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Volume 16, numéro 3, 2022

URI : <https://id.erudit.org/iderudit/1096539ar>
DOI : <https://doi.org/10.22329/jtl.v16i3.7203>

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Éditeur(s)

University of Windsor

ISSN

1492-1154 (imprimé)
1911-8279 (numérique)

[Découvrir la revue](#)

Citer cet article

Kruger, C. & Buley, J. (2022). Collaborative Learning to Foster Critical Reflection by Pre-service Student Teachers within a Canadian–South African Partnership. *Journal of Teaching and Learning*, 16(3), 69–95.
<https://doi.org/10.22329/jtl.v16i3.7203>

Résumé de l'article

Teachers often enter practice with a narrow perspective of teaching. Through critical reflection, the minds of pre-service teachers can be opened to the bigger realities of teaching and social justice practice. Paired pre-service student teachers from two diverse university settings, Canada and South Africa, were immersed in a collaborative learning experience that involved exchanges through email, text messages, and artwork collages. As lecturers, we implemented action research to determine how to foster critical reflection by pre-service teachers from diverse education contexts. We anticipated the diverse contexts to serve as a disrupting incident in support of critical reflection and possibly also transformative learning. Findings confirm that the collaborative reflective learning across contexts supported the development of critical reflective skills and provided an opportunity for students to confront their own assumptions of ethical and moral teaching practice. Revised strategies are suggested to support deeper critical reflections in collaborative learning across teaching contexts to support transformative learning.



Collaborative Learning to Foster Critical Reflection by Pre-service Student Teachers within a Canadian–South African Partnership

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Abstract

Teachers often enter practice with a narrow perspective of teaching. Through critical reflection, the minds of pre-service teachers can be opened to the bigger realities of teaching and social justice practice. Paired pre-service student teachers from two diverse university settings, Canada and South Africa, were immersed in a collaborative learning experience that involved exchanges through email, text messages, and artwork collages. As lecturers, we implemented action research to determine how to foster critical reflection by pre-service teachers from diverse education contexts. We anticipated the diverse contexts to serve as a disrupting incident in support of critical reflection and possibly also transformative learning. Findings confirm that the collaborative reflective learning across contexts supported the development of critical reflective skills and provided an opportunity for students to confront their own assumptions of ethical and moral teaching practice. Revised strategies are suggested to support deeper critical reflections in collaborative learning across teaching contexts to support transformative learning.

Orientation

The authors of the paper, one from Canada and one from South Africa, met at a conference in Spain. As teacher educators, we realized that we share the belief that cooperative critical reflection with peers across teaching contexts holds value for preparing student teachers for a more socially just practice, where learner diversity and educational contexts are recognized, celebrated, and accommodated in teaching and learning activities. After overcoming many hurdles to this point, such as the COVID-19 pandemic and differing deadlines for university teaching schedules, student

teachers from our two universities, namely the Memorial University of Newfoundland Labrador (MUN) in Canada and the North-West University (NWU) in South Africa, participated in a collaborative and reflective learning experience.

The literature agrees that collaborative learning holds the potential to support critical reflection (Hernández-Sellés et al., 2020; Ng & Tan, 2009; Yaacob et al., 2021) and transformative learning (Lucas, 2017; Wenger & Snyder, 2000). Furthermore, preparing student teachers for collaborative learning and reflection in a community of practice can help teachers make sense of practice-related issues (Cañabate et al., 2019; Ng & Tan, 2009). We agree with Ng and Tan (2009), who advise that

to achieve a real education transformation, teachers need multiple and diverse sensemaking frameworks and the ability to create and recreate different types of sensemaking frames through critical reflective learning in communities. Such processes do not reduce tensions—rather, they allow the teachers to go beyond sensemaking to challenge existing thinking and bring change out of the tension. (p. 42)

The student groups were diverse for obvious reasons: Canada is considered a developed country, while South Africa is classified as a lower income or newly industrialized country (Dhamija, 2020). The diverse Indigenous cultural groups that compose South Africa’s population, as well as the 11 official languages acknowledged in South Africa, of which English is but one, together with socio-economic disparities, make South Africa one of the most diverse countries in the world (World Population Review, 2021). Although Canada is also known for its diverse ethnic groups, it is regarded as a higher-income country. While culturally diverse groups can challenge successful collaborative learning (Järvelä et al., 2010), working with others in diverse and novel global settings can also invite new understandings about education environments and issues beyond the known “local” context (Neal et al., 2013).

By using a collaborative learning experience, an opportunity was provided for student teachers to move away from a self-focused perspective of practice to a more holistic all-encompassing approach when considering different teaching contexts in support of social justice practice. We used this experience as an opportunity to investigate how to implement collaborative reflective learning across teaching contexts to support critical reflection and, imaginably, also transformative learning.

Theoretical-Conceptual Framework

Collaborative learning, critical reflection, and the role of technology in facilitating collaborative and critical reflective learning over a distance were at the core of the theoretical-conceptual framework.

Collaborative learning

Motivated by the literature, we agreed that the principles of collaborative learning, which are less specific than those of cooperative learning (Davidson & Major, 2014; Johnson et al., 2014), should drive the student-teachers’ reflective learning. Collaborative learning happens in pairs or small groups (Chandra, 2015; Johnson et al., 2014), treats knowledge as socially constructed (Chandra, 2015, p. 4), and depends on interpersonal dialogue to solve a problem together in “an asynchronous and interactive way” (Cheng et al., 2021, p. 4). It shifts the responsibility for learning

to the learner at the centre of learning (thus self-directed learning) and enables “students to collaboratively construct knowledge through their interactions with each other” (Davidson & Major, 2014, pp. 22–23). Solutions to real-world problems are discussed and explored collaboratively through a structured approach, misunderstandings are addressed, and misconceptions are clarified (Chandra, 2015) while critical reflection is facilitated (Briscoe, 2017; Cheng et al., 2021).

