Using Learning Maps to Foster Sense of Belonging in Elementary Students

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Abstract

Teachers have always known about the importance of positive adult and peer relationships in the classroom. However, time and curriculum pressures can lead some teachers to avoid developing an interconnected learning environment that enhances students' sense of belonging. The purpose of this study was to explore how to foster an elementary classroom learning environment that develops a rich sense of student belonging. The researcher was also examining their teaching experience in this process, especially related to refining their practice with academic and social collaborative learning. The researcher sought to answer two questions: 1) What is the experience of a teacher using various teaching practices including student learning maps and collaborative learning to advance their capability of fostering students' sense of belonging? and 2) To what extent can learning maps act as an indicator of change in students' sense of belonging? The researcher's three sources for data were a literature review on sense of belonging and collaborative learning, a researcher's reflective journal over five months, and action research producing a series of three student learning maps completed over the same time. Analysis of the data revealed academic and social benefits of students' sense of belonging, effective strategies for collaborative learning, and the researcher's teaching experience in fostering sense of belonging in their students. It is proposed that learning maps, while having many limitations, can be used to indicate change in students' sense of belonging through examining changes on student's maps over time in a ratio of students' areas for growth compared to students' strengths and connections. Finally, the researcher explains that their own journey as a new teacher with collaborative learning and sense of belonging mirrors the experience of his own students.
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Chapter 1: Introduction

Purpose of the Study

The purpose of this study is to explore teaching methods that may foster students' sense of belonging. I believe sense of belonging is a critical factor in student and teacher growth and learning, and I hope to achieve a greater proficiency in fostering students' sense of belonging. I expect to utilize peer collaboration for both academic and social development, vertical learning spaces, co-learning with other classes, and other teaching practices to support my study and practice. I believe by reflecting regularly on teaching practices I can better monitor and improve my own development in ability to foster sense of belonging. The second purpose of this study is to examine to what extent learning maps can act as an indicator of sense of belonging and as evidence of change in student collaboration. I believe that learning maps are a unique, graphic tool that elementary students can easily understand and apply, and which may visually demonstrate changes in collaboration and level of belonging over time.

Justification of the Study

In my teaching experience, students need to feel a sense of belonging in their classroom before meaningful, long-term learning can take place. Students need to trust their teacher and their peers and know that they are safe and valued within their learning community. Students can also be excellent supports for learning for each other (Wiliam & Leahy, 2015). When students learn to help others, they also improve their own understanding, and they learn how to contribute to their own class community and the greater school community. Students completing group work also report being more motivated and being more creative in their work (Taqi & Al-Nouh, 2014). Student groups that feel a positive sense of belonging and function well “can have
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a beneficial effect on the morale, motivation, and self-image of its members, and thus significantly affect their learning" (Hadfield, 1992, p. 10). Furthermore, Hadfield (1992) explains in *Classroom Dynamics* that it is the teacher's role to pay attention to group process dynamics and to shape a peer learning environment that is fun and interdependent. Helping each other to learn, learning from giving help, being more motivated and creative, and contributing to positive, energizing atmosphere are all learning benefits for students and teachers and all stem from developing student sense of belonging in the class.

In a report on student engagement and sense of belonging for the Organization for Economic Operation and Development (OECD), Willms (2000) concludes that on average, "one in four students are classified as having a low sense of belonging" (p. 25). This result was consistent across the thirty-five OECD countries studied including Canada. This suggests that in a typical class of twenty-four students, I could expect on average six students who might be lacking a strong sense of belonging to their environment. For all these reasons, I feel that creating an environment that fosters a deep sense of belonging within our class is essential to my practice, and will require me to extend and refine my teaching practices to achieve this result.

