Respondus Lockdown Browser, an application that locks the test-takers browser, records the screen and student's face, and flags suspicious activities such as head and eye movement. Another popular and equally controversial device in academic integrity protection is Turnitin, an originality detection software used to detect plagiarism, and deter and detect transgressions. Despite the growing application of technologies to prevent academic dishonesty, there still are many challenges to preventing all forms of academic transgression in online assessment (Perkins et al., 2020). Research in the context of ERT points to growing concern regarding academic dishonesty in L2 writing assignments and the validity and authenticity of students' written production in ERT contexts. This concern has led some to question the accuracy of online writing assessments (Al-Bargi, 2022, Guo & Xu, 2021; Zou et al., 2021).

Considering the shift to ERT for international students in EAP bridging programs, this study explores the interconnection between the competing tensions of meaningful student engagement and academic integrity in L2 writing, and how these components of EAP instruction have been transformed by changes in place, space, time, and material conditions in the move from in-person to ERT-EAP.

Conceptual Framework

Theoretically, this study draws on the Deleuzian concept of assemblage (Deleuze & Guattari, 1987) to examine the relationality elements that impact the delivery of remote EAP. Assemblages focus on the interconnection of elements. In this study, we focus on

what can be conceived of as the instructor ERT-EAP assemblage comprised of (but are not limited to):

- human actors (teachers, students, administrators, peers, etc.)
- tangible material objects (computers, tablets, tables, desks, walls, doors, etc.)
- intangible material objects (digital software, including learning management platforms, Zoom video conferencing, webcams, digital texts, breakout groups, online language learning applications, etc.)
- material objects as content (such as writing on a discussion board, student assignments submitted through uploaded documents, and students' recorded work as evidence of learning, etc.)
- structures (program curriculum, assessment tools, rubrics, learning objectives, institutional norms, instructor expectations, university admission requirements, etc.)
- expressions (teachers' instructions, students' linguistic proficiency, students' attentiveness, interaction, participation, etc.)
- intensities mediated by space, place, time, and connections between elements.

In the assemblage, actors, expressions, signs, and materials come together and operate in unpredictable (non)habitual ways around actions and events to produce further actions and events (Potts, 2004). Unpredictability extends from the non-pre-determined status of each element; elements are defined by their capacity and how they function in relation to each other (Fox & Alldred, 2015). For example, if you are not connected to the internet, a Zoom video conference icon on your computer is only a symbol indicating the program is installed on your computer. When connected to the internet, that exact same symbol serves as the gateway to accessing an online meeting. On the surface, the icon is identical but holds a fundamentally different function when the computer is invisibly connected to an operational modem.

The potential for each element to function in non-pre-determined ways allows for the exploration of relationality between human actors and the material world. For instance, the web camera function on the Zoom video conferencing platform allows video representation, a dimension of multimodality that is believed to enhance communication between participants; however, the same camera function can also serve as a tool for surveillance that undermines communication. The impact of web camera use across conditions of space, place, and time can transform the assemblage and how human actors (e.g. students or instructors) respond, or how other tools are operationalized. For example, web cameras are required to operate the eye-tracking function on Respondus software, which is quite different than using web cameras in open classroom discussions. Without pre-established status, traditionally passive elements such as material objects that form the background for human actors to manipulate, can be agentic and shape other elements. Exploration into this dimension of relationality between the material and human actors can shed light on how transformations in space and place, brought on by ERT, have impacted student engagement and academic integrity in EAP. To guide this exploration, the following research questions are posed:

1) How do student engagement and academic integrity operate in the ERT-EAP assemblage?

2) How are these elements mediated by space, place, time, and material conditions?

Methodology

Research Context

This post-qualitative study was conducted at a large urban Canadian university and focuses on an EAP program designed to prepare incoming English language learners, mainly international students, for the linguistic and academic requirements for university admission. The EAP program at the center of this study consists of 4 levels, each 14 weeks long, with the last level being the bridging level. Prior to the pandemic, students received 15 contact hours per week split between two instructors (8:30-11:30 a.m. five days per week), with each instructor responsible for teaching academic and linguistic skills. In the afternoon, students spent 6 hours (approximately 2 hours 3 times per week) with a teaching assistant (T.A.) to review and practice the content presented by the instructors. With the move to ERT, the schedule was reduced to 10 instructor contact hours and 5 T.A. contact hours. To account for the time difference between Canada and students' home nations, courses ran between 7:00-9:00 a.m. with the two instructors alternating days, and with the T.A. from 9:00- 10:00 a.m daily. In Fall 2020, 12 sections were offered with approximately 20-25 students in each class. All courses were delivered through Zoom and supported by the Brightspace learning management system.

Data Collection

At the end of the Fall 2020 semester, a participant recruitment letter was sent to 36 instructors (including T.A.'s) in the EAP program. Twelve participants responded: seven instructors and five T.A.'s[1]. All respondents participated in a one-hour semi-structured online Zoom interview with the first author to discuss their experience teaching EAP online. The first author and primary investigator was also an instructor in the program. Having taught in the EAP program for over 5 years including the Fall 2020 semester, the first author was familiar with all participants as a long-time colleague and with the EAP program policies and shift to ERT. Participants also knew Eugenia Vasilopoulos from the Ph.D. program and were aware of her research interests in EAP academic writing, technology, and academic integrity. Given the shared experience and role as EAP faculty, interviews were semi-structured and designed to be reflexive and dyadic (Ellis & Berger, 2002), as "a conversation between two equals and should not be seen as a hierarchical question and answer exchange" (Kruger, 2015, p. 81). Interviews were audio-recorded, transcribed, and uploaded into Transana 3.0 for rhizoanalysis.

[1] Instructor and teaching assistant backgrounds: Instructors: Ph.D. holders and candidates, all with extensive teaching experience; TA's: MA or Ph.D. students with varying degrees of extensive teaching experience. Instructors and TA's were employed on a part-time basis through sessional contracts.

Data Analysis

Data was analyzed through rhizoanalysis (Masny, 2013), an approach to post-qualitative research designed to explore linkages and interconnection between elements (Alvermann, 2000). To conduct rhizoanalysis, the interview data was first read as a whole, a collective unit of the ERT-EAP assemblage, with the first author using the Transana memo function to make notes of key impressions and affect. Affect refers to reactions "generally *other than* conscious knowing, vital forces insisting beyond emotion" that create impressions and provoke thought (Gregg & Seigworth, 2010, p.1, emphasis in original). Affect, in the research assemblage, is the interconnection between the researcher(s) and the data and refers to the "forces understood as feelings, senses, and the subconscious…." (Collier et al., 2015, pp. 396-397) that contributes to the researchers' interpretations and understandings of the reality expressed in the data. Therefore, the memo notes made, the themes explored, and the mapping of relationality are no more than the affects between the data and the researchers[2].

The second reading of the data involved identifying key elements related to the three components of this study: student engagement, academic integrity, space, place, and material, in the ERT assemblage. Re-reading the data and labeling elements provided a more concrete understanding of the dynamics in each instructor's assemblage. Coding also allowed for the aggregation of common elements across participants, which were used in the third reading of the data to re-define the tentative themes noted during the first reading (Fox & Alldred, 2015).

Thematic analysis in the third reading traced relationships between elements, combining and/or dividing categories based on the frequency and intensity of their links to each other (Fox & Alldred, 2015). Throughout the third reading, new affects were noted with the memo function. Newly identified elements were added to the existing list and incorporated into relational mapping. Through this stage, categories were refined, and most importantly, possible connections between elements, signified through converging and diverging elements, and their effects were linked to outline a possible sequence of connectivity between space, place, material, student engagement, and academic integrity in ERT-EAP.

Findings and Discussion

Key Elements in the ERT-EAP Assemblage

Space, place, and material in the EAP instructors' assemblage defined their ERT experience. Key elements include the location (the convenience of working from home), time (having already experienced ERT teaching in previous semesters and the reduced teaching hours), technology (the array of tools and resources required for ERT), training (seminars provided by the university and the EAP to prepare instructors for ERT), support (varying levels of support from EAP administrators throughout the semester regarding ERT and program policies), and previous online experience (outside of the EAP program). Instructors were also impacted by the need to follow the EAP program curriculum, cover specific content and skills, use specified textbooks and materials, prepare students for

[2] At the time of the study, the first author was a Ph.D. candidate, and the second author was her academic supervisor. The second author is included as co-author given his position as the supervisor on the research training award which sponsored this study.

standardized assessment, and comply with EAP program policies, structures that further shaped their ERT experience. Instructors' experience in the ERT assemblage also depended (in part) on their own teaching philosophy, their adaptability to the ERT conditions, their students, and the classroom dynamics; however, these interactions cannot be viewed separately from elements of space, place, and material.

Below, interview data are presented as vignettes that act as an entry point into the ERT-EAP assemblage to begin the discussion of relationality between elements. Through the vignettes, discrete data pieces are linked to explore the themes of student engagement and academic integrity, and to lead the reader through a series of possible connections between the themes. The sequencing and linkages between data excerpts reflect researcher affect and perceived operations of ERT assemblage as reported in the participants' interview data. Of course, others may read the data differently and form connections of their own.

Student Engagement: What a Web Camera Can't Do

Many of the instructors and TA's commented on the challenges that ERT placed on student interaction and student engagement. One prominent concern was the impact of digital mediation – namely, web cameras, chat functions, and breakout rooms – on classroom communication and dynamics. Here, a common sentiment was that online interaction could not replace the quality of face-to-face in-person interaction, an element considered fundamental to language learning and built into the program curriculum through a firm attendance policy; students need to be present for 80% of the class to write the final exam. To monitor attendance, students were required to keep their web cameras on throughout the lesson. The use of cameras proved contentious between instructors and students, as each teaching team determined their own policies, and even within teaching teams, some instructors and TA's were more successful than others in convincing their students to turn on and keep on their web cameras.

TA "F"[3] describes the difficulty he had in maintaining the teams' web camera policy:

> *Yeah, first of all, the control over students was a big issue. It took like, several sessions to, like, force people to have their webcams on. So in my classes, I didn't make it a rule to have their webcams on this unless they were speaking or if they are doing an assessment. I often had some black windows on my Zoom window, but for example, the nine-hour teacher who I was working with, she was very serious about having the cameras on. Whenever she joined my class to remind students of something or add something that she missed in her class. I could see the students turn on their cameras immediately to show they were following the rules. But even when they have their webcams on in my class, it is just their foreheads against the wall, I couldn't see the whole face, though. One big feature that was missing in my class was this interaction with students. Knowing that they are following what you're teaching. You know if your students are paying attention, and if they are*

[3] At the beginning of the interview, all participants were asked to select a pseudonym. To indicate the participants' role as either an instructor or TA, their position plus the first initial of their pseudonym will be used for brevity.

engaged in the classroom and that was one big difference between this semester and teaching in the classroom.

Web cameras served as a window into the students' space, a window that ideally would provide a clearer understanding of the students at that particular point in time. The strategic use/non-use of the camera function to share certain images (a wall or a forehead) and conceal other images (a face), denied viewers what was expected: the students' faces, with facial expressions that could be read, facial expressions that conveyed the students' comprehension and engagement.

Even with web cameras on and students' faces visible, Instructor "T" explained how web cameras were inadequate in knowing how the students felt, a sense lost in online space:

> *Most of our students…. tend to be quite shy, and there are some exceptions, but most of the time, right. But once you're in class, in person, when you move towards someone, when you make eye contact with somebody, actually, it's much easier psychological to elicit the answers without calling on a specific student. However online, I have to call the students sometimes and of course, they might feel uncomfortable…You can see that in faces, in their body language in the classroom you know who is ready and who is not.*

Calling on students and student discomfort are factors that inhibit engagement. In that sense, "proper" camera use might not be exclusively serving its intended function of promoting engagement. Even with cameras on and students' faces visible, Instructor "L" explained a similar situation:

> *In my classes we were on campus, it was much more interactive. There was a lot of communication, a lot of interaction, a lot of group tasks and activities. Whereas now, I can't do that. It's mainly like traditional lecture-based classrooms. I asked my students questions, I encourage them, I call their names, I ask them to talk. They're not willing to be in breakout rooms at all. And so all the time only one or two people, one person, is talking at a time with a group of 22 students ….*

Instructor L's experience with breakout rooms stems from multiple occasions early in the semester where students turned their cameras off during breakout group activities, worked individually, used a shared first language thereby excluding group members from other language backgrounds, or were completely absent from the activity. Consequently, Instructor L discontinued the use of breakout rooms, relying exclusively on teacher-led whole-class discussion, which inadvertently eliminated opportunities for spontaneous and meaningful student-student interaction.

Student Engagement: Not Just a Face

As with Instructor L's perception, many of the participants also assumed their students would have more distractions when learning online, and that at a distance, it is physically impossible for instructors to control students' learning environment. In the physical classroom, instructors would be able to clearly see students' comportment, see the items in front of them, and know whether they were reading the assigned texts or sending

a message on their phone tucked under their desk. The absence of a corporeal view of the students created uncertainty. Instructor "G" explains below:

> *In spite of perfect attendance and everyone showing up on time, there were students that were not motivated because there are quite a lot of distractions for them. You don't know what they are doing. They get lost, even during class…We don't know what exactly they are doing when they are sitting in front of the computer looking at the screen….*

To ensure students were following as expected, Instructor G took prepared materials and delivered content in a way that could be easily monitored, that is, by worksheets that could be shared on Google Docs or through the screen share function that showed student progress during the lesson. Although this approach was intended to help students stay on task, Instructor G surmised that it created a more teacher-led classroom and was less engaging and communicative than her approach to teaching in-person.

Other instructors responded to the absence of in-person presence by emphasizing a learner-centered approach and increased student autonomy:

> *Instructor "M": I know we are moving towards being more learner-centered, and with an online platform, it really becomes more and more learner-centered. That's what I liked about it. In-person, I didn't like seeing students check their phone in class. I couldn't stand it when students had all those gadgets in front of them. Now, I don't know if the students are checking their WeChat (Chinese social messaging platform). Online, I know some of them have two screens, and I didn't know what was happening on the second screen. I would just say to them, if you want to succeed, you have to be 100% here, and there's no way that I can see what you're doing. If you want to pass, okay, you have to pay attention.*

Instructor M's comments demonstrate the diverging effect of web cameras and perceptions of students' attentiveness on the participants' approach to teaching. Cameras offered a limited view. Students turning on their cameras was only the first step in demonstrating presence and engagement. Cameras did not replace the unrestricted view afforded in a shared space. Instead, the cropped image of the student, face only, meant that instructors did not have to concern themselves with anything more than what was directly visible: the students' faces. Instructor "A" articulates the tension that this restricted view and lack of physical proximity produced:

> *Some teachers try to control everything because they care. It's out of feeling responsible for students learning. It's not the only way to show you care for your students. You know, I care for the students too, but the reality is that you're not in their rooms.*

The absence of physical interaction and shared space limits the influence that instructors can have on their students. Learning in less supervised conditions and in spaces, such as their bedrooms, that were not specifically designed or designated as spaces for learning, effects instructor-student and student-student relations:

> *Instructor "D": I think there's a greater possibility that students are distracted during class, it doesn't feel like they're in class, because they're just sitting at home like everyone else. The connection made between students, I really can't imagine a*

friendship forming with an online classmate. I imagine it would be pretty rare. And then the connection that I have with the students who are not the ones, you know, raising their hands, volunteering answers, and so on, and so on. The quiet kid who doesn't turn on her, her camera, you know, what kind of connection can I make with that person? And with no connection, there is no accountability.

Turning on the cameras, from the perspective of the participants, both represents and facilitates sharing and building connections with others. Even with facial representation, participants perceived that the quality of interactions and relationships forged online were inferior to that of in-person communication. According to Instructor D, without facial representation via web camera, students were further isolated from the instructor and from each other.

In this context, Instructor D's comment leads to an important question: What creates the feeling of being in a class? Perhaps it is the shared goal of learning, and/or perhaps it is the relationships between students and instructors, an element that is compromised when students do not really know each other. Unfamiliarity impedes the development of a sense of community and erodes the obligations that members of a shared community might have to each other. As described above, many of the participants' interactions with and perceptions of students were defined through the unfamiliar.

Instructor D's final comment about the lack of connection leading to the lack of accountability introduces the second series of vignettes where the relationality between students' engagement, space, place, and material merges with the notion of academic integrity. According to Instructor D, not knowing each other lends to decreased accountability to each other as students, and instructors.

Academic Integrity Online: Policing the Conventional

Both instructors and TA's perceived students had more opportunities for academic dishonesty in the online environment due to the many digital affordances available online and the limitations in supervising students' conduct. Maintaining academic integrity is vital to the legitimacy of the EAP program, an alternative for TOEFL and IELTS test scores used for university admission. As such, the EAP program replicates the procedures of IELTS and TOEFL testing services with external assessors who are presumably more objective and specialized in their assessment of L2 academic writing, responsible for evaluating students' final writing exam. This final writing exam was designed for in-person test-taking where students are prohibited from using any tools or resources aside from the assigned text, a pen, and paper. Online, instructors were vigilant in ensuring that students' written work reflected students' own internalized knowledge, a measure taken in order to maintain academic integrity. Among the participants, however, were different understandings of what constitutes academic dishonesty, different experiences with incidents of academic dishonesty, and different understandings of why dishonesty might occur.