A logical benefit of collaborative learning by teachers is the sharing of professional knowledge (Johnson, 2003; Meirink et al., 2007; Slavit & McDuffie, 2013) and the co-constructing of knowledge in pairs or small groups (Davidson & Major, 2014). Collaborative learning by teachers furthermore holds motivational value (Chong & Kong, 2012; Durksen et al., 2017; Vauras et al., 2019; Willegems et al., 2018), including improved motivation for self-directed learning (Slavit & McDuffie, 2013) and becoming lifelong learners (Dhaliwal, 2015). Improved attitude to engage in the learning task is also reported as a benefit of collaborative learning (Järvelä et al., 2010; Järvenoja et al., 2020; Moore et al., 2019). Meaningful collaboration furthermore provides teachers with the opportunity to explain and question their motivations and planning (Fullan & Hargreaves, 2016), resulting in improved confidence and new illuminations, which can be equally applicable to learning by pre-service student teachers.

The quality of the relationship between group members plays a vital role in creating interpersonal trust and commitment to collaboration as well as meaningful knowledge sharing and collaborative critical reflection (Wang & Lin, 2021). Relationships should be established at the onset of a collaborative learning task and nurtured throughout the learning process to enhance a sense of community (Brindley et al., 2009). Chapman et al. (2005) advise that when relationships between members are informal and based on authenticity, honesty, openness, humor, and willingness, members will be more confident to disclose diverse opinions (Chapman et al., 2005).

While the success of collaborative learning is dependent on the learners’ attitude, willingness, and commitment to group tasks (Durksen et al., 2017; Järvenoja et al., 2020), a mutual understanding of the task and a shared learning goal are equally important (Brindley et al., 2009; Moore et al., 2019), especially if the aim of the collaboration is to support critical reflective learning.

Critical reflection through collaborative learning

The literature agrees that collaborative reflection supports critical reflection (Briscoe, 2017; Brookfield, 2017; Shulman & Shulman, 2004; Wang & Lin, 2021). Briscoe (2017) highlights that through collaborative reflection, teachers challenge their own “judgments, beliefs, assumptions and expectations” that will influence the way they facilitate effective learning (p. 43). The role of collaborative, critically reflective dialogue draws on the work of Mezirow (1998) and Freire (1973, 1998), with the anticipation that such dialogue will create a new awareness of a teacher’s own unfounded assumptions. Collaborative critical reflection is also reported to motivate thinking about practice issues (Briscoe, 2017; Li et al., 2009; Shulman & Shulman, 2004). When students from diverse contexts collaborate, a new awareness of diversity can serve as a disrupting incident or “disorienting dilemma” (Mezirow, 1991, p. 168), triggering critical reflection and transformative learning. Teacher transformative learning can encourage conceptual change and possible transformation in teaching practice towards a more socially just practice (Maseko, 2018).

As collaborative critical reflection on teaching issues can be challenging when diverse learners are distanced geographically, the type of technology used as a platform for collaboration needs careful consideration.

The role of technology in facilitating collaborative reflective learning

Learning in the 21st century saw an upsurge in the use of technologies such as mobile devices, laptops, smartphones, and tablets that provide instant interactive and collaborative learning opportunities (Jaldemark et al., 2018). Using technology for collaborative learning holds the potential to facilitate “knowledge acquisition, metacognition skills, and epistemological beliefs” (Fu & Hwang, 2018, p. 141). While technology is viewed as an instrument to support collaborative learning (Fu & Hwang, 2018; Hernández-Sellés et al., 2020), the technology used can enhance or constrain the learning aims (Fu & Hwang, 2018; Resta & Laferrière, 2007). Therefore, the technology should be carefully aligned with the objectives of the collaborative learning and promote fluent and sustained interaction on both the cognitive and the social levels of learning (Hernández-Sellés et al., 2020), especially when students are geographically distributed (Resta & Laferrière, 2007).

Zelihic (2015) posits that, although building a relationship over a distance may require “increased creativity, flexibility, and persistence,” learners often find it less intimidating to share experiences, beliefs, and personal struggles on a virtual platform than during face-to-face discourse (p. 218). However, successful virtual cross-cultural collaborative learning is dependent on the students’ acceptance of the technology used for communication (Gannon-Leary & Fontainha, 2007), especially if the technology is used as a platform for critical reflective discourse.

Method

The qualitative investigation followed an interpretivist-constructivist approach (Creswell & Creswell, 2018). We applied the four steps suggested by McNiff (2017) in a single action research (AR) cycle to generate knowledge on how collaborative learning across teaching contexts should be implemented to support critical reflection.

First AR step: Reflection

We reflected on our teaching practices, the way we currently support critical reflection and collaborative learning, and our own theories of what triggers critical reflective learning by pre-service students as informed by the literature and our experience. We then reflectively planned the collaborative student task and the structure that would guide the student collaboration.

Second AR step: Act

To plan a shared student learning goal, we identified a suitable and comparable English module within each of the elementary¹ teacher education programs of the two universities. The outcomes of both the identified modules include knowledge of English language arts education and an aim to support the development of reflective teaching competence. A collaborative task designed by the lecturers of the two modules was included as a compulsory learning task for both the South African and Canadian students.

¹ In the South African context, this phase is referred to as the foundation phase.

Participants

Consent was first obtained from the two universities' ethical committees. Students who were registered for the identified English modules offered by their respective universities were teamed up randomly as reflection buddies by the researchers to learn and reflect on "What matters the most in literacy development for young learners in terms of comprehension." Although the collaborative reflective task was compulsory, students were invited to voluntarily participate in the study by agreeing that their communication may be included in the database. Participants could choose to retract their contributions from the database at any time and were not penalized or prejudiced in any way.

With 24 students in the NWU group and 23 students in the MUN group, one student from MUN was grouped with two NWU students to form a group of three. However, not all participants in this group gave consent that their communications may be used for the study, and all data included in the dataset were therefore collected from groups with two participants, one from each country. Although there were initially 23 groups, communications between 13 pairs were included as data based on the consent provided by both participants.