The new BC curriculum has six core competencies, some of which relate closely to developing student sense of belonging ("Core competencies", n.d.). Through the Positive Personal and Cultural Identity competency, students explore their self-worth and self-awareness and learn how they can contribute to different environments in their lives, including their own class. Relationships, personal values, and personal strengths and abilities are three key components of this core competency. The Communication competency includes connecting and engaging with peers to share and develop ideas, collaborating on learning projects, and reflecting on experiences and accomplishments. Finally, the Social Responsibility competency guides
students to develop their community-mindedness, and to take steps to support their community, including their learning community. Students will develop their problem-solving skills, practice valuing diversity, and learn through practice how to build positive peer and staff relationships. These core competencies support the importance of molding a classroom environment where students actively and purposefully contribute to and develop their sense of belonging.

Lastly, student learning maps present themselves as a unique graphic tool for students to express their personal connections to their peers, their family, and their overall learning network. Learning maps are student-made drawings on 12" by 18" poster paper that display their peer and staff support network, their strengths, and their areas for growth (Goessman, 2017). Though there appears to be limited existing literature about using student learning maps in this manner, I believe they are a dynamic tool for elementary students to visually express their feelings. Learning maps are very engaging, they do not require a strong literacy background, and they are easily interpreted and expanded as students further develop their strengths and connections, and ultimately their sense of belonging.

Context

Although I have been teaching for fifteen years, I am new to teaching grade 3-4 and new to an elementary school. As a researcher, I need to acknowledge some of my personal bias and experience with groups and sense of belonging. I have many years of experience working with youth before becoming a teacher. In these years, I was an outdoor instructor and guide, and guided many groups through the team formation process. I have a strong sense of the importance and universality of a sense of belonging to a group. I also carry a bias from my experience as an elementary youth where I moved multiple times and I struggled with feeling a strong sense of belonging in my schools. In the course of this study, I will also consider how my
current sense of belonging develops in my new role. How am I welcomed and made to feel accepted? What important peer connections emerge for me and my sense of belonging? What risks will I take to expand my teaching network? My experience may mirror that of my students or may be a completely different story, but either way it will colour my research lens to some degree.

**Research Questions**

On account of the new British Columbia curriculum's emphasis on core competencies including Positive Personal and Cultural Identity, Communication, and Social Responsibility, and because of evidence from the literature on the importance of students' sense of belonging to learning, I chose to explore the following questions:

What is the experience of a teacher using various teaching practices including student learning maps and collaborative learning to advance their capability of fostering students' sense of belonging?

To what extent can learning maps act as an indicator of change in students' sense of belonging?

**Definition of Terms**

Sense of belonging and learning maps are general terms that could mean very different things to different educators. It's important to clearly define how these terms are being understood and applied in this study. I define *student sense of belonging* as the feeling a student senses when they know they are safe, welcomed and valued by their school, staff, and peers and they in turn make meaningful contributions to their learning environment. It is a sense that develops over an entire school year, and can change rapidly depending on changes to the learning environment. For example, one of my students may move mid-school year, and her best
friend in my class is already showing anxiety over this possibility. Her sense of belonging depends strongly on her peer network and this best friend in particular. One way to look for signs of changes in sense of belonging is to ask students to create and add to learning maps multiple times during the school year.

It is important to note the specific meaning I am assigning to the term learning maps because there are other similar sounding terms in education like concept map and mind map. I define learning maps as a teacher-led student self-reflection multi-stage graphic process. Students draw themselves in the middle of a page, and then draw thick arrows to people who support their learning, to people that the student supports (sometimes this may be reciprocal), and to strengths that the student self-identifies. Next students draw thin arrows to areas for growth. This finished learning map is posted with the class and evolves over time as students can add new arrows, can thicken existing arrows, and can turn areas for growth into strengths (Goessman, 2017). I suggest for this study that changes on students' learning maps can act as indicators of sense of belonging. For example, by comparing a student's initial learning map and the lines of connection to supports to the same student's final learning map completed months later, I anticipate I will be able to count changes in levels of connection and quantity of strengths, thereby perceiving changes in the student's sense of belonging.