Diverging conceptualizations of what constitutes an academic infraction arose early in the semester when instructors became aware of assistive tool use, such as translation tools and automated grammar and spelling checking applications, in students' writing. For example, in the first week, Instructor L asked her students to write and post a short self-

introduction on the class discussion board which was visible to all class members. Instructor L describes the event as follows:

> *She (a student) posted a paragraph in Chinese, so she had made a mistake. She used a translation tool, and instead of copying and pasting the English version, she pasted the Chinese version… when I told the student, as it is something quite visible, obviously, she said, I'm sorry, I was using a translation tool. I made a mistake. I will never do that again. But with those students who posted something English, not Chinese, I knew that some of them were also using translation tools. I had a conversation with them, and I told them that I know that this is not your own writing. If you want to improve your English you got to rely on your own, you know, you need to try to step by step gradually improve your writing skills, blah, blah, blah. So I talked to them, and some of them admitted that they had used translation tools, and they told me that they didn't know that they cannot use a translation tool. Personally, I don't believe that. I think they know that this is cheating, but that was what they told me. And yeah, they said that they wouldn't use it, and some of them throughout the course they didn't. They didn't continue that kind of thing, and they really tried to improve their writing skills, but a small minority, they still continued to do the same thing and use translation tools…*

Instructor L's experience illustrates a shared concern among her colleagues regarding the use of assistive tools, tools that would normally be controlled for during in-class paper and pen writing tasks typical of in-person instruction, and tools that normally would not constitute academic transgression. Instructor L brought the issue to the attention of the EAP program administrators, leading to the implementation of an academic integrity provision (in addition to the official university academic integrity policy) that stipulates that instructors clarify which tools and aids are permitted for each assignment. Students were expected to comply with these restrictions. An attestation was also included on the mid-term and final exam for students to acknowledge awareness of program regulations for exams and compliance with these regulations. Instructors were to explain these conditions to students and post them on their Brightspace course page, yet many participants were skeptical about compliance.

Instructors and TA's also formed their own interpretations of the "assistive tools" covered in the provision with some prohibiting commonly used software such as Microsoft Word for its built-in spell check and grammar check features. Instructor G explains the approach taken in her class, and within her teaching team, to prohibit the use of embedded assistive tools for formative and summative in-class writing tasks:

> *I think any kind of tool that assists them with their writing is not allowed. So we expected how they would write it with pen and paper with nothing to help them… students were not allowed to use dictionaries, no writing tools, no word document, no spell checkers. At least, that is what I think their (EAP program administrators) instruction says. There is that passage: "So by taking this exam, I confirm that I haven't used any of the grammar tools, including Grammarly" … This was definitely difficult to enforce because even though I kept telling them not to, they did. But then I think it goes deeper than just telling them not to use it. They need to know when to use it and how to use all these tools, so they really didn't know what*

to use and when. Students still used Microsoft Word to write and then posted their answers on Brightspace instead of just writing it directly in the Brightspace textbox.

Instructor G (and her teaching team) was the only participant who cautioned students not to use any tool or software that could serve assistive purposes in academic writing, including Microsoft Word. Other instructors, such as T and L, adopted a different approach by creating a series of closely timed online quizzes on the Brightspace learning management system that could assess students' linguistic knowledge of the written language. To note, the use of timed Brightspace quizzes does control the use of embedded tools such as Microsoft spell-check, but it does not control the use of downloadable software such as Grammarly, which operates across programs and platforms. This strategy of small continuous formative assessment was recommended by the EAP curriculum development team early in the semester to ensure assessment validity.

Skepticism surrounding the authenticity of students' written assignments persisted in view of the many online services geared towards assisting students with their academic work available online:

Instructor T: I know in English, you could just do a simple Google search, and then you would find all of these, what they call contract cheating services that could do your homework for you. They are published openly online. I don't know about any other types of services that are new that have popped up. And I don't know, these are the types of services that are easily accessible publicly available, right?... Yeah, in writing, for sure. We're never sure and sometimes actually, even with the quizzes, not this session, this session was quite successful. The biggest thing was the motivation of the students. But the summer session was full of cheating. Even the quizzes, sometimes some students performed really well in quizzes during the class time. And sometimes their performance was significantly worse. It was just so inconsistent. Of course, it could be just maybe they didn't get enough sleep, whatever, so it's hard to judge. That's why I'm never sure, but they can share the information with somebody else online simultaneously. And when we (the teaching team) saw them speaking, it was a completely different picture. And we'll always have this cognitive dissonance trying to figure out the real level of those students.

Multiple elements converge in Instructor T's account: academic dishonesty through online services, efforts to maintain academic integrity through online quizzes, pervasive doubt, further attempts to determine proficiency, followed by further confusion. Triangulating students' written production with oral production was a strategy recommended by program administrators to confirm the authenticity of students' work. Participants acknowledged that this approach is problematic given that writing and speaking are very different skill sets, and students had limited opportunities to develop their speaking in the ERT context. Nevertheless, a degree of congruency between oral and written production was expected. An inexplicable gap between a student's written work produced outside of supervised conditions and oral proficiency demonstrated through spontaneous speech verified the unauthentic nature of the student's written work. Instructor M describes her use of this procedure:

What I did actually to make sure that what they wrote were their own words is because we know our students, I shared their work on our screen, and then I asked, for example, Helen's assignment, Helen read it, and Helen couldn't even read it. And then after that, I emailed her that, how come you cannot read even your own work?

As Instructors M and T explain, when students produced written work of advanced quality but performed much weaker orally, it was difficult for instructors to determine the students' overall linguistic proficiency, a measure necessary to ensure that students fulfilled the EAP program requirements and were ready to enter their university program of study. Uncertainty regarding students' ability intersects with the uncertainty invoked by the limitations of the web camera and not knowing what students were thinking or doing. Both senses of uncertainty lead to further mistrust and alienation for those suspected of dishonesty.

Many of the writing instructors commented on students' demonstrations of academic honesty, enacted through submitting imperfect writing representative of their level as language learners. As Instructor M explains, it is impossible to determine if the students' written work is copied, so:

Those students who wrote faulty sentences, I really appreciate it. Because it was their own sentence. I mean, they tried, and I gave more feedback to those students but when I read assignments, okay, this is even better than me. I cannot write something like this… I tried to check online to find where that student was taking that stuff from, and I couldn't find anything. So that was okay. So whatever. What am I going to do? I mean, there's nothing I can do.

In terms of regulating academic dishonesty and gaining an "accurate" view of students' linguistic and academic competence, some writing instructors (not all participants) expressed a sense of resignation to the fact that participants could not account for how students' writing was produced. If instructors suspected a transgression but could not prove it, students could not be penalized academically. Instead, as in the case of Instructor M, students were penalized indirectly such as receiving less constructive feedback, a move that works against fostering student motivation, and subsequently, decreasing student engagement and commitment to improvement. Similarly, if academic dishonesty was suspected, as in the case of Instructors G, T, and L, the entire class was indirectly penalized with additional restrictions, supervision, controlled assessments, and reprimands, again impeding the development of a collaborative and interactive learning community.

In attempts to uphold academic integrity, fostering greater student interaction, engagement, and collaboration were not prioritized, yet, creating a stronger sense of community may have been exactly what students and instructors needed to foster greater investment and accountability in their learning. Instructor D raises this point below:

When I say not having a connection with the teacher or accountability, that's something I think would lend itself to cheating. A student would feel more likely to cheat without accountability, the accountability made by relationships, and even if you're not cheating, you might have the impression that others in the class are

cheating. So what does that do to you? It might encourage you to cheat. It might. I don't know. I don't know. These are questions I don't have answers to, but I think about them because a student doesn't turn on his camera. I have no idea what he's doing.

Instructor D's speculation brings the discussion back to the concept of student engagement mediated through web cameras: engagement connotes the expected use of web camera, although the use of the web camera does not connote engagement; without the camera on, the unknown fosters distance; this leads to less engagement and connection; with less engagement and connection, students have less accountability, and thus may be more likely to cheat because students perhaps do not feel an obligation to each other or the instructor. Indeed, while instructors attempted to create a sense of responsibility to each other and to their work by reminding students which tools and processes are expected and are permitted, or by creating more assessments, or by openly addressing cases of suspected transgression in front of the class as an example, or by appreciating imperfect writing, these strategies are taken up and reacted upon by students in different ways, leading to different outcomes. Inadvertently, some of the approaches described above, particularly those resulting in student embarrassment, over-restrictive practices, and patronizing lectures, might serve to alienate students from their instructors rather than connect them.

Disruptions of Space, Place, and Material: Teaching in the ERT-EAP Assemblage

Not all participants suspected that their students were engaged in academic misconduct. A common sentiment was that motivated students will be motivated online or in-person. Some students are stronger than others, more motivated than others, and more engaged than others. Likewise, academically and linguistically strong students will perform well despite the medium of delivery. Conversely, students that were less invested in their learning would carry that attitude into the classroom, online or on-campus, but attitudes of individual students, in part, extended from classroom dynamics and interaction. Teachers could also motivate or demotivate their students.

Interestingly, and contrary to findings in other ERT-based research, technical difficulties such as unstable internet connections or tools and devices not working as expected, were not significantly reported among the participants. While the occurrence of technical difficulty might impede communication, the participants did not perceive these issues as central to the effectiveness of their teaching or to their students' learning. One reason might be that most instructors and students were accustomed to ERT from their experience over the past 8 months (March 2020 to Sept 2020).

The data constructed above as a temporal representation of the ERT-EAP assemblage suggest two dominant themes: first, student engagement in ERT conditions was inferior to that of in-person delivery, and technological tools could not substitute the psychological and physical connections afforded in person. Second, and particularly among the writing instructors, academic dishonesty was occurring because of affordances online, barriers to supervision, inconsistent policies, fixed curriculum, and principles and practices of L2 writing assessment in the program.

In the highly variable conditions of the ERT-EAP assemblage, academic dishonesty was impossible to control leading many to question their role as instructors and their L2

writing pedagogy and assessment practices. As Instructor D confesses, the reconfiguration of space, place, and material, led him to question his approach to writing instruction in the ERT classroom:

> *I think when we switched (to online), I tried to do a lot of the same stuff. And I quickly realized some things that didn't translate well. Yeah, so you know, even when I give time in class for writing, I'm still not sure about that. Like, is that a good use of time? I don't know, like, in a regular class, I would, I would say, okay, you have the rest of the class, here's your paper and pencil and give me something at the end of it. But I don't know if that's the best use of synchronous online learning. So I don't know, it's, it's a work in progress.*

Within the ERT-EAP assemblage, the intensity of the unknown was the one common force that connected participants' experience and perceptions of student engagement and academic integrity. As instructors and TA's, the participants had the authority to impose certain rules, such as having students turn on their camera, yet doing so provided an incomplete solution as cameras only offered a limited view and could not provide adequate insight into students' thoughts, understanding, attentiveness, or conduct. Echoing throughout the participant data was the unknown of what students might be thinking and doing in their private space, thousands of kilometers away from the university classroom where expectations of interaction, engagement, learning, and assessment are required.

In the ERT-EAP assemblage, the absence of shared space and place and digitally-mediated teaching, learning, and assessment produced a radical disruption. As such, new questions for effective ERT-EAP emerge: How can educators create conditions for student engagement in ERT-EAP contexts? How can student engagement be fostered in competitive programs that culminate in high-stake testing? How can the validity of L2 writing assessment be administered in ERT where testing conditions cannot be fully controlled? Lastly, how can a sense of community be formed amongst a group of students, geographically separated, but all connected virtually through ERT with the shared goal of completing an EAP course to start their university-level studies? Because learner engagement is essential to language learning, and academic integrity is essential to L2 writing pedagogy and assessment, the challenge for EAP programs operating in ERT is to leverage the disruption of place, space, and material conditions to align with program curriculum and objectives. Inevitably, this might require a re-envisioning of what it means to teach EAP in a time of crisis.

Conclusion

Providing EAP instructors guidance on how to teach and assess L2 writing in ERT environments is beyond the scope of this paper. However, what this small post-qualitative exploration on the impact of space, place, and material on student engagement and academic integrity in ERT-EAP shows is that the way forward will likely be complex, contingent, and highly variable. The data vignettes presented above outline the events unfolding in the ERT-EAP assemblage and how these events comprise an entanglement of human actors, materials, structures, signs, and intensities. In the assemblage, when multiple elements come into contact, how they respond to each other can be routine. Conversely, responses may be unexpected and unforeseeable. Likewise, actions intended to produce

expected outcomes that may seem rather intuitive, such as requiring students to turn on their web cameras to foster interaction and engagement, can produce adverse effects that contribute to undesirable outcomes, such as students feeling uncomfortable and less motivated to participate. These unanticipated outcomes emerge from interaction with other elements, for example, instructors either shifting to teacher-centered instruction to keep students on task while reducing opportunities to meaningful student-student interaction, or instructors moving towards student-centered approaches as an adaptive measure and not because it promotes student learning. In either case, how students respond to these pedagogical reorientations will also be contingent on their relationship with the teacher, their perceived effectiveness of the instruction, the dynamics in the class, and their own personal attributes, affordances, learning goals, and beliefs of what constitutes academic honesty.

Similarly, how assemblage-inspired research is conducted and reported will also be a contingent endeavor produced through the relationality between the research objectives, concepts, researchers, participants, data, and research outputs. Affect as a means of working with data accounts for the researchers' positionality as fundamental to the interpretation and mapping of data. Here, both authors read the data through the lens of a Deleuzian-ontology where intrinsically complex and dynamic relations are the norm, not the exception. The focus is on possibilities and the operation of forces and elements, known and unknown, that contribute to the realities experienced in teaching and learning. As with all assemblages, how elements interact is highly individualized and context-interdependent, thereby not only shaped by the context, but also shaping the context. As researchers, we have been particularly alert to manifestations of tensions, contradictions, and disruptions that were reported by the participants, and the participants, in turn, may have been alert to the interests of the researchers. Interconnection, such as that between the researchers, participants, and data, is vital in post-qualitative approaches to educational research. If we accept that language and learning literacy today, in a post-COVID 19 world is an entanglement of space, place, and identity, then awareness and acceptance of teaching-learning-researching entanglements in scholarly inquiry are necessary not only to evaluate the research process and product but arguably, to move the field of language and literacy research forward.

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Reimagining Multiliteracies for Science and Mathematics Teacher Candidates during the Pandemic

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Abstract

The researchers used a duo-ethnographic approach to examine mathematics and science teacher-candidates (TCs) experiences with a *Multiliteracies Across the Curriculum* course during the pandemic and how the shift to online delivery impacted their attitudes. Through one researcher's course reflections and students' anonymous course survey comments in 2020, the research revealed that some TCs lack of exposure to literacy-based teaching impacted their literacy identities and initial resistance to the course. However, the shift to online learning, increased course relevance, exposure to diverse online methodologies and multiliterate tools seemed to have positively impacted mathematics and science TCs attitudes toward *Multiliteracies Across the Curriculum* compared to previous years.

Keywords: Multiliteracy, teacher-candidates, math, science, pandemic, online

Introduction

The demands of the 21st century require complex and multiple literacies. The proliferation of technology and the capacity to easily record, store and send moving images, sounds, and text will continue to change the ways in which we communicate and challenge how we create meaning of and through different forms of communication (Cope & Kalantzis, 2015). Globalization in its broadest sense, not just economic but also social, political, cultural and geographical, and our increased capacity to transcend borders in a wired-up world with increasing people flows, have also created a need for more complex readings and processing of information (Anstey & Bull, 2018; New London Group, 1996). Complex reading practices, in turn, require both a broad knowledge base and a strong capacity for critique and analysis, with consideration of the factors that may affect the form, content, and meaning of messages and information. For educators, this is a catalyst for a multiliterate approach to teaching and learning. A multiliterate pedagogy offers teachers opportunities to explore the multiplicity of communication channels in the classroom while acknowledging the saliency of cultural and linguistic diversity. It includes engaging in multimodalities (audio, visual, spatial, kinesthetic) and multiple literacies in classroom instruction. Through this approach, the teacher integrates music, movies, art, and a wide range of digital resources to deepen students' engagement with content, reading/viewing/listening to diverse materials and creating texts and representing ideas in

multimodal formats. Cope and Kalantzis (2015) describe the multi of multiliteracies as "enormous and significant differences in patterns of communication" in global contexts (p.3).

Given the new BC's curriculum focus on creating more holistic experiences for students, an introductory multiliteracy course is an opportunity for teacher candidates (TCs) to use multimodal texts to share experiences, ideas, explore their world and extend the same to their future students. Through a multiliterate course, TCs have opportunities to acquire a breadth of literacies to create more equitable and socially just learning spaces. They can recognize literacies in their disciplines, make connections across disciplinary areas and strengthen their understanding of literacies. That said, these are anticipated outcomes for most TCs' participation in a multiliteracy course; this is not always the reality for some, especially those from the sciences and math, who struggle to make the transition from discipline specific teaching. This led to the researchers' current investigation to find out how better to engage TCs from science and math backgrounds in multiliterate pedagogies and practices.

Rationale

For decades literacy educators have experienced significant challenges instructing secondary TCs in literacy practices in their content areas (Ansty & Bull, 2018; Moje, 2008; Spitler, 2011). Research shows that pre-service mathematics and science teachers are particularly resistant to literacy-based university courses (Darvin, 2007; Gee, 2008; Moje, 2008; Ng, 2012; Patterson Williams & Monte-Sano, 2020; Spitler, 2011). The limited literature available suggests many of them see literacy teaching as the job of the English or literacy teacher, and as such, demonstrate little enthusiasm to engage in literacy practices (Gee, 2008; Moje, 2008; Spitler, 2011). Further, they generally do not see literacy practices modelled by science and mathematics teachers during their school-based experiences. Of note, much of the existing literature focuses on younger children, English language learners, pedagogy and learning design (Allison & Golston, 2018; Hauaner, 2008; Kumagai & Lopez-Sanchea; 2016; Kumpulainen & Sefton-Green, 2020); little research has focused on teachers who draw from a science/mathematics domain. The researchers, Kathy and Tanya, also experienced similar challenges in teaching the course *Multiliteracy across the Curriculum* for several years. Kathy has been teaching the course in the secondary teacher education program for a decade, and was more recently joined by Tanya, who is working as a sessional instructor. Both of us come with literacy backgrounds, have extensive experience as classroom teachers, and are committed to working in transdisciplinary ways, hoping to assist TCs in navigating the complex worlds of school. Through collaborative efforts, we worked to connect the course we teach with other campus-based and school-based experiences of the TCs during the same term and throughout their programs. Despite extensive planning and collaboration to develop an engaging course, some mathematics and science-based TCs were resistant and sometimes exhibited poor attitudes to adopting a multiliterate approach in their future classrooms. Spitler (2011) argues that some TCs might be resistant to what is considered arts-based approaches due to TCs firmly embedded identities that are resistant to literacy teaching in disciplines driven by linear and experimental approaches. This was the challenge for both of us.