Student collaboration

The value of asynchronous communication to enable "groups that are separated in time and space to engage in the active production of shared knowledge" (Gunawardena et al., 1997, p. 410), as well as the difference in time zones, motivated the implementation of asynchronous communication for the collaborative learning. We expected the delay in asynchronous communication to provide students with time to reflect on each other's collages before responding and thereby increase the possibility for critical reflection. Considering accessibility and the student's confidence in the use of a digital platform (Gannon-Leary & Fontainha, 2007), we gave students a choice between email and WhatsApp for their student-to-student communication.

When students make their thinking visible through writing and images, it helps them to reflect on their own and others' ideas (Gray et al., 2018; Stahl et al., 2006), while metaphors can play a role in communicating and reasoning about "novel, complex, and abstract subjects" and can reflect how students think (Thibodeau et al., 2019, p. 11). Each student therefore had to design a collage to depict the topic and write a short narrative that explained their collage. This meant that students had to delve into creative ways to include metaphors and concepts to illustrate their understanding of what matters in literacy development for young learners in terms of comprehension.

Relationship building as the first step in the paired reflection process served as an opportunity to let students get to know each other and understand each other's context, thinking, passion, strengths, and weaknesses and to use this knowledge to support and encourage each other throughout the collaborative learning. After receiving the details of their reflection buddy in an email, students had to make contact, introduce themselves, and decide between email and WhatsApp for their communication. After getting to know each other, they shared their collages without the narrative.

After receiving their buddy's collage, they were asked to first reflect critically on the collage using the following prompts:

- 1) What is the first thing you notice about this artwork?
- 2) Why did you notice that first?
- 3) What is strange/unfamiliar about this artwork? Is there something familiar to you?
- 4) What do you think this collage is saying about teaching and learning?
- 5) What pieces in this collage connect to your own life? Is it something similar?

6) If you had to give this collage a title, what would you say it is?

After answering these questions, the reflection buddies shared their collages and communicated through email and/or WhatsApp for a deeper understanding of each other's collages and the motives behind the images. They were also motivated to support each other to critically reflect on the topic by considering each other's educational context and brainstorming possible solutions to teaching and learning challenges that may emerge during their collaboration.

Data collection

Communication between paired students from the two universities where both participants gave written consent that their communication may be used was captured by an independent person who was included in all communications between students. After removing identifiable information from the communication and after student marks were published, the independent person transferred the data electronically to the researchers for analysis.

Third AR step: Evaluation

The analysis of the data informed our evaluation of the way the implemented collaborative learning supported critical reflection and suggested revisions to deepen critical reflection.

Data analysis

All communication between participating students, their narratives explaining their artwork, and their reflections on the collaborative learning experiences were included in the database. Although student collages did not form part of the data, they helped us to understand the communication between students. The content analysis of the data was administered through inductive and deductive coding (Fereday & Muir-Cochrane, 2006). The literature on the principles of collaborative learning and critical reflection as well as the aim of the study guided our deductive coding, while more codes emerged through inductive reasoning. The first author administered the content analysis through open coding with the help of ATLAS.ti and shared the extractions of the code summaries generated by ATLAS.ti with the second author for joint identification of the final themes and codes. After consensus was reached between us, ATLAS.ti was used to construct networks of the codes related to each theme as a framework for our collaborative reflection on the findings.

Fourth AR step: Suggestions for modifications

The findings emerging through the analysis of the data showed strengths and weaknesses in our approach to the collaborative learning experience and informed our suggestions on modifications to deepen critical reflection, which could benefit transformative learning and social justice practice.

Findings and Discussion

Through the categorizing of codes, the following themes emerged: student background, evidence of the value of the collaborative reflective engagement, the role of technology in critical reflective discourse, and factors that may hamper collaborative learning.

Student background

Data on students' biographical information emerged from students' communication. Analyzing individual students' backgrounds in relation to their collaborative reflective learning did not fall within the scope of this paper. However, we anticipated that the obvious cultural diversity, such as language diversity, and the diverse educational contexts of the students from MUN and NWU would influence the collaborative reflection process and outcomes and therefore needs mentioning.

While all NWU students identified as female, three MUN students identified as male. The NWU students were mostly busy with their first qualification after completing high school, while several of the MUN students indicated that the elementary teacher qualification would be their second or even third qualification. Most of the NWU students were South African native language speakers and studying in English as their second or third language, while English was the first language for most of the MUN students. The language diversity is also visible in the quotations that were cited verbatim.

Although diverse backgrounds can be a barrier in collaborative learning, we anticipated that the diversity would motivate critical reflection when students walked in the shoes of their reflective buddies, which indeed surfaced as evidence of their critical reflective engagement.

Constructive evidence of the value of the collaborative reflective engagement

Motivated by the literature, we argue that evidence of critical reflection through the collaborative task holds promise for the propensity to also reflect on the moral and ethical aspects of practice that are fundamental principles of a social justice practice. Sub-themes related to critical reflective engagement, namely relationship building as requisite for authentic critical reflection in groups, collaborative reflective learning, and critical reflection, were deductively derived from the literature.