A different method of gathering evidence of changes in sense of belonging could be to ask students' survey questions, or even to ask them to write reflections about how they feel about their peers and adult supports. I believe other methods could also measure changes in belonging, but for my target study group I believe the process of drawing and adding to learning maps is highly engaging and motivating for my students, and as such, may yield rich data that otherwise students might find difficult to express orally or in written form.
When considering how I guide my teaching practice to better foster sense of belonging, I suggest all aspects of my teaching practice are open to reflection and refinement. There is need for improvement in my teaching approaches, such as enhancing my use of collaborative learning or integrating new literacy approaches, especially since I am mostly new to teaching grade 3-4. Adjusting how I teach content is as important to me as improving how I implement cooperative learning activities that support group learning and interaction, such as introducing multiple vertical whiteboard surfaces throughout the class. Finally, I am hoping to improve my relationship-building skills with all connected parties including my students, their parents, our staff and formal leaders, our school PAC, and with community connections. The skills needed for my growth include seeking collaborative opportunities such as buddy reading, providing excellent communication between home and class, and by being open to peer input and feedback supporting my teaching practice. In considering the various parts of my practice which are open to refinement, these are all the experiences I hope to observe and write about in my researcher's journal. For example, I may discuss how a change in classroom seating is impacting student interaction, or I may share the outcomes I observed from trying a new literacy approach. I hope to share successes and reflect why I think a certain approach worked, as well as challenges and to reflect on what I can do differently next time.

**Brief Overview of the Study**

In this study, I used initiative games, peer collaboration, partner reading, and other teaching practices to help foster a greater student sense of belonging. One method to collect evidence of sense of belonging is through reviewing changes in student learning maps throughout the research period. I counted how many support connections students had on their maps and the types of supports to see how the overall level of connectivity changed. I also
investigated changes to students' areas of growth and in their school subject strengths over time. In doing so, this action research explores the ways in which learning maps can act as indicators of change in students' sense of belonging. Over the same time frame, I also recorded and looked for themes on evolving practice in my ongoing researcher's journal. This self-study of my practice examined my experience in using learning maps as well as my experience in applying different teaching methods to foster students' sense of belonging. The results are expected to be significantly beneficial in improving my practice both as an academic teacher and as a teacher who can foster a powerful sense of belonging for students.
Chapter 2: Literature Review

Sense of belonging will be discussed using three themes. First, I will examine the importance of the role of sense of belonging and student learning, including factors like motivation, academic achievement, and student classroom behaviour. Next I will look at both the impact of peer and teacher relationships on students’ sense of belonging. A large study of all grade 6 and 8 New Brunswick students and their sense of belonging will be presented in detail. Lastly, I will examine different teaching strategies that I can adopt into my practice for fostering students’ sense of belonging, including the use of reflective learning maps.

Importance of Sense of Belonging for Student Learning

Elementary teachers and schools in general strive to create learning environments where children are safe, welcomed, and feel a positive sense of belonging. According to the National Council for Curriculum and Assessment (2009), "When children feel a sense of belonging and sense of pride in their families, their peers, and their communities, they can be emotionally strong, self-assured, and able to deal with challenges and difficulties. This creates an important foundation for their learning and development" (p. 25). This report suggests that students with strong sense of belonging and connectedness are better prepared for their learning and growth. But what occurs when students do not feel connected to their classroom?

Harvard Graduate School of Education researcher Myra Laldin (2016) discusses what can happen in a learning environment that does not foster a sense of belonging. She explains that a student who does not fit in, such as a student from a minority group, may use some of their mental energy to scan for threats. Laldin (2016) notes, "When students feel as if they don’t belong in a school setting, the cognitive energy that should be used on social engagement and learning is being used to scan for group barriers, discrimination and stereotypes" (p. 1).
Conversely, when the learning environment is welcoming and safe, students' physical and cognitive energy can focus on positive social interactions and learning.