Before the COVID-19 pandemic shut down all face-to-face learning opportunities, we worked to create relevant, engaging, and multimodal experiences in our classes. The course drew on Indigenous principles and notions of transdisciplinarity as well as personal and professional identity development, with the recognition of the complex and diverse contexts of learning in today's schools. In order to address the need to develop an awareness of their budding teacher identities, we had TCs create short "Who am I?" videos that represented their prior experiences, passions, and aspirations. They shared these with their instructors and colleagues and offered feedback to each other related to both the ideas being shared and the effectiveness of the video formats used.

In addition to the video, TCs (who spent time each week in a high school, visiting teachers and engaging with students) developed a multimodal case study reflecting on who their 21st students were, a multiliteracies thematic learning plan and a final reflective writing on their teaching and learning experiences. In the final face-to-face iteration of the course before COVID, Kathy's class worked with high school students in a local school to co-create a multimodal project that focused on Climate Anxiety. Many TCs and high school students developed exciting and meaningful projects that were displayed around the school and in the community. However, despite the integrated projects involving high school students and multimodalities, a few of the TCs were displeased, looking for a more utilitarian approach to teaching that focused specifically on their disciplinary focus. It is also important to understand the context of the TCs' program and recognize some of their stresses in the face of new learning challenges -- the course was taught in a face-to-face format on campus, with opportunities to connect to schools and community, amidst five other courses they were taking during the term -- a heavy workload.

With these contexts in mind, and the shift to online teaching in 2020 due to the pandemic, Tanya began noticing a change in attitude among her math and science TCs during that year. TCs were noticeably more positive in their attitudes toward the course and showed much enthusiasm for the content, unlike previous years. Many science and math TCs appeared to be developing new literacy identities through active engagement in classes, openness to exploring multiliterate approaches and demonstrating enthusiasm for the course. Tanya shared her observations with Kathy. These observations led us to question what factors were influencing the math and science TCs' change in attitude and how we could extend on these to foster instructional engagement and expand contemporary literacies for all students. Most students' favourable reviews of the course in 2020 further spurred our curiosity as we were accustomed, in past years, to a few students (most often aligning with the sciences and math) indicating that they did not find the content relevant to their subject disciplines. We wondered how the pandemic and online teaching itself impacted students' attitudes towards the course and might have shifted their experiences and literacy identities. Given the new opportunities that were created as a result of teaching the course online, we needed to act on these to create more transformative practices that would allow all TCs to see themselves as literacy advocates. It was also essential to understand how new literacy identities were being formed for all of the TCs and what strategies literacy educators could develop to nurture these. The following theoretical

perspectives help us in better understanding the shifting conditions and ways in which we could shift our own pedagogical practices.

Theoretical Perspective

The continual shifts in communication in the 21st century have called for changes in how teachers engage students. In contemplating the future of literacy pedagogy, the New London Group coined the term 'multiliteracies' to address the 'variability of meaning-making in different cultural, social or domain-specific contexts (Cope & Kalantzis, 2015, p. 3). A multiliterate perspective meant a significant shift in literacy teaching from a focus on rules of standard forms of language to how learners negotiate meanings (New London Group, 1996). Cope and Kalantzis (2009) contend that meanings are made in increasingly multimodal ways, and so literacy pedagogy should be extended to privilege multiliterate approaches that are relevant to students' needs in the 21st century. They suggest that educators bring multimodal texts, particularly those typical of the new digital media, into the curriculum and classroom to allow learners to move between representations in texts. The underlying principle of this reasoning is that learning is a reflexive process that requires multiliteracy educators to be weaving in and out of different knowledge processes. Through reflexive pedagogy, the multiliteracy educator embraces students' life worlds, immerses them in their experiences, puts meaning to their knowledge, and transfers them to different contexts and cultures (Kress & van Leeuwen, 2001). These ideas extend on Vygotsky's and Bakhtin's notions of socio-cultural learning, wherein learners are seen as active agents in learning through their use of language and interactions with others. Vygotsky (1978) theorized that speakers' social, historical, and cultural systems are key parts of their language socialization and the different language decisions they make daily in their communication with others. For Vygotsky (1978), this means that language is in process, constantly changing and growing as we interact with different groups over different periods in our lives.

Given Vygotsky's theory that learners' social and cultural practices are central to their learning and that their language is constantly changing, an inclusive multiliterate pedagogy that allows for diverse learner voices is most plausible. In his opening conversation on inclusivity and diversity in literacy practices, Dei (2019) asks the critical question, “How can we transform education systems in positive and inclusive ways if we do not critically identify, examine, and change the socio-political and cultural systems that continue to exclude so many?” (p.1). Within the contexts of this research, this is a call to action for educators across all disciplines who continue to replicate literacy practices that fail to acknowledge multiliteracies across cultures, social structures and identities. In support of this, Spitler (2011) contends that:

> In order for pre-service teachers' beliefs to shift regarding the content area or disciplinary literacy instruction in secondary social and cultural contexts, teacher educators should focus on the literacy identities of the pre-service teachers in their classrooms. In other words, educators should make a concentrated effort to understand how prospective teachers see themselves as members of a literacy

> discourse community (Gee, 2008), and how they envision and enact literacy instruction in support of adolescent literacy development (p.306)

Magro (2019) and Kuly (2019) propose that educators adopt transcultural literacies that transcend borders and have the potential of advancing even more meaningful teaching and learning experiences. Kuly (2019) reasons that a transformative transcultural multiliteracy curriculum built around students' voices, stories, hopes and challenges is critical in our classrooms. These approaches provide avenues for students to engage in a wide array of ways to communicating their understandings and engagements in the world -- diagrams, videos, storytelling, biographies, collages, podcasts and images can be catalysts to express themselves. Kuly (2019) further asserts that thoughtful and reflective teaching requires direct action to undo naturalized inequity that has become commonplace in schools. He notes the urgency of creating a more positive inclusive vision of education that utilizes diverse modes of representation in all areas of students' learning. This transformation, however, can be challenging when working with TCs from some disciplines. Darvin (2007) observes that TCs from the sciences and math were often disgruntled with taking his *Language Literacy and Culture in Education* course that they considered a complete waste of time. He reported that:

> The students who complain the most and see the least relevance between the course content and what they perceive they *should* or *will* be teaching, 9 times out of 10 come from one of two programs, science or math education (p. 246).

Several critical sources have identified some math and science TCs' reliance on one prescribed text for the course, emphasis on getting correct answers, and no time to deviate from course content as factors often impacting their resistance to literacy-based courses (Burns, 2005; Darvin, 2007; Magro, 2019). Darvin (2007) further theorizes that the challenges literacy educators experience with math and science TCs result from the pedagogical strategies they have witnessed that have greatly influenced how they believe math and science should be taught. In a sense, it is a world that has no place for literacy, which might result in some TCs constructing identities that do not embrace literacy in their subject disciplines.

Berzonsky (2011) posits our concept of self is vital in identity construction as our agency plays an active role in our ability to mold our own identities. That is, identity becomes a "process in which one governs and regulates the social-cognitive strategies they need to construct, maintain and reconstruct their identities within their social constructs" (Berzonsky, 2011, p.55). It can be argued that if TCs' embedded identities are constructed in ways that are contrastive to literacy practices, then it is likely they will find it challenging to adopt some of these practices in their classrooms. However, identities are fluid, constantly changing and open to contestation. As such, some TCs' established identities can likely evolve as they challenge their own prior socialization. In this case, it is possible for them to develop a literacy identity wherein they construct 'self' as multiliterate educators

A transdisciplinary approach by literacy educators is necessary to foster TCs' literacy identity and dismantle the discipline-specific focus impeding students' growth (Davis & Phelps, 2005; Klein, 2015). This approach seeks to disband the boundaries between disciplines as learners immerse themselves in the more seamless integration of contextual knowledge. It allows students to make connections across disciplines and add greater depth and complexity to their learning. It provides opportunities for TCs to develop the ability to relate to a constantly changing array of people from different backgrounds. It is also having a heightened sense of awareness that learning is ongoing and as such, learners need to know deeply, apply conceptual structures developed in one field to another. In sum, through transdisciplinary lenses, the learner begins to understand the interplay between knowing, doing and understanding across perspectives and disciplines.

Research Design

We often engage in ongoing assessment with our TCs, with each other, and in a self-reflexive way to optimize students' engagement in the course. In most of our dialogues, the outcome of TCs' learning was at the fore as we brainstormed ways to increase course relevancy and depth of understanding for all. Social constructivist and transdisciplinary theories inform our practices, and so it was only natural that we reflected on our experiences through these lenses. A social constructivist approach allowed for open dialogue and consideration of our diverse perspectives and complex experiences. We sometimes mused on the challenges in engaging math and science TCs in the course, and so we were pressed to reflect on our practice through transdisciplinary lenses to find ways to foster instructional engagement. In addition, through social constructivist lenses, we began to orally reflect on our classroom experiences with our TCs to assess factors contributing to initial resistance to the course and recent shifts in attitudes. As Creswell (2014) advances, social constructivism is an interpretive framework in which "individuals seek understanding of the world in which they live and work" and develop their own meanings based on their life experiences (p. 37). Thus, a social constructivist perspective was important in understanding how we made sense of our experiences and TCs' feedback on their course experiences within our courses. One of the central tenets of social constructivism is that knowledge is constructed and is "contingent on human perception and social experiences "and how one makes sense of their world" (Keengwe et al., 2014, p. 258). Thus, we both embraced the idea that we taught and experienced our courses in different ways as an experienced instructor (Kathy) and one fairly new (Tanya) to the context. We are also cognizant that no two people experience the world in the same way, and we come from diverse backgrounds that influence our own perceptions, expectations, and interactions with TCs.

Methodology

This paper takes a qualitative and interpretive approach as we accept that there is no one way of seeing the world and representing points of view. As Mair and Frew (2018) iterate, we also accept that we bring with us "perspectival understandings, biases, pre-understandings and practices" that will likely impact how we see our experiences (p. 215). Thus, to reflect on TCs' experiences in our Multiliteracies course, we engaged in a duo-ethnographic study of our shared past course experiences with math and science TCs in the

course and Tanya's recent experiences with seven science and math TCs in her 2020 online course. Through duo-ethnography, we engaged in dialogue of our disparate and similar experiences to reflect and interrogate our experiences with some students in the course. Denshire (2014) describes duo-ethnography as a co-construction of narratives wherein two or more researchers dialogue their personal experiences with a shared phenomenon. Mair and Frew (2018) postulate that the two individuals compare their experiences with each other during the dialogue, in essence becoming both the researcher and the researched. In this case, we took time to explore our personal experiences as these become a conscious part of what we would study. The duo-ethnographic approach, embedded within students' feedback, was critical in understanding how the current educational climate (the pandemic) impacted some students' literacy identities.

Course Description

The course "Multiliteracies Across the Curriculum," aims to prepare prospective secondary school teachers to develop understandings and approaches to integrating literacy processes and products into the subject disciplines. It aims to enable TCs to better understand:

- Multimodality, complexity and interconnectedness of our 21st-century classrooms;
- 21st-century conceptions of text, literacy, multiliteracy and multiliteracies pedagogy;
- ways in which they are multiliterate as well as understand who their students so as to effectively utilize multiliteracies for their students in diverse classrooms and disciplinary areas;
- uses of different tools to engage their students in their learning and their different world(s);
- multimodal texts in a variety of ways, both engaging with them and creating them;
- how multiliteracies support curriculum and curriculum change and develop pedagogies and practices to utilized multimodalities in authentic ways.

The course examines multiple literacies and contemporary understandings of texts as they apply to learning across the curriculum. It focuses on engaging students in different modalities in their learning with a plethora of digital tools to support learning. Students in the Post Degree Professional program are usually separated into two cohorts, and all students are expected to complete the multiliteracies course during the first semester. In the fall of 2020, Tanya had 29 PDP students in cohort one in her course. Of these 29 students, five were prospective science teachers (chemistry, physics, biology, environmental science), and two were prospective mathematics teachers. The group included four males and three females. All of the students had completed the first degree in their field of study and were undertaking the program to attain their teaching certificate.

In 2020, the course shifted online, although many of the lessons were still taught synchronously. Tanya taught TCs using several digital tools, including AHAslides, Google classroom, Blackboard, and Prezi. Her lessons were also often infused with videos, links, graphics, and photographs, among others. TCs also participated in several digital workshops, including Twine, movie creation, infographics, creating graphic novels, creating and printing 3D images. In addition, Tanya brought in guest presenters from the performing arts, music, Indigenous, and art background to offer TCs varied perspectives of multiliteracies. It should be noted that most of these workshops and speakers are typical of the course experience. The only difference was in 2020, it was taught online and Tanya used tools such as AHA slides to support TCs' learning. Prior to 2020, the course was taught in a face to face format, requiring TCs to utilize multiple modalities for presenting their ideas and creating learning plans. Often Kathy would work on multimodal projects with students and teachers in local schools, museums, and other community spaces. In both formats, TCs were also typically required to present or share their assignments in different modalities.

Data Collection

Kathy taught the course for many years and Tanya started teaching it in 2017. It is one of those courses many instructors find challenging (engaging students across disciplines), but we embraced and engaged in many planning sessions to improve students' course experience. Tanya shared with Kathy, who wasn't teaching the course that semester, that the math and science students were exhibiting very positive attitudes in the course. We both thought it was an exciting development. So, Tanya started documenting (saving to a word document) students' verbal reflections on the course during Zoom classes. Next, the authors began dialoguing about Tanya's new experiences in the course, guided by several open-ended questions: What are math and science TCs' experiences with the course? To what extent did the pandemic and online teaching impact TCs' attitude to the course, and how have TCs' attitudes and identities shifted during the course? Later, students' (22) anonymous course survey responses were saved to a pdf file for our perusal during our reflections. We also reflected on our experiences in the last three years/courses to determine what was significantly different about TCs' attitudes and practices compared to the 2020 group. Tanya then collated both researchers' oral reflections, noted the recurring ideas in our experiences, and then compared these to her shared experiences in the current semester to determine how students' experiences, attitudes and literacy identities might have shifted during the pandemic.

Emergent Themes

This section invites readers into our thought processes as we ponder the complexities and nuances of teaching multiliteracies and multimodalities to TCs from various disciplines. To allow for directionality, the emergent themes are organized with respect to the crafted research questions: What are math and science TCs' experiences with the course? How did the shift to online delivery as a consequence of the pandemic contribute to TCs' attitude to the course? And, how have TCs literacy identities shifted during the course? Each section seeks to delineate and explore our reflections on these questions.

What are math and science TCs' experiences with the course?

In 2017, in one of Tanya's course surveys, a TC wrote, "I have no idea why I have to spend an entire semester doing this course that is of no relevance to math. What I needed to know I could have done in two weeks." In the following year another student indicated in the review of Author's 2 courses that the "Course is irrelevant to his teaching and learning." In our oral reflective sessions, the authors reflected on comments like these and noticed that we had similar experiences and course reviews from some TCs. While the course survey is anonymous, some TCs' choice of words such as "no relevance to my content area" often suggests that those TCs might be in the sciences or math. Further, through the shared stories of our experiences in the course over the three years, we both realized that our past math, physics, and chemistry students were the most resistant to our multiliteracy course.

Kathy hypothesizes that "TCs who come into the program lacking confidence and sense of self, unwilling or unable to adopt a 'growth mindset' or ability to be adaptable and flexible, were more fearful of multiliterate practices and approaches that challenged their prior conceptions of 'teaching' and their role as teachers." Tanya agrees but also considers the possibility that some TCs enter the program with the perception that they will be learning methodologies and strategies directly related to their disciplines and so might not be able to envision themselves engaging in literacy practices in their own classroom. It is also plausible that as educators, our teaching approaches might have failed to transform some TCs' views and practices. For instance, in Tanya's 2020 course survey, 82% of the respondents selected 'excellent' to the question "The course provided opportunities for you to become more engaged with the course material for example, through class discussions, group work, student presentations, online chat or experiential learning." That was a significant increase from 67% the previous year. One TC wrote, "The lessons were clear and practical. I could imagine myself using the multiliteracy strategies in my classroom, something I didn't think was possible for my subject area" (course survey 2020). This comment suggests that the TC is likely from the math or science discipline given that TCs from the arts and humanities are more likely to imagine multiliteracies as a part of their classroom. This experience of increased course relevance is also a shift from some of the initial comments at the beginning of the course. A perusal of Tanya's notes from TCs' verbal responses to the course reveals some concerns at the beginning of the course that it might not be relevant to their subject discipline. For instance, in the first lesson, TCs were asked to indicate their expectations of the course, for which a few science-based TCs admitted that while they look forward to learning new multiliterate strategies, they were still not sure how these would be used in their discipline.

These iterations suggest that instructional engagement was important to some TCs' participation in the course. In some ways, the onus is on the teacher educator to effectively demonstrate how TCs across disciplines can integrate multiliterate pedagogies in their classrooms. There are increased pressures on teacher educators to prepare TCs to bridge the gap between traditional literacies, multiliteracies, and multimodalities (Ajayi, 2010; Patterson Williams & Monte-Sano, 2020; Rowsell et al., 2008). As such, as instructors of the course, we are compelled to interrogate our pedagogies to determine the changes

needed to make the course more accessible to all learners. In many ways, we are being challenged to provide our students with richer learning experiences that can translate into their future classrooms. Rows ell et al., (2008) propose that teacher educators develop a new pedagogical vision of teacher preparation that opens up participation for students across all disciplines. As we reflect on Tanya's experiences with the 2020 cohort, we had to consider what new pedagogical strategies and methods of communicating the course content we needed in future classes to shift math and science students' attitudes to the course and their engagement. We also had to consider how to accomplish our vision or goal of having all TCs develop multiliterate pedagogies at the end of the course. Ajayi's (2010) research on pre-service teachers' perception of their preparation to teach multiliteracies and multimodalities revealed that pre-service teachers had mixed views regarding their preparation to engage in multiliterate teaching. Ajayi's (2010) research revealed that while some pre-service teachers felt their instructors were making a concerted effort to engage them in practical applications of multimodal tools, others felt teachers and their program were not adequately preparing them to teach multiliteracies. In some cases, teacher educators were challenged to leverage various digital tools in their classrooms to better prepare pre-service teachers to meet the demands of 21st-century learners. There is some evidence from Tanya's 2020 class that greater access to digital tools can impact students' engagement with the course. For example, the 2020 class was exposed to more practical use of digital tools in teaching as Tanya had to use them in her actual teaching. This exposure might have also influenced the 2020 cohort's overall positive outlook on the usefulness of the course content. Given some TCs' responses in previous years that the course content was irrelevant, it is important that the content was just as valuable as our methodologies. In our conversations, Kathy also noted that in her course pre-2020 digital tools were used to create videos and multimodal presentations, in the context of TCs planning and for campus-based instruction; LMS platforms were also utilized, particularly Google Classroom. As such, Kathy contends that it is more likely that some of the math and science TCs were exposed to textbook-focused, teacher-directed lessons as that approach is still a norm in many BC high schools.