Relationship building

Codes within this theme showed evidence of the way student communication fostered a sense of collegiality and cohesion, allowing them to take the risk of engaging one another in meaningful dialogue about their beliefs and teaching practices (Brindley et al., 2009; Wang & Lin, 2021) as demonstrated in the following code network:

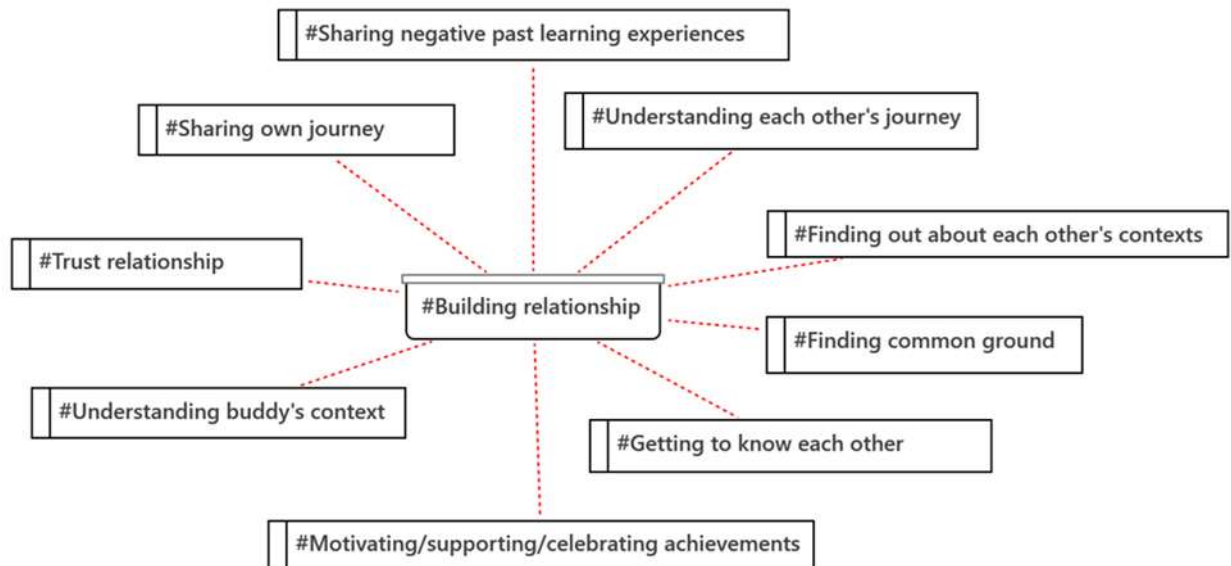


Figure 1: Code network for theme "Relationship building."

For some students, these early exchanges were easy to do, but for others, there was surprising anxiety about interacting with a stranger halfway around the world, as demonstrated by a participant's reflection on the learning experience:

At first, I was hesitant, but once we introduced ourselves it was a really fun process. Connecting across the world, in theory, made the world feel smaller, however this experience also paradoxically made the world feel larger for me. This has been a broadening lesson in diversity. I feel that the most valuable experience I've had with this reflection buddy project is the discourse and information exchange – for me South Africa is foreign culturally socially and arguably ethnically to my own experiences here in Newfoundland. And yet I am quite sure Canada is foreign for her, yet we found common ground in our interests, our ambitions and our desire to better understand this world in which we live. (Reflective journal: MUN student)

Most participants wrote back and forth to each other enthusiastically, exchanging details of their families, hobbies, and educational experiences, providing a basis for an authentic and trusting relationship (Wang & Lin, 2021, see Appendix 1). The establishment of authentic relationships in some groups was evident from the way students even exchanged photos, including of their dogs.

An awareness of the role of diversity in social justice practice emerged in students' explanations of their collages. For some, these could have been disrupting incidents as movers for transformative learning:²

South Africa is a multicultural nation, a country that is diverse, where children come from various backgrounds where their home language may not necessarily be English and this may result to them struggling to develop their literacy skills, but "hey it's okay" as they will learn with a different pace. (NWU student: Pair 6. See Appendix 2)

² Quotations are cited verbatim.

The sharing of collages enabled them to recognize each other's perspectives and dig deeper to uncover experiences and beliefs that have helped shape who they are as young educators. The metaphors used to depict the topic captured unique details that were specific to a particular time and place, and yet many participants found similarities as well. To quote one participant, who explained why her collage included a world map, "Literacy certainly has a way of bringing people together from across the globe."

The motivating role of collaborative learning emerged from the data as demonstrated by the email conversation between Pair 3. The NWU student clearly felt that her hand-drawn collage was inferior to the one that she has received from her Canadian buddy, but the MUN student turned this into a supporting opportunity that could have a lifelong effect on her South African buddy's teaching career:

NWU student: Your collage is just as amazing. I'll send you mine as well but mine is so simple and not as attractive as yours ☺

MUN student: I really enjoyed your collage, your collage reflects so much of who you are as a person. I especially loved the fact that you used your own experiences. You took every little life experience good or bad or tried or rather you're trying to turn it into something positive not only for your own benefit but the children as well. The fact that you drew your collage just shows what a creative teacher you will turn out to be. I truly believe you will be a fantastic teacher!

NWU student: OMG. You are making me tear up. It's always great to hear I am going to be good at the one thing I am striving for in life right now but when it comes from someone who doesn't know me well it makes it so much real. Thank you! (NWU student: Pair 3)

The motivating role of collaborative learning (Durksen et al., 2017; Järvenoja et al., 2020) is also demonstrated by a member of Pair 4, who reflected anticipation for an explanation of the collage metaphors: "Wow your collage looks absolutely amazing!! I cannot wait to read what you said about it!" (MUN student: Pair 4, see Appendix 4)

Motivated by the student communications, the authors believe that collaborative learning can play a crucial role in supporting, boosting, and lifting the morale of teachers by helping them to identify each other's strengths. Such motivational support can make a huge and lasting impact on a student's attitude towards their own studies and teaching career.

Student teachers sharing their own experiences from school years served to build a trust relationship and as a reminder of the impact that teachers have on learners' literacy development. The MUN student in Pair 5 shared the following positive memory with her NWU buddy, as reflected in her collage:

When I began grade 3 I was very nervous about my reading skill, but I had the most amazing grade 3 teacher. She could see I didn't love to read (aloud), so instead of making me read books, she would find short, funny poems. I fell in love with limericks! Not only did I start to read again, I began writing limericks all the time. This was a new beginning and reading became fun and exciting again! (see Appendix 3)

Students also shared negative past experiences that equally served as learning opportunities, accentuating what teaching should not be: "I attended a public school, where corporal punishment was still in use. The teachers did not care much about the learners' well-being. It was up to the learners to ensure that they pass the year" (NWU student: Pair 11).