The OECD report on student engagement and sense of belonging provides seven findings they feel that are statistically significant and apply to most countries within their study which includes Canada (Willms, 2000). Their study was with 15 year old students. One finding suggests that sense of belonging does not have to come at a cost to learning, but in fact has a positive correlation of about 0.50 with academic development. Another finding states that females and males are equally likely to struggle with a low sense of belonging. The OECD report also explains that there are three key risk factors that impact students' connections with school. These are, "living in a family of low socio-economic status (i.e., in the lowest national quartile for the country), living in a single-parent family and being foreign-born" (Willms, 2000, p. 54). This last finding is important to my school location context. My community is a small factory town, and many students are international and move in and out regularly. I have multiple students who are foreign-born and have little sense of connection to our overall community, their school or peers, and I need to be sensitive to this need. This also connects with Laldin's thoughts on students using their mental energy to focus on safety and scanning for dangers rather than on learning. Finally, the OECD reports that school resources and school size are not critical factors to student engagement, but that student sense of belonging and participation is strongly connected to the culture of the school and that school staff contribute to fostering a positive culture (Willms, 2000). Overall, I can see the importance of staff creating a welcoming culture that promotes sense of belonging and builds on the strengths of students who already feel that connectedness. Stronger students can support their peers in different ways in class learning, slowly spinning a web of learning interdependence. Supporting peer growth is vital for
developing sense of belonging for both sides of a peer relationship.

The academic and social value of developing a strong sense of belonging continues from secondary school and into college. Pittman and Richmond's (2007) research with 266 first year college students looked at their sense of belonging during their second semester and their academic success. Measuring students' sense of belonging during the second semester and not the first allowed for more time for students to build meaningful relationships with peers and staff and get over the initial challenges when entering college. Students were asked to report on both their current sense of belonging as well as their previous feelings towards their secondary school. Results from the study show that "both university and high school belonging significantly predicted academic adjustment. In particular, students with higher levels of university belonging had better grades and higher levels of perceived scholastic competence" (Pittman & Richmond, 2007, p. 290). These positive outcomes held true even when accounting for other strong influencers including parent and peer relationships. I would suggest that sense of belonging is a powerful emotion that influences students throughout their entire education journey.

Bouchard and Berg's (2017) qualitative inquiry looked at similarities and differences in how both Grade 4-8 students and their teachers define and develop a sense of belonging. Individual interviews were completed with seven students and four teachers. Belonging was seen as fundamental by the students. Students explained that a sense of belonging meant they could focus on other aspects of school. "...[S]tudents described belonging in terms of its importance to subsequently focus on additional tasks that were important to them, such as establishing friendships and completing school work" (Bouchard & Berg, 2017, p. 118).

Students gave specific examples of actions that teachers took that helped foster their sense of belonging. While direct academic help was a critical support, students also explained
they wanted teachers to understand the complexity of their lives, and then to support their social-emotional needs and sense of belonging with direct actions (Bouchard & Berg, 2017). Students reported that they expected teachers to help them solve social challenges while monitoring how they fit in with their peers. Furthermore, students expressed that they wanted the opportunity to reciprocate this relationship, and to get to know more about their teachers. The ability to contribute to the student-teacher relationship was important in fostering a sense of belonging.

While teachers and students agreed on the importance of peer relationships in terms of sense of belonging, both groups differed on the role of the teacher (Bouchard & Berg, 2017). Students strongly felt that teachers had a responsibility to help students make friends and to directly help students resolve peer conflicts. This is contrary to the teachers’ view that they had little influence on peer relationships and that teachers generally did not get involved with shaping peer groups. This interesting finding shows me that students are looking to their teachers for support in developing their peer relationships. Furthermore, this finding supports of the importance of sense of belonging and my desire to improve my ability as a teacher to foster students’ sense of belonging in the classroom.

Finally, the study shares the value of teachers providing collaboration opportunities throughout the school day. "The results from this study do suggest that the pleasure gained from sharing with friends in class and school activities is central to students' belonging development" (Bouchard & Berg, 2017, p. 129). I would contend that well-designed collaborative activities meet both key student needs: they provide engaging and meaningful learning while exercising and strengthening peer relationships within the class, and thus are important to study.