How did the shift to online delivery as a consequence of the pandemic contribute to TCs' attitude to the course?

The pandemic brought to the fore schools and teachers' ability or inability to adapt to changing learning contexts quickly. As we examine the contributory factors to some TCs' entrenched views about literacy approaches in their disciplines and why some math and science students' attitudes differed in the 2020 course, we had to consider how the pandemic might have impacted these attitudes. The closure of schools and the shift to online learning generated immense concern about students' disrupted learning. To mitigate learning loss, many schools have shifted to online learning. This shift means teachers have to create alternative means to continue students' educational growth and engagement in learning amidst a growing crisis. Reimer (2021) reported that an assessment of educational strategies used to support students during the pandemic left many questions about the efficacy of the strategies and educators' capacity for rapid innovation. He further noted that the daily interruptions to online learning and the emotional strain of the pandemic left many students and teachers at odds with curriculum outcomes. Teachers now have to grapple

with how to nurture students' independent learning skills for learner continuity during the pandemic. Kathy reasoned that given TCs' weekly Wednesday visits to high schools in the school districts, they would have been aware of all these challenges and were likely considering how to mitigate these in their future classrooms. This awareness might have also heightened their engagement and enthusiasm to acquire new multiliterate strategies. For instance, Tanya noted that a few of the science TCs were the first in the Zoom classes each week; they asked many questions, shared responses and produced really good videos and Twine stories for their assignments. For example, one science TC developed a Twine story to teach about electricity. Further, Tanya observed that in group teaching presentations, some TCs from math and science used the graphic novel to demonstrate science processes, created canva posters and shared assignments projects that would require K-12 students to use multiple modes (letters, graphic novels, videos, podcast) to share their learning. These were notable differences in practices and attitudes to some math and science TCs in previous years. In past course conversations, it was quite common for the usual one or two math and science candidates to express their frustrations with the course to instructors Tanya and Kathy.

For the authors, the challenge was how to change these perspectives that were also evident among our TCs. During Zoom sessions, the TCs and Tanya had many conversations about the pandemic and how it has shifted how students learn. Tanya saw this as an opportunity to have conversations about how their perspectives and approaches would need to change to meet the new demands of students, especially during the pandemic when many students were experiencing Zoom fatigue and were becoming more disengaged with learning. Tanya and students often brainstormed ways to address these issues. In some conversations with Tanya, TCs shared their sense of urgency to acquire new teaching tool kits to meet the increasing demands on teachers. Tanya's notes also revealed that TCs' ongoing reflections during the course showed increasing positivity as they began to use some of the tools to demonstrate their learning. These conversations and some math and science TCs' enthusiasm to try out new digital tools in the course and literacy strategies led Tanya to presume that the shift in the demand on teachers during the pandemic and increased exposure to technological tools might have been impacting TCs' positive attitude to the course. It is conceivable that TCs would want to acquire as many digital tool kits and strategies as possible to be better able to function in an online world of teaching and so were enthusiastic to learn more. In addition, it seems some TCs had begun to unpack how some of the literacies explored in class might be useful in different disciplines and across different platforms. For example, one of the requirements for the course was for TCs to write blog posts about their use of multiliterate strategies in practice and to design a multiliterate tool to aid their students in learning a concept. Many of the blog posts revealed that TCs were integrating tools from their subject discipline, such as mapping in Geography with digital story-telling and using graphic novel panels alongside models of climatic changes. TCs were also happily sharing their acquired knowledge with other peers who then reached out to Tanya to get further details on how to use some of the tools. Again, some of these tools are not new to the course, and it is likely that this group of TCs are exceptional learners who are generally enthusiastic about learning. As mentioned in the course description, using digital tools to meet 21st-century learner needs is an essential part

of the course content. Through these new experiences, TCs are introduced to several digital tool kits such as teaching through digital story-telling, creating graphic novels as tools of engagement, developing video presentations and lessons to share with students via online format, using Google Jam board to facilitate learning and many other tools. These, in some ways, would have opened up possibilities for TCs on how they can engage their students were they to teach in an online format.

As Bob, a pre-service teacher in Spitler's (2011) research with TCs reported at the end of his multiliteracy course, it offered him a "new ways of looking at understanding, at meaning, at engagement and literacy itself wrapped around those things" (p.307), so too did a few of Tanya's science TCs. One science-based candidate reported she was "skeptical at the beginning of the course, but learned some interesting ways to embed literacy in the science curriculum." She further stated that she was "terrified of the idea of teaching online but felt more comfortable after teaching sample lessons in the class and trying out some of the multiliterate strategies and tools we explored" (in-class communication). It seems the TCs' participation might have increased when they were faced with the possibility of teaching online and having to develop multiliterate strategies to keep their students engaged irrespective of the subject disciplines. Throughout the pandemic, teachers working in hybrid ways were required to utilize digital tools, modelling their use in all types of classrooms, thus creating credibility for the multiliteracies instructors that had not previously existed. Kathy, in discussion with numerous teachers during this time, noted them reporting a much greater range of teaching tools and pedagogies in all disciplines. The ability to use textbooks was not as prevalent as high school students did not have access to them, and in shifting to three-hour classes, TCs and teachers had to find diverse ways to engage their learners. In past reviews for both authors, course applicability and meaningful engagement were high on students' concerns about the course. Thus, it can be assumed that the changing demands on teachers as a result of the pandemic might have increased TCs' sense of urgency in using multiliterate and digital tools.

How have TCs literacy identities shifted during the course?

Ajayi (2010) purports that "how pre-service teachers perceive their learning experiences and how they conceptualize their roles in the teaching and learning are important for designing curricula pedagogies" (p.12). Thus, it can be reasoned that if TCs are coming out of disciplines outside of literacy education, they will have to perceive themselves as multiliterate educators to design multiliterate curricula. This can be challenging for some TCs. Our reflections and ongoing conversations revealed that our chemistry, physics, and math TCs were more likely to have teacher identities that did not embrace literacy practices in their classroom spaces. We noted this was likely due to the lack of emphasis on literacy practices and approaches in their undergraduate programs where a different conception of 'knowledge' and 'learning' drives the programs or in their other teacher education courses. As a result, this paper advocates for a shift in teacher education courses across the curriculum to promote critical literacy and models of literacy practices for all TCs. For math and science TCs to successfully navigate teaching in the 21st century, they can consider embracing a pedagogy that mediates students' meanings in learning and creates equitable opportunities for all to participate. One way of doing this is

by adopting a multiliterate identity as a teacher. For instance, TCs could imagine themselves as literacy advocates and change their practice to reflect this.

With these thoughts in mind, we reasoned that self-reflection within the classroom space, providing opportunities for TCs to work with peers from other disciplinary orientations, to take risks with multimodal approaches, consider the complex and unique needs of their future students, and applying multiliterate strategies in authentic contexts were important in shifting identities. Over the years, the authors worked hard to create a sense of community within their classrooms, wherein TCs could imagine themselves as literacy advocates. In the course survey, one TC remarked, "Tanya was exemplary in her ability to create connections with students and to create a positive atmosphere (even over zoom!!). Spending time in her lessons was certainly the bright spot that we needed during these times. I learned so much about multimodal teaching just from observing her practices." A recollection of TCs' comments over the past three years also suggested that creating a sense of community (via "Who am I?" videos) weekly check-ins, establishing classroom support groups and setting aside time to share 'did you know' moments about self in multimodal ways helped to build classroom community and multiliterate identities. For instance, as the 2020 cohort classroom rapport increased, so too did their engagement in the course and affinity for multimodal discourse. During Tanya's 2020 class, TCs were often encouraged to find and share new multimodal strategies they discovered throughout the week. They would enthusiastically share out their new discoveries. This was usually received well by their peers, and there was even lighthearted competition among the group as to who could find more multimodal strategies. Similarly, Ajayi (2009) observes that when TCs are exposed to multiple literacies across social, cultural and national boundaries, it provides many opportunities for them to reconceptualize their identities as literacy educators. It was evident from these experiences that TCs were cultivating literacy identities. Prior to 2022, strong community among the TCs developed in their cohorts, but the opportunities to observe practicing math and science teachers using multiliteracies was not as prevalent. The need for teachers to adopt multimodal approaches and texts offered models that they had not previously used or valued. Given the new BC curriculum's push to have teachers adopt and appreciate a holistic breadth of literacies, it is critical that TCs develop and foster their literacy identities. These new insights will also allow for more integration of content across disciplines, given that multiliteracies approaches, aligned with competency-based and personalized learning, require that TCs release their control of content and transmission of information.

Conclusion

TCs' course experiences and our reflections on our practices have implications for how the multiliteracy course is delivered. It is important to understand TCs' literacy identities to develop purposeful course content and strategies that are applicable in their classrooms. There is also a need for more authentic course experiences, transdisciplinary thinking, teaching and community-building within the classroom. It was evident that Tanya's 2020 instructional engagement impacted TCs' response to the course, thus leading us to conclude that the online teaching platform was a unique opportunity to create more transformative practices that allow all TCs to see themselves as literacy advocates. It is

also important to note that there have been significant societal shifts in recent years, not only to online experiences but also by way of inclusion. We are all being challenged to respond to the needs of all of our students. Linguistic diversity, global awareness, self-awareness, empathy, resilience, learner empowerment, and significant personal and social changes are happening every day in our classrooms, and so it is imperative that our TCs are equipped to take on these challenges (Magro, 2019).

The pedagogical conversations with TCs are shifting as they realize the importance of using a range of tools and strategies, approaching 'content' in an inclusive way, and considering diverse perspectives and cultural values. Although we have only one year's online experience to reflect upon, we have noted that a few TCs in their 'back to normal' face-to-face environment in 2021 are again somewhat discipline-focused and more dismissive of the inclusivity that multiliteracies bring in the early stages of the course. At the onset, a few students showed the usual resistance to a multiliterate approach in the math and science disciplines. This attitude brings us back to Kathy's earlier observations that some students have developed identities that are rooted in linear structured practices within their undergraduate program that have left them feeling unconfident as multiliterate advocates, especially in assessment. While instructor engagement and mode of delivery might be factors in TCs' initial resistance, the gradual positive shift in the 2021 cohort's attitudes over the course duration suggests that a predetermined literacy mindset might be a significant factor at the onset. However, as the course progresses and vestiges of multimodal remain evident in high school classrooms during the pandemic, teachers themselves have shifted their approaches, which is a critical element in TCs valuing diverse practices and tools. Now some of the 2021 cohort of science and math-based students are keen to employ multiliterate pedagogies. For example, one math student in the 2021 cohort demonstrated enthusiasm for the course and has sought to develop multiliterate ways of engaging and assessing students. The student often connected with the instructor to discuss ways to approach content differently. These recent experiences and the findings from the 2020 group still leave us with many questions about our future practice. Although the 2021 classroom practices are quite similar to 2020, and a highly positive community is observed among the cohort, we are still questioning why some students are resistant to the *Multiliteracy Across the Curriculum* course and what can be done at the department, faculty or even university level to change this. We cannot determine whether the 2020 group was an anomaly or whether the online approach adopted by Tanya changed how TCs were able to value interconnected learning but believe this is an important avenue of research to continue.

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THINKER, LEARNER, AND PRACTITIONER: USING AN INSIDER'S LENS TO EXPLORE CRITICAL, CULTURAL, AND GLOBAL CONSCIOUSNESS THROUGH MULTICULTURAL LITERATURE

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Abstract

Literacy research highlights a need to explore the way literacy is used in the classroom and how current practices engage students with aspects of humanity and social justice. This doctoral research took place as a classroom inquiry that examined the potential for multicultural literature to expand adolescent learners' worldviews and shape their perceptions as global citizens. From a constant stance of reflexivity, this teacher researcher recalls a dynamic eighth-grade language arts classroom as they engaged with multicultural books and real-life events, before and during a pandemic. This paper focuses on select themes and subthemes emerging from pedagogical practices used in the classroom throughout the study. Notions of time, space, place, and identity detail an intentional and purposeful pedagogy as learners interacted with literacy within and beyond their classroom community.

Keywords: critical literacy, classroom practices, teacher research, multicultural literature, social justice education, global citizenship, pedagogy, critical consciousness, cultural consciousness, global consciousness

The *Universal Declaration of Human Rights* articulates that education should benefit the full development of the human personality, and aim for "understanding, tolerance and friendship among all nations, racial or religious groups" (The United Nations, 1948, art. 26, para. 2). When I began my career as an educator, this fundamental human right resonated with me, and I wanted to contribute to such humanistic educational goals. Yet, criteria like economic growth and material wealth are what tend to define success and well-being in our society, while systems of education continue to advance educational agendas that value productivity over empathy (Nussbaum, 2010). Humanity faces unprecedented challenges due to a hastened globalization process; as such, our students are required to navigate a complex world and a rapidly changing society. Broader education goals are needed to prepare students for such a world, where they can learn to respect others' values and perspectives, care about the well-being of their community, develop a sense of purpose and responsibility in shaping their own lives and contribute to the lives of others, and exercise agency (Organisation for Economic and Co-operation Development, 2018).

[1] This article draws from the author's doctoral research, completed at the Schulich School of Education, Nipissing University.

After more than a decade in the classroom, it occurred to me that such broad education goals do not automatically fit into a formalized and structured public school system. I noticed a disparity between the goals we have identified for a more sustainable education in the twenty-first century, and the pedagogical practices we implement in our classrooms. As I began to question this gap from the viewpoint of a language arts teacher, I wondered about students' perceptions, preconceptions, and attitudes in a classroom community where multiculturalism was unfamiliar. How were they engaging with language and literacy and making meaning as they constructed their own understanding of global citizenship? I pondered whether learners identified as real actors in the story of the world and considered how they could speak, write, and act themselves into that story rather than observe from a distance. How might the story world teach about the real world in a space where human character and potentiality are considered through compassion? I became curious about the way notions like time, space, place, and identity move and interact among a classroom community as the world, near and far, undergoes constant shifts and changes. To explore these questions further, I sought to learn how students might envision alternative perspectives, and build their critical, cultural, and global consciousness using multicultural literature in a more organic and democratic learning environment.

Rationale

According to Bell (2016), diversity and social justice are distinct, yet interdependent terms. Bell associates social justice with the elimination of injustice, which entails the rebuilding of a more inclusive and equitable society. As both a goal and a process, social justice requires us to confront existing ideologies, patterns, and societal pillars that privilege dominant groups to the detriment of the marginalized (Bell, 2016). Social justice encompasses topics that take on issues of equity (Boutte & Muller, 2018; Freire, 1970/2016), and social justice education (SJE) implies the active participation of teachers and students in creating critical, and empowering, teaching and learning environments (Hackman, 2005). As students gain a sense of agency and become committed to the goal of social justice, they begin to see themselves as capable of interrupting structural systems of oppression, and actively contributing to social change (Bell, 2016; Hackman, 2005; Stachowiak, 2017).

Broere and Kerkhoff (2020) suggest that middle level students' cultural and intercultural consciousness needs to be cultivated if productive conversations about sociopolitical and global issues are to take place in the classroom. In addition, the authors explain that since some White students may not consider themselves as cultural beings, they need to develop critical consciousness, which allows them to question society and the role of power and oppression within it. Lastly, Broere and Kerkhoff assert that promoting the development of global consciousness can strengthen students' global awareness from a lens of global citizenship rather than competition, and praise the use of picturebooks, read alouds, and current events to animate conversations about social justice issues. In line with Banks et al. (2001) and Bell (2016), Broere and Kerkhoff suggest that through scaffolded conversations about complex local and global issues, teachers can help students "see themselves as connected to something bigger. . . over time, students can develop the sensitivity and respect needed for civil discourse" (p. 53).

In the same vein, Nussbaum (1997) argues for the power of literature in imagining possible worlds and expressing compassion toward characters experiencing human vulnerability as they face challenges. In a language arts class, literature can offer insights into cultures learners may not have access to, as well as inspire them to become active global citizens who are equipped to ask questions about real-world injustices and prepared to practice empathy in the face of diversity (Choo, 2018).

My research focus is located at the intersection of social justice and literacy. A central question awakened this inquiry: *How might using multicultural literature in the classroom expand adolescent learners' worldviews and shape their perceptions as global citizens?* Kincheloe et al. (2018) suggest that "in the context of reading the word and the world, and problem-posing existing knowledge, critical educators reconceptualize the notion of literacy" (p. 239). What is meant by going beyond simply reading the word? According to Luke (2000), leading students to engage with text critically from intellectual, cultural, social, and political standpoints might prompt the desire to learn to live together ethically and justly. Likewise, multicultural literature might be a way to invite students to look at their own culture and position in the world, and consider others'. Moreover, literature offers a medium for reflection and learning through characters in stories who experience injustices, difficulties, or tragedies because of their differences. Inviting learners to participate in literacy this way aligns with school curricula that strive to promote young learners to "engage in critical analysis of the forces that shape the world" (Kincheloe et al., 2018, p. 239).