A shared learning experience fosters a sense of interconnectedness and unity that motivates students to risk sharing their own experiences and beliefs about teaching practice through constructive dialogue (Li et al., 2009). In most groups, relationship building created a successful platform for collaborative reflective learning.

Collaborative reflective learning

The collaboration facilitated reflective learning and created an awareness of the aims and challenges of literacy teaching as well as the role of one's own knowledge, assumptions, and attitudes, as demonstrated by the code network of this theme:

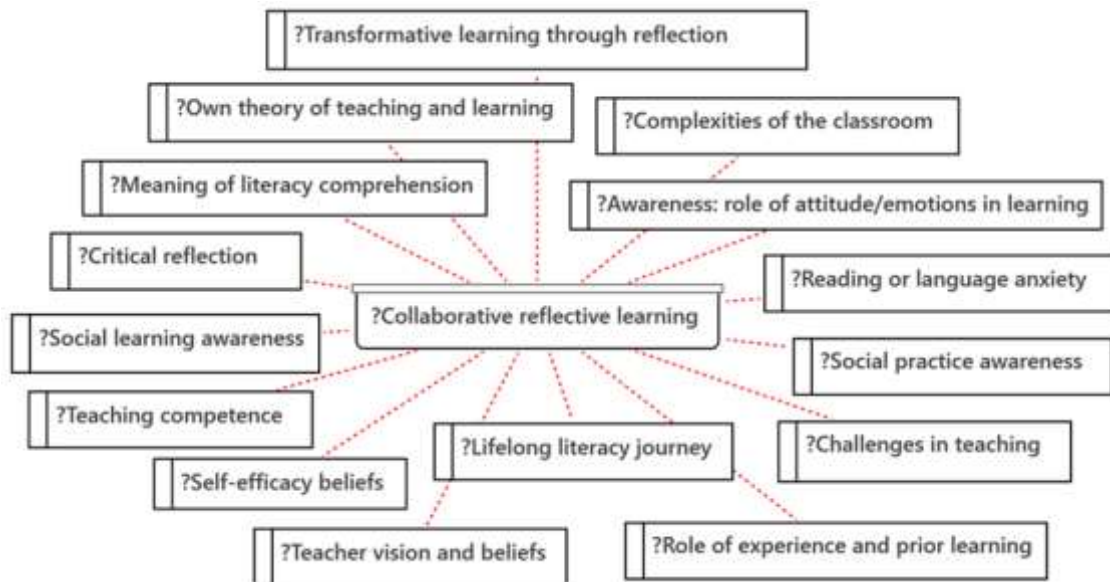


Figure 2: Code network for theme "Collaborative reflective learning."

Utterances, narratives, and images that are produced during collaboration can illuminate further understandings and assumptions about teaching and learning beliefs (Stahl et al., 2006). The initial individual reflection on each other's collages served to spark students' interest and anticipation of the actual meaning behind images used: "I really enjoyed looking through each image and think of all the possible reasons you decided to use them" (Pair 4).

Communication between Pair 4 included reflection on literacy learning as an unhurried, lifelong journey:

Expanding the learner's experience with various sorts of resources is important to allow a love for literature to develop. The expanding letter formation in the collage can be seen as the long process needed for learners to develop and become fluent. (MUN student reflecting on her buddy's collage: Pair 4. See Appendix 4)

The above reflection and the next quotation demonstrate an awareness of accommodating learners' attitudes and emotions in a practice that strives to lay a sound foundation for comprehension in literacy learning. The NWU student demonstrated critical reflection as higher-order thinking when she highlighted the importance of diversity in the choice of literature for learning purposes, as depicted in her collage:

If a child can comprehend what they are reading, they become more excited which leads to them reading more often. Just like the variety of people in this picture, teachers should use a wide variety of literature in their classroom. (Pair 6, see Appendix 5)

The collaboration provided student teachers with a platform to reflect on and verbalize their own beliefs and theories of teaching and learning, as is evident from an NWU student's explanation of her own collage:

I believe that the development of a child, in whatever manner, is holistic. For that reason, you will notice that a lot of my images have to do with the development of the child as a person, as I believe this. (Pair 3, see Appendix 7)

Various similar quotations confirmed that learning through knowledge sharing helps one to voice one's own theory of teaching and learning and serves as an opportunity to think about teacher competence and what good teachers do, irrespective of where in the world they teach.

Findings support the notion that collaborative reflection can support pre-service teachers to be proactive in identifying ways they might improve their own teaching. By reflecting on complexities, students discovered that they were not alone in their challenges and insecurities about the teaching profession. After the NWU student explained the multiple official languages as a challenge in the South African education context, her MUN buddy shared similar challenges and solutions to overcome language adversities in the Canadian context:

When I was up north in Nunavut [doing my internship], there was quite a language barrier between most students and teachers from abroad. All students spoke Inuktitut, but only some understood and spoke English fluently. Therefore, facial expressions were very important in communicating ourselves with one another. For instance, raised eyebrows meant "yes", and a nose scrunch/twitch meant "no". Learning a few keywords of their local language also helped us. (MUN student: Pair 4)

Ng and Tan (2009) suggest that mere reflection is not sufficient to ensure sustainable change in teaching practice. Rather, critical reflection should be practiced in a collaborative setup so that learners can challenge their own conventions and create knowledge that supports social justice and deals with larger issues in ambiguous environments.