**Sense of Belonging and the Role of Peer Relationships**

Peers play a pivotal role in supporting a sense of belonging for their friends. They can
affect student motivation, engagement in extra-curricular activities, and classroom behaviour. In a study of positive development and sense of belonging for youth aged 12-13 and adults working with youth, Drolet and Arcand (2013) examined both perspectives through surveys and interviews. Youth reported that having friends and feeling accepted was critical to them, not to be popular as many adults might assume, but rather to feel a sense of belonging (Drolet & Arcand, 2013). The youth in this study also shared the importance of extracurricular school activities as part of creating friends and that these activities are a fun, shared experience with their peers. These findings, which represent the youth’s perspective, are important factors for fostering and maintaining a sense of belonging in a class and in a school. In a study with older students, researchers looked at what type of effect peer group work created on students’ attitudes towards learning.

Taqi and Al-Nouh (2014) examined the learning experiences of 40 female undergraduate language students in Kuwait. They used observation, quantitative data from exam results, and qualitative data from interviews to form their findings. For comparison of findings, a student control group did not participate in group work learning experiences. Taqi and Al-Nouh (2014) found that group work students achieved higher grades during the group work period, but that these grades dropped when the same students returned to individual learning. Other interesting results emerged from their qualitative interviews with students. 77.5% of students in their study preferred group work over learning individually (Taqi & Al-Nouh, 2014). Furthermore, "all the students who preferred group work felt that it is more motivating. 54.8% felt that the work they presented was more creative" (Taqi & Al-Nouh, 2014, p. 60). Along with increased learning motivation and creativity, students also reported feeling an obligation to do better work in order to help their group members. The researchers also note that most students made new friends in
the class and that students seemed to enjoy the class more because of participating in group work (Taqi & Al-Nouh, 2014). Finally, the researchers noted improvements in some social skills, including students showing more courage to present their views, regardless of their academic standing. All these benefits combined encourages me to provide meaningful group work experiences for my students throughout the school year.

A research finding that is concerning is the negative impact that peers can have on each other in regards to belonging and school success. Juvonen, Espinoza, and Knifsend discuss research findings related to the role of peer relationship and school success in the extensive *Handbook of Research on Student Engagement* (2012). Juvonen et al. suggest that peer influence is significant, both positively and negatively, on school success. "Cook and colleagues discovered that students with all-around adjusted friends spent more time doing homework and in extracurricular activities, and were absent less frequently, than were students with friends who obtained lower grades and engaged in drug use or other misbehaviors" (Juvonen et al., 2012, p. 391).

Similarly, Berndt and Keefe (1995) found that student classroom engagement can change positively or negatively as a year progresses, depending on how they view their three best friends' classroom behaviour at the start of the school year (Juvonen et al., 2012). While these results pertain to grades 7 and higher, they suggest to me the importance of creating opportunities for all students within a class to interact with positive peers. Within my class, I have one particularly strong peer group who are academically and socially successful. If they were given the choice, this positive clique of students would sit and work exclusively together, since much of their outside school time is also spent together. I feel it is beneficial for my other students to learn cooperatively with these engaged students as a form of positive peer influence.
From the different articles reviewed on peer influence, I hope to implement activities in my classroom, and with my peers, that strive to foster improved peer relationships, with the ultimate goal of improving students' sense of belonging.

**Sense of Belonging and the Role of Adult Relationships and the School Climate**

While peers are clearly critical for a student's sense of belonging, so are school staff and youth workers. Drolet and Arcand (2013) reported on how teachers and youth workers relate to students at school. From their survey and interviews, they found that school staff show their caring nature through several means including giving youth positive feedback and discreet recommendations, being generally supportive to youth, and by taking student concerns seriously. The adults in their study stressed the importance of developing trusting relationships and having an awareness of student needs, problems, and strengths (Drolet & Arcand, 2013). These adult traits are meaningful for elementary teachers for developing student sense of belonging, especially with younger students or new students who may only have a small peer network for support. A New Brunswick study looked at the role of students and school climate in shaping student sense of belonging using a large student data set.