The purpose of my doctoral research was to explore the way multicultural literature might go beyond creating a level of interest in students and urge them to be transformed by it. Encountering and engaging with social justice books might inform youth on their own cultural identities and assumptions, encourage an attitude of perspective-taking, and therefore, widen the range of existing worldviews by exploring their critical, cultural, and global consciousness. This paper examines select themes and subthemes emerging from pedagogical practices used in the classroom throughout my teacher inquiry by framing them in notions of time, space, place, and identity.

In the context of this study, the term *global citizenship* is defined as "an umbrella term for social, political, environmental, and economic actions of globally minded individuals and communities on a worldwide scale" (The United Nations, 1948, para. 1). The term *multicultural literature* is used as a pedagogical term rather than as a literary genre. The terminology depicts underrepresented cultures or groups and expands the curriculum to include a more pluralistic view of cultures (Cai & Sims Bishop, 1994), which encompass people who have been marginalized in a variety of ways (Yokota, 2001). I use this term to mean "literature which reflects a power differential between groups created by such things as ethnicity, race, gender, or economics" (Dressel, 2005, p. 754).

Theoretical Framework

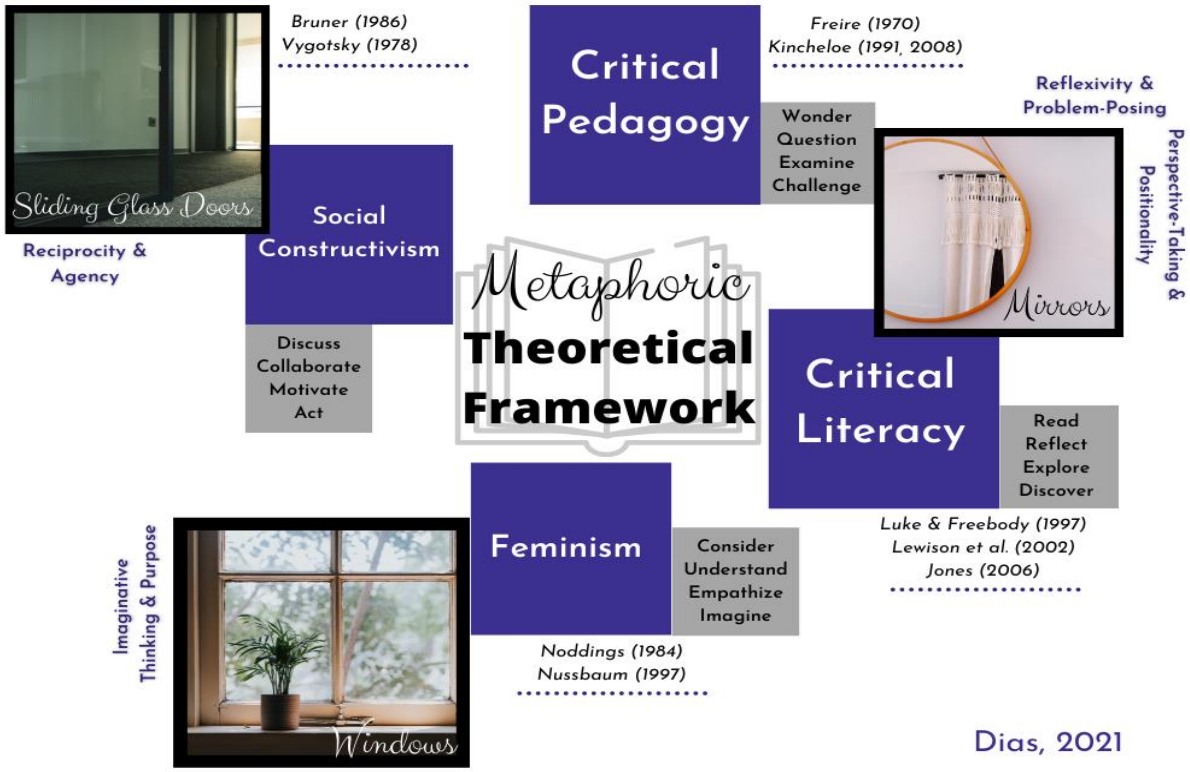
Rudine Sims Bishop (1990) believes that literature can "help us to understand each other better by helping to change our attitudes towards difference" (p. xi). She employs the metaphors of *mirrors*, *windows*, and *sliding glass doors* to describe the issue of cultural authenticity in children's literature. I draw upon Sims Bishop's metaphors as a way of visualizing and making sense of my chosen theoretical discourses. While critical pedagogy

and critical literacy remain central to the framework, feminist pedagogies and socioconstructivist theories also guided this classroom research (see Figure 1).

Because there is a need for students to wrestle with ideas and words, reading the word and the world elicits questions like What is? Who benefits? and What if? (Freire, 1970/2016). Asking questions, challenging the status quo, and going beyond receiving knowledge bolsters criticality, which occurs when we examine our own conflicting assumptions. Burbules and Berk (1999) acknowledge this criticality as a valuable tool to navigate through life. This posture also endorses SJE, which seeks to enable students to become conscientious members of their communities through the goals of social responsibility, student empowerment, and the equitable distribution of resources (Bell, 2016). Since my central research question originated from the practical context of my language arts classroom, turning to a set of critical theories was a philosophically natural choice.

First, I conceptualize the critical dimension as connected to mirrors to portray the work of reflexivity from both myself (teacher researcher), and participants (all have been given pseudonyms), as they learned about social justice. In this research, we were fully engaged in looking at ourselves as we are, in the present moment. Looking in the mirror can sometimes be difficult, especially when we begin to recognize that what is reflected

Figure 1. Visual Representation of My Metaphoric Theoretical Framework



back to us does not coincide with what we would like to be. The critical theories in this study require us to ask questions about our beliefs, about what we read, and about our

position, as new knowledge is gained. When we consciously question, examine, and sometimes challenge what we see, it creates opportunities where we might consider alternatives and make decisions about what we see. Once I began exploring criticality as the main frame for my research, I turned to the work of Freire (1970/2016, 1974/2017) and Kincheloe (1991, 2008) to uncover the rationale for endorsing a critical pedagogy approach. This approach anchors the premise of creating conditions for empowerment and social justice in the classroom. The frameworks of Luke and Freebody (1997), Luke (2000), Lewison et al. (2002), and Jones (2006) are added to the critical pedagogies to bring together the theoretical underpinnings of critical literacy. Understanding how critical literacy is enacted in the context of a classroom is an example of how conscientious pedagogical decisions can contribute to bridging the theory to practice gap.

Second, adding perspectives of feminist pedagogies provides a comprehensive dimension to the theoretical underpinnings of my inquiry. Sims Bishop (1990) compares books to windows, in that they sometimes offer "views of worlds that may be real or imagined, familiar or strange" (p. ix). I liken the second layer of my theoretical framework to windows in two manners. To begin, I visualize it as a way that feminist pedagogy sheds light on my role as a teacher researcher and my vision of the classroom as a liberatory environment. Specifically, I draw on Noddings' (1984/2013) ethic of care as it relates to my purpose as teacher researcher (carer) who fosters an equitable classroom setting in which students can view (windows) possibilities and other realities presented to them in multicultural literature. Next, I imagine it as a type of looking glass for learners, through which multicultural literature allows them to contemplate possibilities and realities different from their own. In addition, Nussbaum's (1997) notion of the narrative imagination allowed me to approach my teaching and learning in a way that sustains feminist values from the perspective of cultivating humanity.

Third, Sims Bishop (1990) imagines the windows of her metaphor as sometimes transforming into sliding glass doors, a realm within which "readers have only to walk through in imagination to become part of whatever world has been created and recreated by the author" (p. ix). To break the potential barrier mentioned earlier, she visualizes sliding glass doors as "a way to suggest that a book can offer what Rosenblatt (1978) called a lived experience for a reader" (Sims Bishop, 2012, p. 9). The final layer of my theoretical framework sits within this sliding glass doors metaphor to imply motivation, engagement, and action from the part of readers as they contemplate alternate possibilities. I draw upon Bruner's (1986) work on narrative as a mode of thought and storytelling and Vygotsky's (1978) sociocultural theory, which considers social interactions and relationships as important elements in learning and development.

Methodology

I pursued a qualitative teacher research methodology to explore "in the constant flux and flow of classroom life and culture in order to generate new possibilities" (Campano, 2009, pp. 332-333). I framed my teacher research inquiry in a single case study, defined by Merriam and Tisdell (2016) as "an intensive, holistic description and analysis of a single, bounded unit" (pp. 232-233). In this case study, the social unit (Dyson & Genishi, 2005) consisted of eighth-grade students' experiences within one language arts

class. This social unit became a case of some particular phenomenon (Dyson & Genishi, 2005), defined in my research as teaching and learning with multicultural literature.

The ways in which we see the world are largely influenced by our location in it, thereby entangling notions of time, space, place, and identity. As a practitioner, I often wondered about the extent to which students view themselves as active members of a larger, global community, especially in a context where there is little ethnic and racial diversity. Working on understanding my own attitudes, values, and biases helped gain deeper insight into my qualitative inquiry (Patnaik, 2013), and I felt compelled to develop a similar social and cultural awareness, and critical curiosity in my students. By using my research questions as a starting point, I acquired what Cochran-Smith and Lytle (2001) call an "inquiry stance" toward my teaching practice, one that was "critical and transformative" (p. 46) and linked to social justice.

As a language arts teacher, this methodology allowed for an intimate relationship between theory and practice, thereby offering a space in which literacy could be redefined, and literacy practices, reinvented (Cochran-Smith & Lytle, 1999, 2009; Simon et al., 2012). Lytle (2008) defines teacher research as a passionate, political, and even radical act in which teacher researchers' primary goal is to teach better. Because of the unique, direct educational context in which teacher researchers work daily, their theorizing processes inform new practices and open possibilities for their students (Simon & Campano, 2013). According to Cochran-Smith, teacher research is a broader stance exhibited by good teachers who are always thinking, critiquing, and examining underlying assumptions (Krutka & Milton, 2017). By adopting this inquiry stance (problem-posing) on diversity, it allows for the problematization of concepts like culture, language, and power (Cochran-Smith & Lytle, 1993). In this sense, I undertook to negotiate the borders of research and educational practice, and aspired to "rethink practice, question [my] own assumptions, and challenge the status quo" (Cochran-Smith & Lytle, 2011, p. 18).

Multicultural Texts Used for Teaching and Learning

During the year of this study, I implemented a topics-oriented, yearlong multicultural book study. Everyday teaching and learning activities included units that focused on different multicultural novels. Each multicultural unit included one focus novel study accompanied by supporting picture books. I selected texts for their social justice potential, based partly on recommendations from the *National Council of Teachers of English* (2018) as well as the Social Justice Books project from *Teaching for Change* (n.d.). Because I was mindful about portraying characters and situations in realistic, credible, and authentic ways, I consulted a website powered by the University of Arizona, which provides a list of criteria on how to evaluate the authenticity of books (Worlds of Words, 2020).

The first novel I introduced was *The Epic Fail of Arturo Zamora* (Cartaya, 2017), a story featuring a Cuban American boy named Arturo and his extended family, who must face challenges regarding the survival of the family restaurant which has been at the centre of their lives and their community for decades. This story, told from the perspective of a teenager, depicts themes like love, family, tradition, community, gentrification, and youth activism. *The Breadwinner* (Ellis, 2000/2015) and its sequel *Parvana's Journey* (Ellis, 2002/2015) comprised our second and third novel studies. *The Breadwinner* begins when

a young girl named Parvana, living under the strict and unjust rules of a Taliban-controlled Afghanistan, watches as her father is violently taken from their home. As the rest of the family struggles to survive, she must disguise herself as a boy, and become the sole breadwinner. In *Parvana's Journey*, as Parvana's mother and siblings are missing, she must continue her journey to find them, alone, after the death of her father. Some passages from both these books are fragments of actual stories from Afghani women who were interviewed by Ellis in refugee camps. We read our next novel, *Ghost Boys* (Rhodes, 2018) during the last week of in-class learning before school closures were imposed by the COVID-19 pandemic. It tells the story of Jerome, an African American boy shot by a White police officer who mistakes his toy gun for a real one. Told in a back-and-forth timeline where the protagonist witnesses the devastating consequences of his killing from "Dead" and "Alive" viewpoints, the narrative weaves in historical and sociopolitical elements. As Jerome meets other ghost boys like Emmett Till, he tries to make sense of his death as the story serves up a scathing portrayal of racism and police brutality, still present in our current society.

For our final multicultural unit study, I revised my original plan of reading one single book as students did not have access to their individual copies because of the remote learning situation. I chose to offer students options from a list of books. They selected the following: *Harbor Me* (Woodson, 2018), *Stella by Starlight* (Draper, 2015), *Allies* (Gratz, 2019), *A Bird on Water Street* (Dulemba, 2014), and *It Ain't So Awful, Falafel!* (Dumas, 2017). Some were eBooks and others were prerecorded read alouds, shared via Google Classroom, with the authors' permissions.

Research Site/Participants

This study took place in a French public high school located in a small town of Eastern Ontario, with a population of approximately 12,000 people. The student population is largely representative of the community, which is mostly Francophone, White, and of North American or European descent. At the time of recruitment, one English as a second language (ESL) class of twenty students provided a convenience sample (Merriam & Tisdell, 2016), from which twelve participants assented to share their experiences at the end of the year, and whose parents/guardians consented as well. Participants consisted of six male and six female French-speaking students, ranging between 13 and 14 years old, enrolled in our ESL class where we met for three, 60-minute periods per week.

Data Collection

Students participated in everyday teaching and learning activities in the classroom, as already occurring. Classroom activities were the same for everyone and were not specially planned for this project. Data was gleaned from three research methods: my teacher journal, students' reflective questionnaires (end of year), and student portfolios (spanning the whole year).

Two distinct phases of data collection took place. In the initial phase of gathering data, I used a teacher journal, which is an account of classroom life and a practice regularly used by teachers. The purpose of my teacher journal was to reflect on the pedagogical practices taking place in my ESL class, that I could then re-examine and analyze at the end of the school year. Journal entries included thoughts on my practice, descriptions of my

pedagogical approaches using multicultural literature, and questions I had as a teacher. The journal was not evaluative of students in any way and did not identify specific learners by name. At times, I referred generally to ideas shared by groups of students during collaborative discussions, or the ways in which learners as a whole were connecting, or not connecting, with characters in the stories. In the second phase of the inquiry, participants were invited to respond to a year-end, reflective questionnaire. Designed for written response by participants, it featured ten open-ended questions pertaining to their experience with multicultural literature throughout the year. A French and English version was offered to allow students to answer in their preferred language. During this phase, participants were also invited to share their student portfolios, a reflective tool designed to include an array of learning materials ranging from dialogue journals, short reader response tasks, artwork, and culminating projects in relation to each novel. Students had used them to compile samples of their work in ESL, which they could revisit to observe their growth and learning.

Data Analysis

A qualitative approach to data analysis best suited the nature of my teacher research, one that recognizes that along with description, the data analysis process also implicates some interpretation in the selection of research outcomes (Maykut & Morehouse, 1994). The first stage of my analysis was ongoing as I continuously reflected upon my teaching practice and wrote in my teacher journal. Then, the stage of initial discovery included the process of memo writing and open coding. Preliminary codes led to identification of potential categories, 33 of which were generated initially. I *unitized* the data (Lincoln & Guba, 1985) and created a discovery wall using colour codes, sticky notes, and chart paper. I repeated this process for each set of data. I proceeded with an inductive analysis of the data, using Glaser and Strauss' (1967) *constant comparative method*, which combines the act of coding while simultaneously comparing all units of meaning obtained. Four steps within this method enabled me to zoom out, look at the categories that surfaced from each set of data, and begin to see patterns.

Themes and subthemes began to emerge from the data, as I continued with the dynamic work of finding relationships among them, and associating *outcome propositions* for each (Maykut & Morehouse, 1994). This thematic analysis provided an opportunity for me to examine the perspectives of my participants as well as my own, and notice similarities and differences. Throughout this analysis process, my understanding of the phenomenon increased, and research outcomes began to take shape.

Duality of Roles/Identity

Cochran-Smith and Lytle (2009) contend that duality of roles enhances participation in the inquiry process because "the borders between inquiry and practice are crossed, and the boundaries between being a researcher and being a practitioner are blurred" (p. 94). My interpretive frameworks as a practitioner equipped me with what Cochran-Smith and Lytle call a "truly emic view" (p. 18) that differs from an outside observer. By enacting the roles of both teacher and researcher in my own classroom environment, I gained the kind of knowledge that comes from being emotionally involved, sharing the perspectives of my students, and therefore, being able to empathize with them (Diesing, 1971).

Engaging in a study that purposely sought to examine worldviews, and critically explore issues of social justice, forecasted an unpredictable journey of self-reflection for both myself and my students. When addressing tough topics like race, privilege, gender inequality, etc., making visible our own racial identities becomes "part of the research process itself that must be theorized and interrogated along with other data" (Greene & Abt-Perkins, 2003, p. 12). As a White woman, taking stock of my sociocultural identity was a significant part of engaging in this inquiry with my students. Glesne (2011) reminds us that by writing ourselves into the story of our research, we acknowledge that what we know about our research is entwined with what we know about ourselves. The reflexive character of my inquiry exposes the notion that as a researcher, my "effort to understand others' understandings is mediated by [my] own professional, personal, and collective knowledge and experiences" (Dyson & Genishi, 2005, p. 82). This reflexive work was crucial as I surveyed my sense of personal identity as a teacher and researcher in this study.

Findings

As themes emerged, I noticed that they naturally diverged into three lenses (see Figure 2). The first lens considers the data as a whole within the context of the classroom to contextualize students' experiences with multicultural literature. Each subsequent lens narrows in focus with the second offering my perspective as teacher, and the third presenting three distinct participant portraits. This paper focuses on select themes and subthemes emerging in the second lens, which connect to notions of time, space, place, and identity as I made pedagogical decisions about literacy practices in the classroom. Specifically, in relation to the concept of time, I elaborate on the subthemes of re-evaluating purpose, exploring historical context, and connecting to current events. In the scope of space, I describe engaging with tough topics and journal writing as significant subthemes emerging from the data. Nurturing relationships was a subtheme connected to the notion of place, and the concept of identity surfaced in the emerging theme of allyship.