Critical reflection

Motivated by the literature (Farrell, 2015; Sparks-Langer et al., 1990; Valli, 1997), the code "critical reflection" was linked to quotations that reflected ethical or moral aspects of teaching, such as acknowledging diversity, respect for the learners, and allowing learner involvement, as well as a learner-centred approach where the focus is on deep learning by all. In total, 107 quotations were linked to this code. One MUN student demonstrated critical reflection by considering moral and ethical practice when explaining her collage metaphors:

The mirror represents perspective. Every person has their own set of beliefs and values. The teacher should be aware of this when the students are answering questions. Just because the answer might not be what the teacher wants, does not necessarily mean that it is wrong. (Pair 4, see Appendix 4)

Gaining knowledge of the importance of accommodating multiple cultures in the teaching of literacy could serve as disrupting incident (Mezirow, 1991) and motivate an awareness of social justice praxis. Growing up in a country where cultural diversity was historically often ignored in schools (Meier & Hartell, 2009) may have motivated the following critical reflection in the NWU student's narrative: "The woman with the colorful dress represents African culture which should be taken into account as it changes how learners comprehend different texts" (Pair 8, see Appendix 6).

Critical reflections also focused on ethical practice and lifelong consequences of unethical and immoral practice:

Help save the kids from feeling ashamed of their own mistakes; No more mystery, teachers should stop hiding learners' mistakes and help the learners to acknowledge them by allowing learners to make mistakes as they will understand that it's okay to make mistakes because we all learn differently and it's part of learning. (Pair 6, see Appendix 7)

Various reflections highlighted the effort required from teachers to implement ethical and moral practice, as illustrated by a student who used a watch and nature corner as metaphors for ethical practice:

The nature corner shows that comprehension should progress naturally over time; nature shows us to be patient and not reinforce quick "cheap" methods. Instead invest in worthwhile activities. The tins of plants show the slow progress occurring; each step is necessary to allow the learner to develop without gaps. (NWU student: Pair 4. See Appendix 8)

Critical reflection as prerequisite for transformative learning includes the questioning of one's own assumptions and a possible change in one's own theory of practice (Briscoe, 2017; Brookfield, 2017). Although explicit evidence of transformative learning was sparse, reference was made to the need for transformation in literacy teaching practice, as demonstrated by the NWU student when she reflected on possible flaws in the approach to literacy education in her country:

What I did like about this collage is that it didn't limit reading to school which is what I feel happens so often here in South Africa. My reflection buddy just made school a small part of the reading process which is what I feel needs to happen here. (NWU student reflective journal: Pair 9)

The above quote shows an awareness that a moral teaching practice should have impact beyond the classroom or school context (Neal et al., 2013); moral teaching will therefore ensure that learners are prepared to apply their knowledge and skills as lifelong literacy learners. Such an awareness holds promise for transformative learning (Mezirow, 1991, 1998).

Reflecting on each other's collages provided an opportunity for critical reflection on the way the student teachers themselves accommodate diversity. One student expressed surprise that her buddy used words instead of pictures to compile her collage: "For me that was an eye opener. It taught me to view things in a different perspective" (NWU student reflective journal: Pair 10).

The above student acknowledged her own presumption of what a collage should look like. Becoming aware of different approaches to reflecting on her own journey and accepting diversity could also later play a role in her own approach to practice. It is exciting to think that this

collaborative critical reflection has instilled in some students an awareness of ethical and moral practices that are core to social justice practice.

The role of the technology used in collaborative learning over a distance

To ensure that the technology used was accessible to all and served the purpose required (Resta & Laferrière, 2007), students were given the option to use either email or WhatsApp messages to communicate, since most students are familiar with the use of these platforms. Although limited research could be found on the use of WhatsApp for collaborative learning by pre-service teachers, there is confirmation that it can be used successfully for collaborative learning in other contexts (Kaufmann & Peil, 2020; Udenze & Oshionebo, 2020; Ujukpa et al., 2018). After pairs were linked up via email, most decided to switch to WhatsApp for the collaboration. This platform is popular due to its immediacy and is also regarded as an informal, user-friendly, and inexpensive way to communicate, as illustrated by the following email message:

I apologize for the late response but I only have access to my emails when I'm on campus since I do not have wifi at home. Do you perhaps have WhatsApp so we can communicate more in depth on that platform or are you okay with using e-mail? (Pair 10)

WhatsApp is the most popular social media platform in South Africa (Shapshak, 2015), and in 2021, the country had the second-highest percentage of WhatsApp users worldwide (Rollason, 2021). It appeared that South African students were keener to use WhatsApp than some of their Canadian buddies, who, in more than one group, indicated that they were not familiar with WhatsApp and preferred email. Its popularity with the NWU students could be partly due to the free access to Wi-Fi on campus and at most places where students get together. Group members decided together which platform they were both comfortable with. One pair who decided to stick to using email communications encountered difficulty in sending the collage images, which caused a delay in the collaboration process.

Although some students quickly figured out the difference in time zones, one student commented politely that she received the message from her South African buddy quite late at night. Nevertheless, WhatsApp sped up the communication process and was used successfully as a platform for continuous and sustained communications and reflections. Taking photos of collages with their cell phones and immediately attaching these images to a WhatsApp message was used successfully for sharing collages and to collaboratively reflect on the images and reflections (see Appendix 1). One South African student even sent a voice message to demonstrate to her Canadian buddy how to pronounce her African name.

The communication between students who used email tended to be more formal than that on the WhatsApp platform, where emojis and pictures were used abundantly to add humor and emotion to the conversations. However, providing students with a choice is also an ethical consideration. Since WhatsApp messages are received on personal cell phones and senders often expect that messages will be answered immediately once received, some students may view this medium as an intrusion of their personal space, as mentioned by Kaufmann and Peil (2020), whereas emails are stored in the inbox of one's computer to be opened when convenient. Students may also have been hesitant to share their private cell phone numbers with a stranger on the other side of the world.

Although both email and WhatsApp as platforms proved viable options for reflective asynchronous collaboration, WhatsApp communication sped up the process and had video call and

group video call options, making this platform more versatile than email and a platform that could easily be used for synchronous collaborative learning across continents.