Researcher Xia Ma (2003) suggests most education studies about sense of belonging assess the education benefits for students, and that a gap in research exists about how school environment can affect students' sense of belonging. Ma's study was based on survey data from 6883 Grade 6 students and 6868 Grade 8 students from New Brunswick's Anglophone school system. Because all students in Grades 6 and 8 participated in the survey, the two data sets are unique in that they represent the entire population and not just a sample of the student body (Ma, 2003). The author explored three questions: (1) is there any variation in students' sense of belonging between students and between schools, (2) if there are differences, then what student
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characteristics are creating these differences, (3) if there are differences in sense of belonging between schools, what school features are responsible? Specifically in Question 3, Ma asks, "Do students in schools with a positive climate (academic press, disciplinary climate, and parental involvement) have a better sense of belonging than do students in schools with a negative climate in Grade 6 and 8" (2013, p. 342)?

Ma's research method was a secondary data examination of the 1996 New Brunswick School Climate Study (NBSCS) database (2013). The NBSCS asked students to respond to questions like “I feel like I belong at this school”, and "Often I feel awkward and out of place" on a scale of 1-5 in six categories. The NBSCS grouped independent variables into either school characteristics including discipline climate, academic climate, and parental involvement, or into student characteristics including gender, social-economic status, family composition, and self-esteem. The NBSCS developed and applied five point scales for school characteristics, and used the Self-Description Questionnaire for recording self-esteem (Ma, 2013). The NBSCS also used the five point general health scale as developed by the World Health Organization. Ma used results from provincial achievement tests for measuring academic achievement (2013). This included rich data from reading tests, two writing samples scored by a teacher panel, and results from provincial mathematics and science tests. Lastly, Ma used hierarchical linear modeling (HLM) techniques which allowed Ma to compare school to school results as well as grade to grade outcomes within a single school. "HLM simultaneously investigates relationships within and between hierarchical levels of grouped data, thereby making it more efficient at accounting for variance among variables at different levels than other existing analyses" (Woltman, Feldstain, MacKay, & Rocchi, 2012, p. 53). Ma's results give insight into how schools and students impact students' sense of belonging.
One interesting result is that there appears to be little difference in sense of belonging, self-esteem and general health from Grade 6 to Grade 8 (Ma, 2013). For example, the mean score for self-esteem for Grade 6 was 3.78, and for Grade 8 was 3.77. In other words, the variables that impact a student in Grade 6 continue to do so in Grade 8. However, there were notable differences at the school level between grades. The Academic Press mean score for Grade 6 was 3.72 compared to 3.58 for Grade 8. The Parent Involvement mean score for Grade 6 was 2.27 compared to 1.90 for Grade 8. Ma reports that these two variables had the largest differences at the school level.

Ma (2013) used effect size as a common measure to show the practical significance of an effect. Effect sizes (ES) of more than 0.5 standard deviation (SD) are considered large (Ma, 2013). "Students with higher self-esteem reported a more positive and statistically significant sense of belonging than did students with lower self-esteem (ES = 0.72 SD, a practically large effort)" (Ma, 2013, p. 346). Two other variables with moderate effect sizes were gender (Grade 6 girls had a higher sense of belonging than boys, ES 0.47 SD), and general health (students with better health had a higher sense of belonging, ES 0.44 SD) (Ma, 2013). When these three variables are combined, they have a statistically significant impact on student sense of belonging. In other words, according to Ma (2013), "student-level characteristics played a critical role in sense of belonging at school" (p. 346). It is interesting to note which variables did not have a moderate or large impact on sense of belonging. Social-economic status had no effect on sense of belonging in Grade 6, and only a small effect in Grade 8. This suggests to me that students are resilient in the face of poverty and can still have a positive sense of belonging at school, regardless of their family economic status.