Time

During the 2019-2020 school year, my students and I experienced the beginning of a global pandemic. Unprecedented and disconcerting, this moment in time imparted a new age of pedagogical resiliency and ingenuity. Despite the switch to remote teaching and learning, I discovered that our multicultural book studies were a rallying point for us. The constant reflexive attitude on my teaching practice led me to modify my original plan for teaching with multicultural novels. After reading an article about *re-evaluating purpose* during the pandemic, I noted: "It made me think about this out-of-the-ordinary situation we are in with our students being at home and incorporating learning where they are" (Teacher Journal, April 19, 2020). Sensing the urge to respect my commitment to an organic and democratically inclined classroom (though virtually), I revamped my original booklist to include new options to choose from in the final unit of study. I prepared a short Google Forms survey that included the book choices, along with a brief description for each book, to which students had responded so enthusiastically.

Figure 2. Overview of the Three Lenses

First Lens	Second Lens	Third Lens
Empathy ○ Developing Critical Awareness: The Value of Empathy ○ Engaging in Perspective-Taking: The Power of Empathy ○ *Homo Empathicus*: The Nature of Empathy	**Pedagogical Practices to Teach About the World** ○ Adopting a Stance of Constant Inquiry ○ Engaging With Tough Topics ○ Exploring Historical Context ○ Connecting to Current Events ○ Journal Writing as an Ongoing Practice ○ Utilizing Picturebooks ○ Fostering Multimodal Response Options	**Amber** (Passion)
Insight ○ Learning From Injustice ○ Recognizing Privilege ○ Understanding Racism ○ Bearing Witness	**The Emergence of Allyship** ○ Joining the Global Conversation ○ Sliding Glass Doors: Crossing the Threshold	**Kate** (Curiosity)
Agency ○ Communicating Through Self-Expression ○ Acting for Social Change	**Teaching During a Pandemic** ○ Embracing an Organic Timeline ○ Re-Evaluating Purpose ○ Bringing Narrative Alive During Remote Teaching ○ Journal Writing as a Way to Stay Connected ○ Nurturing Relationships	**Jessie** (Wisdom)

Note. The present paper focuses on select themes and subthemes emerging from the second lens.

Being offered these choices in a remote learning environment seemed to hit the right note with students. Like most changes, this modification required some level of compromise. After doing the legwork—communicating with authors to request copyright permissions for read alouds, surveying my students on their opinions for this idea, compiling their book selections, and rallying some help to read and record the read alouds—we finally inaugurated our diversified, multicultural novel studies with which to end our ESL classroom journey, despite the pandemic.

Our classroom community was also impacted by the timeliness of real-life injustices unravelling in the news. In May 2020, events following the tragedy of George Floyd's murder in the news created opportunities for learners to connect actual racism to stories and characters with whom they had empathized. Of all the injustices that arose during our readings, racism proved to be the most outstanding, as demonstrated in the data. I reflected:

> The issue of racism has surfaced in an unprecedented way just in the past week and for me, a mirrors/windows/sliding glass doors metaphor has never been more relevant and alive. (Teacher Journal, June 1, 2020)

Throughout the study, my students had become emboldened to be a part of the fight against racism. In her year-end survey, "Amber" asked: "How are we to build a community that will create change if we haven't been taught to do it?"

Contextualizing learning by *connecting to current events* in real time became an essential component in utilizing multicultural literature as a classroom tool and became

prevalent in my pedagogical practices. It was noticeable that current events coalesced with our multicultural novels in a very organic and dynamic fashion. When asked what advice he would give to other teachers who might be interested in using multicultural literature with their students, "Andrew" responded, "to make sure to show videos or articles about what goes on in the books as well as in real life simultaneously, that way we can make connections." The benefits of adding this layer to learners' activities and discussions provided a useful bridge for further understanding of controversial issues. Every time I shared an article or video, I invited learners to read the post, think about their position in relation to the issue at hand, connect it to the characters and events in the novels, and prepare to share with their peers.

As my students and I pursued our discussions about social justice debates in the news, they circled back to the authenticity component of their learning, many of them confirming in their dialogue journals "that the authors of their book did not make any effort to gloss over truth or reality and students noted they were glad for that fact" (Teacher Journal, May 21, 2020). Aside from heightening their level of critical awareness and providing opportunities for them to converse about issues of inequity on a global level, it seemed my students took more ownership of their education by engaging in their own quest for knowledge.

Time was also instrumental through the provision of *historical contexts* during this study. I recognized the multidisciplinary perspectives approach (language arts + social studies) I had adopted in my classroom as critical pedagogy, a pivotal standpoint when I navigated through the books with my students. For instance, *Parvana's Journey* abounded with examples of children's rights violations. I assigned an oral and visual communication task revolving around an artistic presentation of a scene from the book in connection to selected articles from the *Convention on the Rights of the Child* (UNCRC). I noted:

> Learning about the articles of the UNCRC was an important layer added to the reading of the novel. I believe it is important and essential for me to associate external information and facts and open a space for students to be able to connect the fictional aspect of the story to real-life historic events and documents. (Teacher Journal, February 26, 2020)

I considered it critical to teach students to assess the way novels position them as readers and evaluate the role of power and society throughout history as they discussed disenfranchised groups portrayed in the narratives. For example, when I first introduced the novel *Ghost Boys*, I was preoccupied with the fact that this novel gave prominence to the tragic events of real-life persons. I reflected:

> My concern with reading and teaching through this book is that the story regularly refers to historic events and real-life personalities—and they are mostly known in American culture but not so much here in Canada. The tragic events surrounding Emmett Till's death, the Civil Rights Movement, Black Lives Matter, etc. are less known facts among my community of students. I have pondered lengthily about different ways to broach these topics. (Teacher Journal, March 6, 2020)

To resolve this dilemma, I sought to expand my students' knowledge of the historical/societal context of African American realities. Conducive to the organic approach I had adopted, learners were invited to research key facts about real-life personalities, and why they were important historically. I often shared additional

information such as a video, an article, a line of questioning, or an activity that might situate the different contexts of my students' books and help deepen their understanding. These responsive teaching moments occurred sporadically and spontaneously and encouraged students to keep connecting stories to the real world.

Space

I sought to create a space for my students and I to safely, and boldly, *engage with tough topics*. Through multicultural literature studies, I invited learners into critical conversations, aware this might make them uncomfortable, or stimulate deeper thinking. I committed to be transparent with students, prepared them for critical conversations prior to the novel studies, and provided guidelines to ensure safe spaces. Students yearned to wrestle with matters of social justice, like "Shane" and Andrew, who stated that they had never been asked to read books involving topics that had a connection to real life. As learners voiced their inquisitiveness, they were ready and able to tackle tough topics emerging from the novels and unfolding in their actual world. After we finished reading *The Breadwinner*, "Jessie" wrote in her journal:

> *The Breadwinner* is a book with contents that can leave the reader upset and confused. It's full of events that can be hard to comprehend or to fully wrap your head around. When Deborah Ellis was writing the book, I think that she wanted people to see the truth, she wanted for us to understand other people's lives. I don't think we talk about that kind of stuff enough. Not a lot of people know what's really going on out there.

Despite the difficulty of dealing with sensitive topics like poverty, gender inequality, racism, loss, police brutality, or wartime violence, Jessie acknowledged the need to talk about them. My intention when teaching tough topics through multicultural literature was not for students to feel shamed or burdened by history. I observed compassion and hope as students encountered them.

Throughout the multicultural literature units, students acknowledged the significance of safe spaces on their growth as learners. Opportunities for self-expression, like *dialogue journals*, enabled them to explore sensitive issues emerging from the multicultural books. From early in the school year, I invited students to voluntarily jot down thoughts, observations, feelings, and questions as they read, in addition to responding to specific weekly journal prompts. Students' exchanges with their peers were representative of their mutual respect. Most often, students addressed their dialogue journal entries to me as they interacted ongoingly with multicultural literature. From the start, we established that their journals were assessment-free zones, which meant that I would not mark them, or look for errors of spelling or grammar. Like Amber and her classmate, "Phoebe", I also recognized how significant it was for journaling to remain a non-evaluative activity:

> I can see the growth in the content and style of each entry, and I notice a much more 'relaxed' learner, one who is not afraid or ashamed of writing what they truly think and how they honestly feel! This is of consequence, in my view, for 13-year-olds in a second language English class. (Teacher Journal, June 15, 2020)

During remote learning, students used their dialogue journal "as a vehicle for reflection and sometimes even as a release of emotions" (Teacher Journal, April 6, 2020).

I noted that "it quickly became clear to me that using a DJ as a tool to reflect, react to, and record personal experiences with the text, was overall a positive initiative" (Teacher Journal, June 15, 2020). Humility became a huge component of this acclimated pedagogical practice, as emphasized in this journal entry:

> Reading my students' journals is a sobering activity and I feel truly humbled and privileged to witness their innermost thoughts. They always have relevant comments, intelligent questions and such insightful wonderings. Yet just like they can't check their true state of being at the door when in school, they can't check their true feelings at the 'virtual door' when writing in their journals. (Teacher Journal, April 14, 2020)

Many students infiltrated their own worries in their journal entries, after I invited them to, if needed. This materialized as yet another form of storytelling in which my students participated. Amid precarious circumstances, learners shared their personal narratives with me through journaling, and with their peers during virtual gatherings. What stood out to me was how students appreciated the camaraderie and collegiality that had been missing since the school closure. Such spaces proved to be contributory to a meaningful, and personal, learning journey.

Place

One of the most compelling findings within my reflexive posture was the power of relationships, in that it solidified a sense of learning place amid an unpredictable academic year. *Nurturing relationships* and caring for one another became our compass through uncertain, and at times, anxious moments. When I first started writing in my teacher journal, my students had already settled into their homeroom group of classmates, as well as into the flow of our multicultural literature units. I observed early on the dynamics of our classroom community: "They are courteous, thanking their classmates for their questions and engaging in a written conversation that is very mature and always relevant . . . I feel there exists a mutual respect among this group" (Teacher Journal, January 30, 2020). Inviting students to reflect on their views, take on characters' perspectives, and engage in group conversations about difficult topics began in a learning place where mutual trust and respect had been secured.

After the school closure, a new learning space arose, beyond classroom walls. To preserve our classroom community remotely, I resolved to actively listen to my students' needs, be prepared to forfeit pre-planned lessons, if necessary, re-establish some form of stability, and most importantly, make myself available for them. What stood out for me was the vulnerability we felt as our routine had suddenly been interrupted by a global pandemic. Yet, reading and talking about our books kept drawing us together, providing a dependable social learning place—an outlet for socializing in the context of learning remotely, both before and during the pandemic.

Identity

I have often felt a responsibility to introduce learners to realities different from their own. Interacting with multicultural books offered occasions to enter conversations about real-life injustices associated with the stories. Readers were positioned to explore their current worldviews, reflect on their values, assumptions, and biases, and examine their

sociocultural identities in the context of a broader, more diverse collectivity. This context speaks to the way students engaged in self-reflection (mirrors), and considered their membership within a larger global community, despite the lack of ethnic and racial diversity in their immediate surroundings. The murder of George Floyd, and the protests that befell, generated a sense of *allyship* in the fight against racism.

After having read the novel *Ghost Boys* in early spring, and following this highly publicized incident, we were attentively and purposefully reading the world as it was manifesting its disgust of current racial injustices. Connecting her thoughts back to the real-life murder of George Floyd, Amber confided in her dialogue journal:

> Did I know George Floyd? No. Did I know he existed before this? No, but do I feel destroyed and disgusted cause George could have been one of my friends, yes! Not only that, but the fact that this officer put his knee on his throat and killed him and the other officers were just watching!

What surprised me was the overwhelming response from my students to become part of the solution to the problem of racism. I think back to how it inspired me that "students are extremely perceptive, courageous in their willingness to confront their own way of thinking and determined not to sit on the sidelines" (Teacher Journal, June 4, 2020). As learners demonstrated empathy toward fellow humans, whether fictional characters or real-life persons, they gained deeper insight on social justice problems (windows). They began to see themselves as part of a broader citizenry and considered the steps of becoming allies with those they had come to understand as oppressed. Students now recognized the need to engage in social change (sliding glass doors). Remaining aware and purposeful within my pedagogical practices, I was determined to co-navigate the landscape of agency with my students. The exchanges in which my students and I partook matured and developed into an in-depth inquiry about the kind of actions that could make a difference in our society.

Discussion

As a critical educator, I heeded Freire's (1970/2016) advice to adopt a more reciprocal relationship with learners, thereby trading the traditional dichotomy of teaching and learning for a more equitable rapport. I became the learner as well; through dialogue, both me and my students were "jointly responsible for a process in which all grow" (Freire, 1970/2016, p. 80). I felt it was crucial to co-create a classroom environment that would not only encourage but sustain a safeguarded space in which teaching and learning could thrive. Through this study, I realized that the way we engaged with multicultural book studies was just as significant as the books themselves. As I carefully considered how using multicultural literature in the classroom might expand adolescent learners' worldviews and shape their perceptions as global citizens, it became clear that a self-reflexive posture toward my pedagogical decisions influenced not only my teaching approach, but students' conditions for learning as well.

This pedagogical lens revealed the notion of time in opportunities to re-evaluate purpose and practices, incorporate current events, and infuse historical context to accentuate learning. This stance of reflexivity opened a space for learners to engage with tough topics and express themselves safely through journaling. Furthermore, it allowed me to prioritize and remain mindful of the needs of my students by nurturing relationships

within our changing learning place. Lastly, a reflexive attitude shed light on unexpected outcomes such as the emergence of allyship as learners took stock of their sociocultural identity. Lewison et al. (2000) remind us of the importance of rendering classrooms places where students can connect their own lives to learning that is real and meaningful to them. This research experience marked a milestone for learners who began to claim ownership of their own educational trajectory, empowered to engage in learning about the world despite all its flaws.

As I reflect back on my journey as a teacher researcher, I realize the importance of embracing praxis in teaching. By adopting a continuously reflexive posture, I was able to consider, select, and adjust pedagogical practices that corresponded with the creation of a more sustainable and democratic classroom. As students developed their critical, cultural, and global consciousness through the book studies, I noticed the way varying my literacy practices bolstered their unfolding conception of global citizenship, in the context of a caring, organic, teaching and learning environment.

Author Note

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"STARING DOWN A CHARGING BULL": RECONCEPTUALIZING CONTENT AND DISCIPLINARY LITERACY THROUGH TRANSMEDIATION

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Abstract

This paper illustrates the findings from year three of a five-year research project where participants were asked to multimodally re-conceptualize their understandings about content and disciplinary literacy practices from a mandatory Bachelor of Education literacy course. Data collection includes transcribed interviews, professor feedback, in-class conversations with peers, multimodal artefacts, and participant notes taken during a gallery walk. Findings show that life experiences, transmediation processes, peer group sharing, and facility with modes and media contributed to deep understanding about multiliteracies practices, course content, and assessment techniques. Findings reveal that learning opportunities transcend disciplines, space, and time while enriching identity formation.

Introduction

As I was creating this, my own understanding of content area literacy and subsequently disciplinary literacy improved. I was able to visualize and then contextualize it for myself to see how I have unknowingly used both in previous teaching situations without ever realizing it or the benefits to it.
(Participant "Louis")

This quote expresses the heart of this research project where participants found valuable learning opportunities creating multimodal texts. Participants became active designers of meaning while learning about course content in a Bachelor of Education program, specifically about disciplinary literacy and content area literacy. This research answers two questions: 1) how did the process of creating multimodal visual journals enhance understanding of multiliteracies? and, 2) how did this process of doing multimodal visual journals help or hinder your understanding of content area literacy and disciplinary literacy? The rationale for this study was to elucidate understandings of multiliteracies practice as nested in the broader literacy curriculum in the Ontario context. The study also aimed to support teacher candidates as they envisioned how they could apply these understandings about literacy to the students they will one day teach. The learning experiences aimed to transcend disciplines, space, and time while enriching identity formation. Did this process sometimes feel like "staring down a charging bull" (Participant "Beth")? At times. Did the possibilities outweigh the constraints? As you will see from the data that will be presented, the answer to that question is: absolutely.

Literature Review

Traditional literacies within education have been linguistically grounded. The focus on reading and writing skills, while valuable, both "marginalize" (Moses & Reid, 2021, p.1) and perpetuate "assumptions … [of] the right kind of literacies" (McTavish, 2014, p. 339) needed to succeed. While the landscape of literacy practices has changed to include multiliteracies, higher education has not promoted this as abundantly, especially from a pedagogical point of view. It is even more critical for teacher candidates to be exposed to, work with, critically evaluate, and create multimodal texts such as visual journals. They will be expected to comprehend an ever-evolving understanding of literacy alongside with meaningful pedagogy that involves both online and offline practices (Laidlaw et al., 2021; Moses & Reid, 2021; Nagy, 2020; Yoon, 2020). This literacy, according to the Ontario Ministry of Education (2013) is "multimodal" (p. 2), builds on "prior knowledge and culture" (p. 3), is "rich and varied" (p. 3), and utilizes all six dimensions of language (reading, writing, listening, speaking, viewing, and representing). Without explicit instruction in multimodal pedagogy, teacher candidates' "meaning potential might remain lopsided, and the educational affordances of the resources untapped" (Nagy, 2020, p. 167). Today, more than ever, those resources are more readily available online and globally connected. As such, multimodal learning "expands the possibilities for considering what counts as literacy" (Moses & Reid, 2021, p. 5). What counts, according to Kress and van Leeuwen (2021) is more than just the prevalence of print that still permeates educational circles – multiliteracies has enormous potential across disciplines. Working with modes and media both on and offline, developing facility with them, understanding their affordances, and recognizing transmediation as "generative potential" (Siegel, 1995, p. 456) is "integral to meaning and learning" (Kalantzis & Cope, 2022, para 38), especially within the context of higher education.