Barriers hampering the collaborative reflective learning

Reflecting on the barriers that may have hindered collaboration helped us to understand how to revise the collaborative learning experience to strengthen critical reflection and transformative learning as an outcome.

Aside from the diverse contexts of the two universities and the difference in the time frame set for the academic year in the respective countries and consequently a disparity in university vacations, students and researchers also had to work around the different time zones, which required some patience and checking on time differences that slowed down the communication process. The diversity of students, while advantageous, was also challenging, since there was no prior relationship between participants. Consequently, sharing openly and finding common ground took time.

Some students showed enthusiasm to collaborate; however, not all students were motivated to participate. The following serves as an example of a disappointed student who eventually lined up with another disappointed student at the same university, whose buddy was also not interested in participating in the collaborative learning project: “When I first heard that we would be communicating with a buddy overseas I was so excited to have someone to share information with, learn from each other and grow together. I however experienced the contrary.” (NWU student reflective journal: Pair 12)

It is acknowledged that students have different learning styles and that some students may not appreciate collaborative learning. However, it is important to identify and incorporate strategies to motivate students to work and reflect collaboratively, not only to develop critical reflective skills but also as preparation for meaningful engagement with fellow teachers in a future teaching position.

Suggestions for modifications to foster deeper critical reflection

Informed by the findings, the following adapted strategies are suggested for cross-cultural collaborative learning experiences to foster critical reflection by pre-service student teachers as final step of the AR cycle:

- Creating an awareness with students of the place of critical and collaborative reflective learning with peers in socially just practice before the onset of the collaborative learning experience.
- Equipping students with the skills necessary to critically reflect before commencing with collaborative critical reflective tasks.
- Equipping students with sufficient knowledge and skills of critical reflective writing.
- Scaffolding continuous critical reflection and self-reflection, such as guided self-questioning and reflective journaling throughout the collaborative learning process.
- Instilling a willingness to challenge assumptions and beliefs as a key component of engaging in critical reflection and transformative learning.
- Extending the collaborative learning across a longer timeframe for deeper reflection based on a stronger relationship.

Limitations of the Study

The collaborative reflective learning experience provided us with a useful framework for redesigning future collaborative learning opportunities across teaching and learning contexts. However, some limitations need mentioning.

The choice of technology plays an important role in collaborative learning across countries. Students were not asked to reflect or report on their experiences of the technology used, and this study would be stronger had we included this component in our methodology.

We recognize that the time frame for this project was interrupted on many occasions, and it did not provide the depth of time required to dive deeply into critical reflection. Although evidence of the value of collaborative reflection across contexts emerged from the data, many participants in this study did not show an awareness of the true purpose of reflective writing.

We also recognize that we assumed that all students would know how to write reflectively, posing questions and wondering about the art of teaching and learning. Stronger scaffolding for the development of critical reflective skills over a longer timeframe could heighten critical reflection through collaborative activities across teaching contexts to also support transformative learning.

Conclusion and Recommendations for Further Research

Several factors influenced students' engagement in critical reflection. Apart from the ability and motivation to establish a relationship with other group members, critical reflective skills and the choice and use of technology also play key roles in successful collaborative critical reflection over a distance.

Typically, teacher education programs strive to support student teachers to move from a surface level of reflection (considering classroom structure and lesson planning) to a deeper level of critical reflection (rationalizing classroom management and pedagogical decision-making with consideration of ethical and moral practice). In the deepest level of critical reflection, students are able to recognize and name assumptions and beliefs that have shaped who they are as educators and are willing to disrupt or reconstruct their mode of thinking.

We believe that engaging pre-service teachers from different teaching contexts in collaborative learning was an elevating experience for most students. The collaboration across diverse contexts holds potential as a first important step to open pre-service teachers' minds to acknowledge and recognize the bigger realities and commonalities concerning issues in education. The most beneficial aspect of collaborative critical reflection is the potential to impact future teaching and learning efficacy in the classroom. Despite the barriers and challenges, we are convinced that such collaborative experiences might prepare individuals as critical reflective teachers who are able to collaborate with fellow teachers to continuously improve their practices. It is our hope that this experience has exposed young educators to the possibilities and potential of being part of a critically reflective setting and that our work will serve as groundwork for follow-up studies that could accommodate the suggested modifications.

Acknowledgments

This work is based on research supported in part by South Africa's National Research Foundation (NRF) (Grant number 113598). Apart from providing funding to conduct the research, the NRF

had no involvement in the study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the article for publication.

The study was presented in part at the virtual summit Self-Directed Learning for a Changing World, sponsored by the International Society for Self-Directed Learning, February 3–5, 2021.

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Dr Jan Buley finds joy in learning, teaching, storytelling, noticing the world, and gardening. She completed her PhD at the Steinhardt School of Education at NYC, examining the assumptions, beliefs, and contradictions of family engagement in schools. Jan is always keen to collaborate on arts-based ventures and is especially passionate about learning with and from those who feel they have no voice. Jan often declares that she is the luckiest person on the planet, teaching education students at Memorial University in St. John's Newfoundland, Canada. She believes that the best teachers are five, six, or seven years old.