When looking at the research literature and the variety of multiliteracies applications from visual literacy instruction using multiple modes and media, to art journaling among lower grade levels and subject areas (Cruz & Ellerbrock, 2015; Williams, 2019), valuable learning opportunities can be applied to higher education contexts. This research adds important understandings to fill in those gaps. Working with multimodal texts like visual journals can improve comprehension (Kędra & Žakevičiūtė, 2019), provide opportunities for critical reflection (Loerts & Belcher, 2019; La Jevic & Springgay, 2008), help with learning the metalanguage of multiliteracies (Serafini, 2017), and connect with diversity and cultural knowledge (Kalin et al., 2007; Kleinfeld, 2019). It can also assist in meaning making while enhancing memory (Kędra & Žakevičiūtė, 2019) and promote deeper text engagement through transmediation (Kleinfeld, 2019). With so many possibilities, it is pragmatic to apply multiliteracies pedagogy and practice within higher education and across disciplines. This current research shows many of the above benefits as shown by the participants who created multimodal visual journal artefacts to learn course content about disciplinary literacy and content area literacy (henceforth referred to as DL and CAL).

Background to Disciplinary Literacy and Content Area Literacy

To contextualize the course content that served as a backdrop to this study, I will briefly summarize what the teacher candidates in their literacy course were learning about DL and CAL. One of the first things that candidates did was do some research to define DL and CAL. In brief, DL is comprised of specific literacy skills that will help students learn the content in discipline-specific ways. For example, in Science, there are discipline specific texts such as research briefs, data, and hypotheses that will require distinctive literacy practices, such as those found in the Ontario Ministry of Education's (2022) *Think Literacy Library.* These literacy practices will be different from those in a Math class that deal with symbols and patterns (Lent & Voigt, 2019). In contrast, CAL focuses on literacy skills that can be used to access any type of text in any discipline such as pre-, during-, and post-reading strategies, making predictions, or monitoring comprehension (Vacca et al., 2016).

Candidates in the literacy course did activities to understand the difference between DL and CAL. For example, they looked at lesson plans to figure out which strategies were used, watched videos of DL and CAL practices in classrooms, and considered Ontario Curriculum resources. Teacher candidates were then given the visual journal assignment to multimodally reconceptualize their understandings.

The Visual Journal Assignment

Historically and currently, visual journals in higher education have been used by writers and rooted in Arts-based practices where sketching and collecting ideas help to refine and shape creative applications (La Jevic & Springgay, 2008; Morawski et al., 2016). In this case, I have used the concept of a visual journal as a way for teacher candidates to use both as a reflective process on their learning and as a way of practicing the very modes and media that they will carry with them into the teaching profession. Similar to Kalin (et al., 2007), I see visual journals as a "form of pedagogy that holds generative possibilities … facilitating a more enduring and expansive range of understanding" (p. 203). The goal was to provide multimodal ways for teacher candidates to wrestle with ideas more deeply as they learned course content.

One of the central foci in the literacy course was to understand the nature of literacy. The course encouraged discussion around literacy pedagogy and theory with practical applications. I provided multiple opportunities for teacher candidates to engage in multimodal literacy learning to develop a deeper understanding of course material. Teacher candidates created a previous multimodal visual journal with peer support and professor feedback as they built up knowledge and facility with modes and media. For example, we discussed the affordances of modes and media while we looked at commercials, unpacked Molly Bang's (2016) book: *Picture This: How Pictures Work* to discover how shape, line, and perspective can create meaning, and we discussed the cultural interpretations of colour (e.g., Oleson, 2022). We also worked with modes and media alongside online platforms such as PicLits (n.d.), Pictochart (2022), and Google slides. These served as learning opportunities that could be applied to their multimodal visual journal to develop deeper understandings of DL and CAL practices.

The visual journal assignment consisted of a twofold submission: the visual journal artefact and a written portion with questions to answer about the meaning-making process. For the visual journal, participants were given instructions to create a multimodal artefact based on their understandings of DL, CAL, or both. The syllabus (Loerts, 2018) gave instructions that allowed teacher candidates to pick any variety of modes and media that included sketching, painting, media literacy texts, or music, just to give a few examples. Participants were told that the viewer of their visual journal should be able to create meaning about DL or CAL. The written portion was meant to have teacher candidates reflect on the process of design by explaining: 1) how they came to create their visual journal, 2) how the process of design enhanced their understanding of DL and CAL, 3) the elements of design that they thought they were particularly good at using for communicating and how they did so, and finally they were asked to 4) briefly summarize the main message that a viewer should get when viewing their visual journal. While the guidelines gave some parameters, the visual journal artefacts were more of a critical thinking/problem solving assignment that was "strategically ambiguous" (Bratslavsky et al., 2019, p. 285). This provided authentic opportunities for participants to take their visual journals where they wanted them to go.

This visual journal had gone through a number of revisions since the start of this research in 2016, thanks to ongoing dialogue with teacher candidates about what worked well and what could be improved to enhance their learning experience. Whereas the initial experiences with visual journals had candidates just submit a multimodal artefact (that was supposed to include a combination of words and visuals), subsequent visual journal assignments included written responses to the above questions so that I, as the professor, could see more of their process of design. This honoured the teacher candidates' agency so that they knew I understood their true communicative potentials and understandings through multiple modes. What follows are the findings from year three of a five-year study.

Theoretical Framework

The centrality of multiliteracies for this research is reflected in the dual purpose of this framework. First, multiliteracies recognizes how meaning is made specific to contexts – not just any context, but ones that consider culture, social practices, life experiences, or even social groups. Even as we "live in a period of profound social change" (Kress & van Leeuwen, 2021, p. xviii), we need a growth mindset to reflect on the utility of making meaning as well as the modes and media at our disposal. Secondly, multiliteracies recognizes the multiplicity of modal forms of representation that are used to create meaning (Kress & van Leeuwen, 2021; New London Group, 1996; Cope & Kalantzis, 2009). Pedagogical opportunities at the heart of this framework are ripe for new lenses as we consider how modes and media continue to change in response to global and local needs. Multimodal meaning making opportunities are meant to scaffold, reinvent, and transform knowledge as well as individuals (Loerts & Heydon, 2016; Moses & Reid, 2021; Walsh, 2007). While the term, visual journals, is used in this research, the range of modalities *including* visual modalities were used to give the participants choice in what was most apt for their multimodal ensembles.

Framing the centrality of multiliteracies in this study is a social semiotic approach. Semiotics is the study of signs and symbols, and how they create and communicate meaning. Because signs are product of culture, their meanings are socially situated. Therefore, all of the possible resources that could help us communicate have possibilities and constraints, depending on the affordances of each mode (Kress & van Leeuwen, 2021; Mills, 2011; Zammitt, 2015). As a sign-maker, choosing from modal resources such as writing, music, speech, images, or gestures have equal value, but not always equal potentials, depending on the sign maker's intention for communicating (Jewitt et al., 2016; Pantaleo, 2016). Kress (2008) advocates for the use of multiple modes as resources for making meaning because "attending to the linguistically carried meanings does not give access to the total meaning of the text" (p. 99). For this reason, multimodal texts are the result of decisions made by sign-makers as they consider the affordances of modes, the media and materials that are available, and the "orchestration and ensembles of meaning" (Kress, 2010, p. 159). This is a complex process where practicality of design and creativity of meaning meet.

During the reshaping, remixing, and reframing of resources, decisions are made as to what modes and media are privileged for the best possible meaning to be understood by the text-designer and the text-interpreter. In this process of design, there is "meaning transformation" (Mills, 2011, p. 57) where one "translates meanings from one mode to another" (Zammitt, 2015, p. 1294). Over time, a number of terms have been used to designate this process such as transduction, resemiotization, or transmediation (Mills, 2011; Zammitt, 2015). I use the term transmediation in this paper. In a pedagogy of multiliteracies, the implication for this kind of semiosis is that learners are positioned as agents of design who think deeply and represent their knowledge in multimodal ways. Literacy, therefore, is "not about skills and competence; it is aimed at creating a kind of person, an active designer of meaning with a sensibility open to differences, change, and innovation …. Meaning making is an active, transformative process" (Cope & Kalantzis, 2009, p. 175). This will be seen in the research findings.

Research Methodology

Setting and Participants

All participants were part of a two-year Bachelor of Education program at a university in Ontario. Within this two-year B.Ed. program, all teacher candidates took a mandatory literacy course focused on Intermediate (grade 7-10) literacy. In year three of this five-year study, there were ten teacher candidates enrolled in this course in which the visual journal was one of the mandatory projects that all of them completed. All candidates in this course were invited to participate in this study. Ethical clearance was given for this study and the Informed Consent document was read and questions answered for clarity. There were ten consenting participants who signed the Informed Consent: four females and six males. All teacher candidates who agreed to participate in the study were notified that they could withdraw at any time without penalty. All ten consenting participants continued with the research for the full duration.

Methods and Data Collection

I employed a qualitative descriptive case study approach (Dyson & Genishi, 2005; Stake, 2005) as I looked in-depth at events that unfolded during the creation and dissemination of the participants' visual journal assignment. I use the voices of the participants as much as possible to illuminate the findings. Various sources of data collection ensured greater clarification of findings as triangulation occurred to make the them more trustworthy (Stake, 2005; Yin, 2017). The various data collected included: transcribed interviews that occurred after the course, recorded and transcribed in-class conversations amongst peers during their gallery walk debrief session, participant artefacts (visual journals), professor feedback that was given back to participants, and participant notes taken during the silent part of the gallery walk. All participants were assigned pseudonyms to protect their identity.

Data Analysis

Data was analyzed through the use of a Modified Constant Comparative Method (Handsfield, 2006) where analysis of the data resulted in codes with similar themes. These codes were categorized further until broader themes emerged that answered the research questions: how did the process of creating multimodal visual journals enhance your understanding of multiliteracies? and, how did this process of doing visual journals help or hinder your understanding of CAL and DL? In a Modified Constant Comparative Method (MCCM) of analysis, the modified aspect resulted in recognizing elements of the data that were not part of a group of similarly coded results.

Data analysis occurred in three stages. First, I collected all of the data, including transcribed audio data, and read through them for initial impressions of how each participant answered the research question. I then made a word document with four columns – the first was for each of the data sources, organized according to each participant according to what I considered pertinent information to answer the research questions. I then engaged in holistic coding for the first stage, highlighting participant voices, commenting on aspects of their visual journal, using my assessment feedback notes, and anything that stood out from the participant debrief sessions and gallery walk. In stage one I assigned initial codes and impressions. The subsequent stage refined the stage one codes and impressions into predictive themes. In the third stage of coding, I created overall themes that were organized into the narratives you see below.

Findings: Journeys of Learning

As I reflected on the two research questions posed for this study, it became clear from the process of data dissemination that there were multiple ways in which the process of doing visual journals enhanced the participants' understanding of multiliteracies while solidifying their knowledge of DL and CAL. The four themes that emerged were that multimodal texts related to 1) how participants' life experiences influenced design with modes and media; 2) transmediation; 3) deep learning; and 4) their understandings of assessment practices.

Life Experiences as Influencers of Design:

One of the deciding factors that helped participants decide how to represent their knowledge of DL and CAL was their life experience. At first, some participants were overwhelmed by the open-ended nature of the assignment even though they appreciated it at the same time. Participant "Liam" stated, "I like the openness of it in terms of, you can do whatever you want," while participant "Oliver" said, "I just needed a starting part. That was the toughest part and as I kind of got going then it was kind of more flow." Participants connected ideas with their hobbies, academic major, and moments of inspiration that literally came out of the blue. Oliver mentioned that his idea came to him as he looked out the window after he woke up from a nap. "It was raining and I saw the umbrella and I'm not gonna lie, it just kind of popped into my head." The multiple colours of this rainbow made him think of "how they [strategies] all kind of work together like a framework, and I was like, that kind of reminds me of all the teaching subjects." This served as inspiration for Oliver to represent his subjects with icons such as basketballs and baseballs for Physical Education, and a symbol of Pi for Math, and a periodic table for Science (figure 1). As participants connected with their love of drawing, card games, words of the English language, music, and events such as International Women's Day, these served to inform both the content and form of their visual journals. This echoes Kress' position as stated in Bock (2016) that it is "the sign maker's interest" that is "personal, social, and shaped by their cognitive and affective processes" (p. 18), which resulted in unique and meaningful communication.

Figure 1. Literacy Umbrella from Participant Oliver's Visual Journal

Facility with Modes and Media

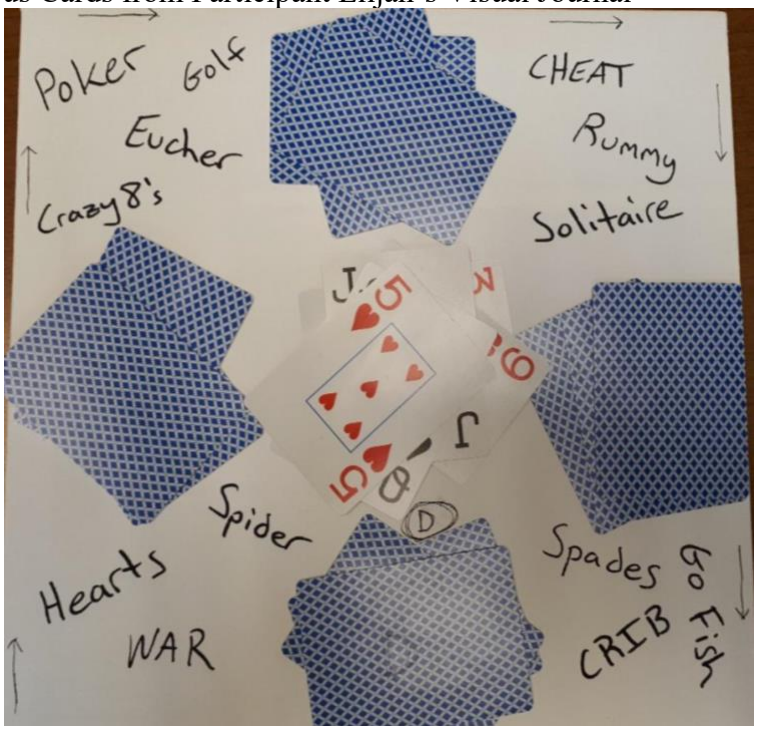
Once participants started their artefacts, their facility with modes and media was revealed in different ways. Data from multiple sources revealed how some participants still relied on written modes to generate their ideas more than any other modes. Participant

"Aisha" expressed that her facility with multimodal composing felt "basic" while participant "Ben" wondered, "How do you really dig deep unless you can attach a little bit of a written thing to it?" Others expressed that they "didn't know how to portray them in a literacy sense" when it came to re-conceptualizing math symbols (participant "Javen"). Their hesitancy to break out of the written mode of communication partially stemmed from their fear of having to be artistic, which participants like Liam equated with visual literacy. At the same time, other participants felt that their facility with modes and media improved as they worked through their process of design. Louis said that not only was he "able to visualize and then contextualize it for myself," he also said that "as I was creating this, my own understanding of CAL and subsequently DL improved."

Another outcome of the participants' facility with modes and media showed in the variety of modes and media displayed through their process of design. Participant "Elijah" noted that "creating this visual journal … did expand my thoughts on how this visual concept would represent content area literacy" (figure 2). His use of playing cards utilized the concepts of perspective, layout, directionality, and how the cards and written elements relate to each other. All were salient points that showed his facility with modes and media. As one of his peers, participant "Riley", said during a debrief session:

> I think Elijah was trying to portray the idea that playing cards requires many different skills, such as shuffling to be able to play many different games. I like that Elijah illustrated many different card games on the canvas, because I am not sure it would have been as clear if he didn't. I like that he displayed the cards and made it visually appealing rather than just handing in a deck of cards.

Figure 2. Various Cards from Participant Elijah's Visual Journal



Available Materials for Design

Some organic materials were used to showcase participants' design choices such as the visual journal example from Oliver (from figure 1). He utilized cardboard, paper, and pencil crayon colours for his umbrella, subject specific icons, words, fishing line, and blue construction paper for the raindrops, and marker for the words on a piece of white Bristol board. Oliver used materials that were readily available in his house to compose this visual journal entry.

Oliver felt that he did a good job with his artefact, as is shown in his write-up from his submission, where he answered the 3rd question on the assignment (What elements of design were you good at using and how did you do so?):

> I believe my visual journal does a good job at portraying content area literacy based on the flow that has been created … When the content area literacy (raindrops) hits the umbrella on a subject, the content area literacy transforms into something that is more specific to the subject and can be disciplinary in nature. The dry area under the umbrella houses all of the disciplinary understandings that are floating on a piece of fishing line. This was done for the purpose of demonstrating that although the student may learn something specific, even this specific language can be transferred and used in conjunction with other subjects. The rain and umbrella are able to communicate my thoughts on content and disciplinary literacy because the rain is so individually unique that each drop is a teaching strategy, which are plentiful. The umbrella itself is a good visual because the subject areas in the classroom are constantly crossing over and touching on one another, something that the umbrella does literally.

This reflection on his learning process was insightful. It also illuminates the fact that design is influenced by what is around you, from the ideas to the materiality of the artefact.

The design process was not only closely linked to participants' life experiences as described above, but also to how they understood representation. Ben's comment of "a sign with a simple visual can be understood by almost anybody," showed how he was thinking of his audience. He wanted the format to be "very simple and accessible." Lastly, the data showed that the oral debrief in small groups after the gallery walk was meaningful because "hearing the explaining … what went into the making process – I think it kind of made it a little more real" (Riley). This finding was especially fitting as participants shared their design process in small groups. It helped to further solidify their understandings about modes and media as well as the differences between DL and CAL in a supportive way. It was another step to help stare down the charging bull!

Articulation of Transmediation

It was in moments of design that participants reconceptualized their understandings of DL and CAL through a process of transmediation (Mills, 2011). In this second finding, the data revealed two perspectives: that of the sign *maker* and that of the sign *interpreter*.