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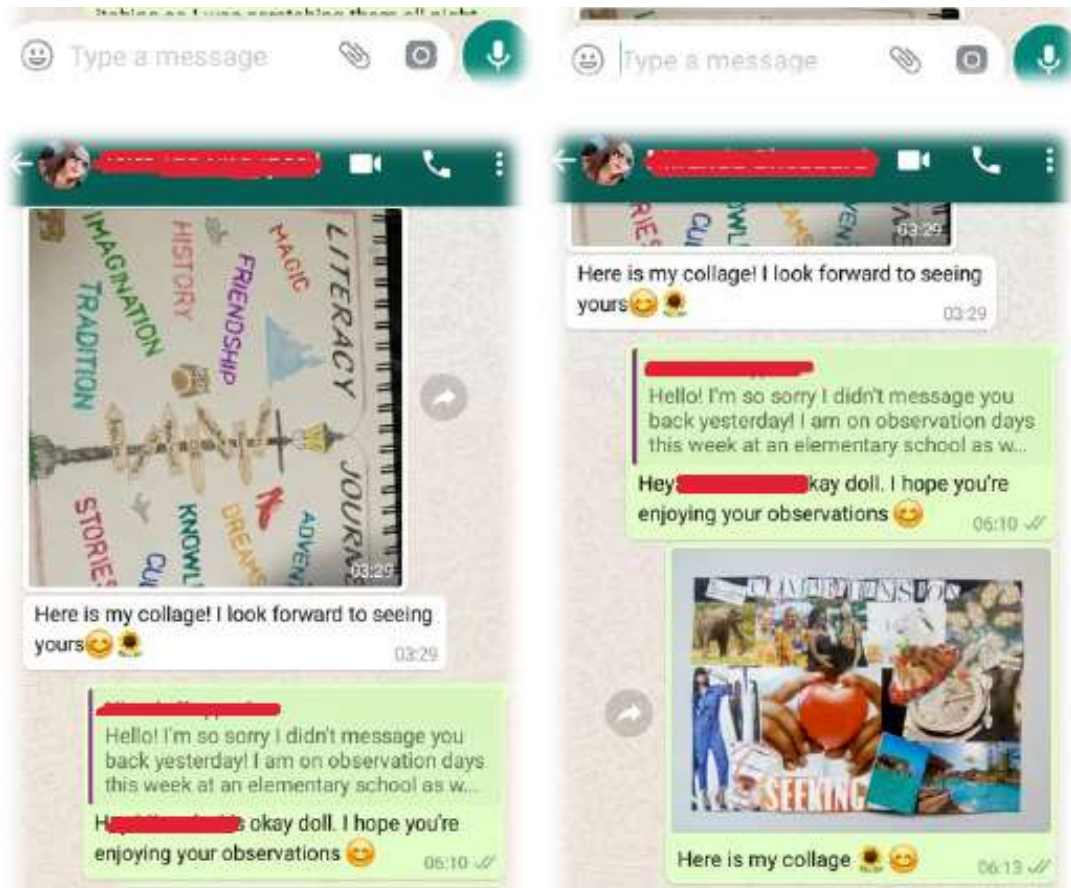
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Appendix 1

Examples of Student Communication via WhatsApp



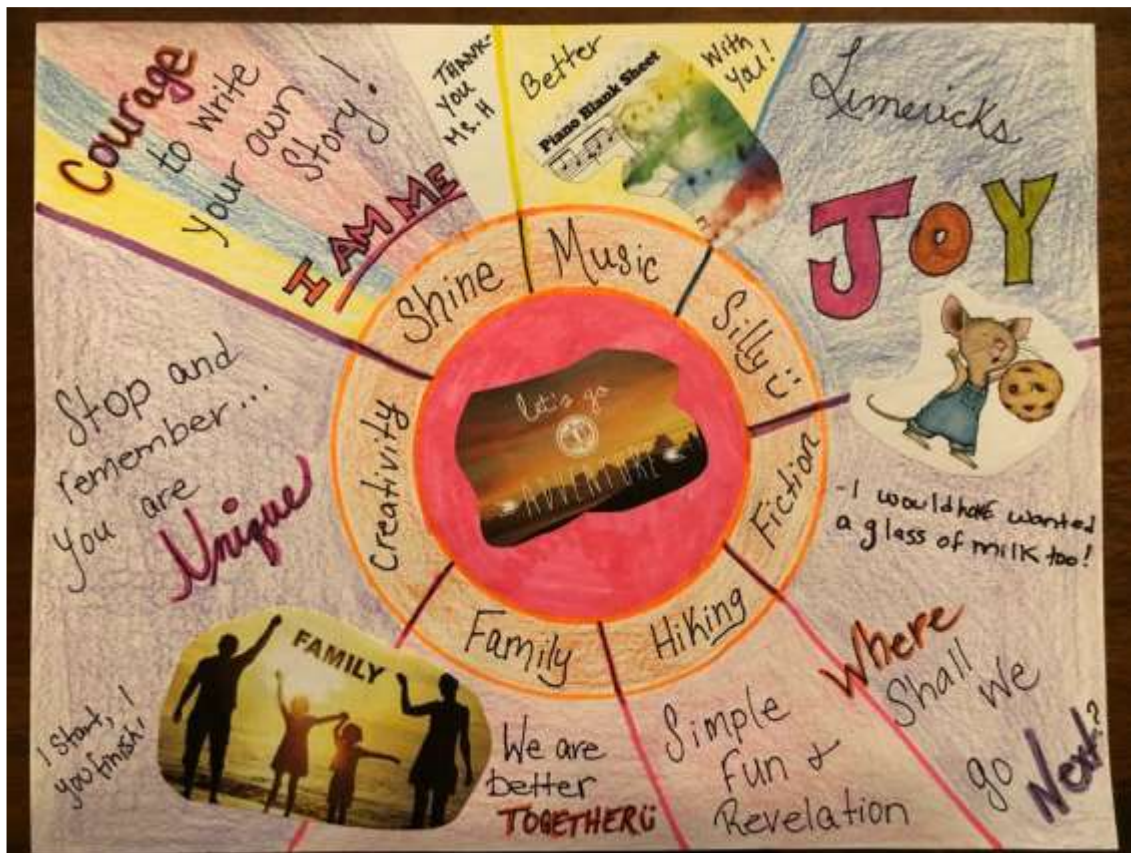
Appendix 2

NWU Student Collage



Appendix 3

MUN Student Collage



Appendix 4

MUN Student Collage (Pair 4)



NWU Student Collage (Pair 4)



Appendix 5

NWU Student Collage—Diversity



Appendix 6

NWU Student Collage—Diversity



Appendix 7

NWU Student Collage—Child Development