Sign Maker: Percolating Ideas

As mentioned earlier, various activities, including a previous visual journal, promoted a beginning understanding of multiliteracies. In order to recast their ideas from their readings and in-class learnings into different modalities, many of the participants said that they had to sit with ideas and let them percolate. As a sign maker, Liam described his thinking process:

> It's one thing to read an article and say summarize the article, summarize the most important points, right? But whereas a visual, it forces you to key in on a specific spot or a specific idea and it allows you to run with that idea a little bit. So, develop that idea, think about what it means in the broader context of things and eventually it becomes more open … you get so much more out of creating a visual than actually just summarizing a text or talking about a text with group members or something like that.

As the data suggested from other participants, they too went through ideas "multiple times" (Oliver). Some participants had trouble clearly articulating the thought processes involved in recasting ideas from one sign system into another. As Ben stated, his ideas were "sorted in my mind without really thinking about it. I am not entirely sure. You can't create something visual that represents an idea if you don't know what the idea actually is." Therein lies the crux of the matter – it is about figuring out the meaning of what they are trying to understand (in this case DL and CAL) and then representing it multimodally.

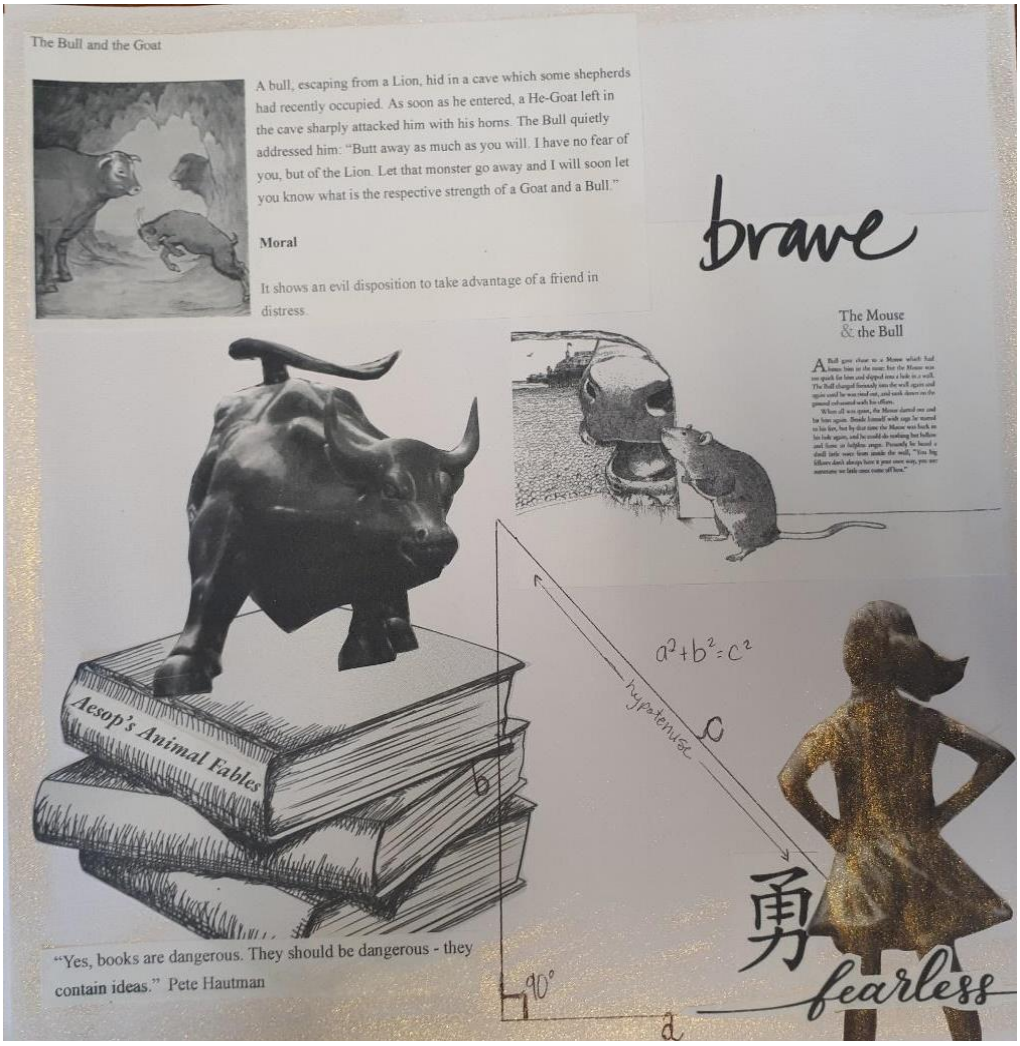
One of the more detailed explanations of how a participant made meaning was done in Beth's visual journal. Not only did she communicate DL and CAL visually (figure 3), the questions that she answered as part of the assignment provided an inside look into her process of transmediation. Originally, she commented that she had "struggled this semester to differentiate between content area and disciplinary literacy." As the data showed, Beth made significant progress.

Beth's first indication that she worked to understand ideas about DL and CAL before representing them in multimodal ways came from her experiences visiting New York and reading about International Women's Day in 2017 from online sources. Beth saw the *Fearless Girl* statue in New York's financial district staring down the *Charging Bull* statue in defiance, which made her think about her own experience with understanding DL and CAL. She admitted that she was the one feeling like she was staring down a charging bull, or as her analogy states, "I am the student staring down a mountain of texts to interpret." This initial reaction helped Beth to consolidate her understandings about CAL; she likened CAL to Delaney (who was inspired to go for an impromptu job interview in New York's financial district after seeing the *Fearless Girl* statue) and how interpreting this statue is about understanding how to apply creative meanings to texts.

From there, Beth described how she used multimodal elements of design to represent CAL. The gold shimmer on the *Fearless Girl* statue represented a triumphant (one symbolic interpretation of the gold) Delaney along with the word "fearless" to "show the multiple interpretations of the text." The Chinese character displayed is the word for courage, which, as Beth stated from her personal travels and studies in China, had the visual

character for "strength" also embedded in it. Beth reconceptualized how the *Fearless Girl* used language skills (including some of Aesop's fables like *The Mouse and the Bull* to learn about intimidation), and math skills (with the exact angle of posture and gaze to stare the bull in the eyes) to make meaning. This process of transmediation is multi-layered from the sense that Beth created personal meaning using her texts from various sources, while she reconceptualized different modalities to make sense of how CAL utilizes skills to make sense of various texts.

Figure 3. Fearless Girl versus Charging Bull from Participant Beth's Visual Journal



Sign Interpreter: Looking Deep

From the transcribed in-class discussions that occurred after the gallery walk, the data revealed that participants made further meaning as they interpreted each other's visual journals. In the first part of the gallery walk, participants walked around the classroom, quietly taking notes on visual journals of their choice. These notes were prompted by reflection questions, namely: Do I understand what is being communicated visually? What

is the main idea about DL or CAL? Do I need more information? Did the medium suit the message? The second part of the gallery walk was a group debrief session where they discussed the questions in addition to each person verbally explaining their own visual journal. They were encouraged to use the metalanguage of multiliteracies as they described the process of design and the modes and media used. What follows is a segment of one group's transcribed conversation.

> Oliver: For me it's authentic in the learning itself because there's so much reiteration of the content that we're trying to learn. So, there's the CAL and the DL – how many times have we said these terms and described what they are and represented them in three different ways, right? I represented one, you did one, Ben did one, and then we saw so many different ones.
>
> Liam: And through the seeing of the other ones it allows you to … further develop that understanding.
>
> Oliver: And then listening, to speak, you get the audio, the visual, the kinesthetic, of actually doing it. It really hits on so many different dimensions like, not just the dimensions of literacy but the way people learn.
>
> Liam: Yeah, yeah, I totally agree with it. It is an authentic learning experience.
>
> Oliver: I did like the openness to it 'cause it's not like we have two of the same thing. Everyone did something a little bit different.
>
> Liam: And it kind of pieces everything together when you look at everyone else's.

These insights about how participants viewed themselves as sign interpreters reveals not only the process of learning, but also how collaboration contributed to further understanding. As Beth noted, "It's like that active listening exercise where you listen and then you kind of restate … like it was clarifying meaning I think." When left to interpret just the visual journal artefacts, there were various levels of affordances and constraints. Some participants were "having to look deeper" (Beth) while others mentioned that they needed the written or oral modes to fully unlock the sign maker's messages.

Other Insights: Sign Interpreter to Sign Maker

Through the coding and eventual development of themes from the data, there was one finding that stood out amongst the broader theme of transmediation which illustrated the *Modified* CCM analysis (Handsfield, 2006). While many participants noted their facility with the written mode to help them reconceptualize DL and CAL understandings in other modes, Liam was the only one who mentioned that the process of doing the visual journal helped him elucidate his written understandings of DL and CAL to the point that he re-did his assignment before handing it in! In a post-course interview with Liam, he mentioned that when he verbalized his process of making meaning in the group debrief,

his peers didn't quite understand his intentions. He mentioned to his peers that he wasn't quite sure himself as the process didn't quite come together as he intended. He stated:

> I didn't really know what direction I was going in, and I think when I sat down and explained it to the group and they actually had questions about it – I think that's when I started to develop my own understanding of it in my head. And it wasn't until I actually verbalized it to someone that it became – that it made sense to me.

In further dialogue with Liam, I asked him to clarify what he did, both during the process of debriefing with peers, and afterwards:

> Professor: OK, but then after you did the visual, you realized it was a different direction and then you had to re-do the write-up. I've never heard anybody say that before.
>
> Liam: Yeah (chuckling).
>
> Professor: But then that added layer of trying to explain it orally to your group …
>
> Liam: Yeah …
>
> Professor: That made it even more clear in your own mind?
>
> Liam: Yeah. Because I hate starting things that I don't know where I'm going with them. I need to have a plan first. Um, so in a way this bothered me but um, I guess it's OK.
>
> Professor: So, was it almost like the process was more meaningful for you to get to the end where you think you finally got it all together, rather than, *OK, I had to do it and hand it in*, and that's all that would've happened? So, you probably learned more through having the sharing experience?
>
> Liam: Yes. Yeah. I would say so. And more about understanding everyone else's too. Which almost, um, I think it was like, you did the second or the third person to go in the sharing in the group and I almost pulled from other people, like, *OK, well that relates to mine this way*, and of course there's a little bit of bending interpretations a little bit from others and then taking them and saying, *OK, well, mine kind of does that too, and this is how I show it*. And it kinda gave me a deeper understanding of content and disciplinary literacy as well.
>
> Professor: Fascinating.
>
> Liam: I can't remember who I was having a conversation with afterward. It could have been my group, but we were saying that the group sharing does actually help not only understand each visual journal, but also understand the whole course. Like

just that twenty minutes of group sharing helped deepen our understandings of content and disciplinary literacy.

As purposeful pedagogy, the data illustrates that these multiple ways of working with course content, including instruction about modal affordances before the process of design, benefit both the sign maker and the sign interpreter for constructing meaning.

Deep Learning, Deep Understanding

The third finding, which is the result of the process of transmediation, is deep learning. In the multiple ways participants engaged in meaning making through all six dimensions of literacy (reading, writing, listening, speaking, viewing, representing), it is clear that the visual journal assignment contributed to deep learning. The following comments illuminate this:

> Riley: Creating this visual journal has enhanced my knowledge of CAL because it has really engrained the idea of different strategies and study skills that can be used to learn from any specific disciplinary or subject specific text.
>
> Liam: I found through music that I was able to develop deeper understandings of written texts.
>
> Aisha: I find there's a particular flow to it all – from the visual journal, to the reflection, even to how you describe it …. you're representing, which is probably one of the deepest ways of understanding, I think.
>
> Oliver: The representation was significantly important because you're tying in all the different dimensions and it's kind of like a higher order thinking.

Most participants appreciated the "reflective process" (Beth) that this assignment fostered. Engagement with multiple modes of learning, the six dimensions of literacy, and the enjoyment of seeing what their peers had created affirmed participants' resourcefulness. Many participants connected their visual journal ideas with disciplinary areas such as Math, English or Music. Beth loved the assignment so much that she created a visual journal assignment on the book, *The Boy in the Striped Pajamas* (Boyne, 2006), with her grade eight students when she went on practicum. Transformed practice indeed!

Assessment

The fourth finding was one that the participants clearly found important – not only for the sake of the course outcomes with this assignment, but also as a learning opportunity to speak to the assignment parameters. As a professor, I found this to be essential – not only for transparency and clarification of expectations for the course, but also as a way to be responsive to teacher candidates.

Participants overwhelmingly generated positive comments about the assessment of this assignment. Despite some original concerns about how creative they needed to be, they

appreciated that "the whole process was very fair" (Oliver). The data revealed that participants appreciated the written portion to the assignment. As participant "Zahra" stated, "It is hard to assess based only on the drawing." Both Elijah and Louis noted that there needed to be a match between the visual and the explanation which would determine how well the assignment criteria were done. From the description of the assignment, I had asked participants to describe their elements of design and how they communicated meaning (question 3) and to describe the main message for the reader of the visual text (question 4). For myself as a sign-interpreter, this was critical to make sure that I didn't miss their intended meaning.

One item of note from the participants concerned the layers of meaning. I did a holistic assessment and gave written feedback on their process of design, the multimodal elements of their visual journal, and how well they matched their visual journal with the intended meaning through their required written reflection. Participants wondered if I should have made the layers more overt so that it could separate those who put in more effort to create deeper understanding from those who didn't. This idea spoke to the investment participants made in the process of learning. It also showed their willingness to support future candidates by making the assignments' learning goals more tangible. Finally, it also helped me to use the findings from the data to effect change.

Implications

As the data illustrates, participants in this research showed an enhanced understanding of multiliteracies enactment and a clearer understanding of DL and CAL as they participated as designers of meaning. The themes illuminate the possibilities of creating and interpreting multimodal texts within higher educational contexts to promote deep learning of course content. Gone should be the days where only print is privileged, but in higher education, many assignments still do so (Kleinfeld, 2019). In light of the current educational climate, there really is no turning back. Multiple modes and media, especially facilitated by online learning through the 2020-2021 school year (and beyond) due to the pandemic, needs to be fostered. We need to acknowledge and apply the diversity of modes, media, student identities, perspectives, and learning preferences and "embrace it as an affordance of composing in the twenty-first century" (Kleinfeld, 2019, p. 41). After all, modes are seen as equally important in a pedagogy of multiliteracies. They are just "differently resourceful" (Jewitt et al., 2016, p. 23). It is also important for teacher candidates to work with and design multimodal texts for the purpose of developing their own expertise with literacy practices for their future students. The Ontario Ministry of Education (2013) advocates that teachers encourage "all learners in exploring and making sense of a multimodal, multimedia world" (p. 4) while they participate in "creative and critical thinking [to become] … responsible communicators, consumers and creators of text, [and] develop and refine the capacity to create and share texts of all types" (p. 4). This takes purposeful planning.

What this research contributes to the broader educational community is the knowledge that it is possible to expand communicational options for students in higher educational settings and across disciplines (Palsa & Mertala, 2020; Strickland, 2019). From

a pedagogical perspective, there are certain points to consider in the application of multimodal texts. Firstly, educators need to develop and explicitly teach about the affordances of modes and the metalanguage used to analyze and create visual journals and other multimodal texts (Serafini, 2017; Zhang & O'Halloran, 2019). Simply using multimodal texts does not equate understanding them in meaningful ways to promote deep learning (Hollman, 2014). Secondly, while this point is not the focus of this paper, multiliteracies pedagogy as a construct can be a guideline in helping educators understand how to situate themselves in a process of learning with their own students, in any discipline. The original pedagogical frames (New London Group, 1996) consist of situated practice, overt instruction, critical framing, and transformed practice. These have been more recently conceptualized to reflect twenty-first century competencies such as experiencing, conceptualizing, analyzing, and applying (Cope & Kalantzis, 2009; Kalantzis & Cope, 2022). Thirdly, from the findings of this study and the ongoing nature of this research that has spanned five years, I personally would recommend starting small, building up your repertoire of ideas and pedagogy, and having courageous curriculum conversations (Routman, 2000) with your students about what works, what doesn't work, and what could be improved. As Little (2015) advocates, it is a "long-term part of your teaching practice" (p. 89). In addition, it is an assessment *for* learning opportunity for educators to improve their craft while being responsive to changing curriculum, online teaching, being inclusive, and authentically engaging.

To summarize why the use of visual journals in higher education is a valuable endeavor for learning course content in multimodal ways, I give a list of reasons advocating its use as found in this research, while leaving a couple of lasting impressions from participant voices. Deeper text engagement is an obvious outcome of visual journals, as expressed by Oliver:

> The representation was significantly important because you're tying in all the different dimensions and it's kind of like a higher order of thinking. And obviously it's really important to get students to think a little bit deeper. If they're engaged in what they're doing *and* they have to represent - it's almost like a double whammy.

Visual journals also support metalanguage use (Serafini, 2017), Universal Design for Learning (Rice & Dunn, 2020), and serves as an "assessment tool for metacognitive awareness" (Strickland, 2019, para. 2). Working with multimodal texts is educationally "relevant" (Kleinfeld, 2019, p. 40) and empowering for students as seen in Oliver's statement: "representing something was very powerful." In addition, visual journals promote critical thinking and deeper understanding (Kędra & Žakevičiūtė, 2019).

Moving Forward

As mentioned in the beginning of this paper, this was a snapshot of a larger study on the use of multiliteracies pedagogy to learn course content about DL and CAL. The practice of the visual journal has been a continuing journey for me as a professor as I welcomed feedback from teacher candidates. Moving forward through the next years of the data will show how I continue improving the assessment piece based on the feedback

presented in this paper about encouraging more *layers* of meaning. I realize that this is a window into multiliteracies practices within a teacher education program, but the findings can be transferable to other situations as pedagogical implications reach beyond the scope of this research to other grades and disciplines. In an era of change and shifting literacy practices, it is essential to connect with students on a personal, cultural, global, and pedagogical level for essential learning to occur. While the global pandemic has created new learning opportunities that are very technology based, this research shows that what is most valuable about the learning experience is just that – the learning *experience*. "Not everything needs to be tech based" (Wong, et al., 2021, p. 57). It is worth the effort, as affirmed by Liam who stated, "I think that it's a wonderful assignment 'cause it just – it develops your understanding really, really deeply. It was better than I ever had in university."

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