Ma provides a noteworthy discussion about the relationship between self-esteem and
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Ma (2013) suggests that students with higher self-esteem in the form of confidence in their own abilities are likely to participate more in school activities. Participation in these activities at school can in turn foster greater sense of belonging and esteem. I can think of my own students who already seem confident and who are the first students to volunteer for school tasks and the first to join school clubs outside of the classroom. Ma speculates that the relationship between self-esteem and sense of belonging is circular in nature and I support this idea having seen this relationship in action with my Grade 3 and 4 students. Lastly, at the school level, Ma discusses the difference in results between school climate variables and school context variables. School climate variables had statistically significant effects on students' sense of belonging, but school context variables did not. Ma (2013) points out the importance of this result is that school staff can directly impact school climate and students' sense of belonging on a daily basis, but school context variables like school size and social-economic status are not within staff control. In short, the answer to Ma's article "Sense of Belonging to School: Can Schools Make a Difference?" is yes that both staff and students have numerous ways to make a statistically significant difference in their learning environment. It is my intention to utilize the information learned from the importance of staff relationships with students to improve my practice in fostering students' sense of belonging in my classroom through our relationship.

Strategies for Developing a Sense of Belonging

Strategies for developing sense of belonging in a classroom will be explored and tested throughout the school year. The literature provides examples of how sense of belonging can be fostered within groups. Cooperative games and initiative games can be used to develop sense of belonging by providing structured activities that build trust, communication, and reliance, while having fun. Cooperative games can be a one-time activity but they are much more powerful as
part of an ongoing progression of group initiatives. This progression necessitates time as a vital factor for groups to develop their trust, respect, and acceptance of each other (Pham, 2017). Helpful examples of group bonding activities are provided by Pham (2017) for the start of an EFL course, for the middle, and for the end of the course. These group games also double as English language activities. While many teachers may employ some get-to-know-you games and activities at the beginning of the school year, it is important to weave cooperative challenges throughout the school year to strengthen student interconnectedness through increasingly difficult games that require deeper problem solving and teamwork. At the same time, these activities can be tied to curriculum with a little imagination, such as building a group rope web for a trust activity, and also linking it to food webs in science.

Liljedahl presents strategies for developing a thinking classroom that activates students to collaborate in order to solve problems (2016). His motivation came from observing students in a traditional math classroom who give up quickly when faced with math problems and showed little effort to think for themselves. He visited other classrooms and found similar environments where students were unengaged when it came to solving math problems. Liljedahl provided a series of workshops for secondary teachers wishing to improve student engagement levels. The strategy they learned and adopted was having students work in groups to solve math problems using vertical surfaces throughout the classroom. Liljedahl reports that "groups that worked on vertical whiteboards demonstrated more thinking classroom behaviour – persistence, discussion, participation, and knowledge mobility – than any of the other type of work surface" (2016, p. 10). It is clear that this change in instructional practice was effective in helping students engage more deeply with each other and with learning. In a follow-up study with 300 teachers completing training in this technique, Liljedahl reports a very high adoption of this vertical
problem-solving approach by teachers. 98% of teachers reported that they intend to keep using non-permanent vertical surfaces after six weeks of using them in their classrooms (Liljedahl, 2016, p. 14). I can see why students are attracted to this type of learning on vertical surfaces. I see in my own class restless students who lose focus in their seats during traditional instruction. I can see how working together in small groups to solve learning challenges, not just in math, would be more fun, more engaging, and would ultimately contribute to a better sense of belonging, rather than learning through listening while sitting alone at a desk.

Iverson (2015), an elementary teacher, applied many of Liljedahl's approaches into her classroom learning environment. In her practical handbook "Building a classroom environment to promote student ownership and empower engagement of learning" (2015), Iverson extends the idea of randomized grouping for vertical math into selecting randomized pods twice a day, every day, as a means of encouraging her students to interact and support each other. She states, "This has been so powerful for them because they are getting opportunities to take risks, to learn how to work productively as a group, to be accountable for their learning, and to be supportive of their group mates" (Iverson, 2015, p. 7). Furthermore, she saw new friendships forming, higher motivation levels, and students who were typically withdrawn becoming more engaged in learning. Iverson also shifted her practice to include more formative assessment and shared learning. I especially like the group work rubric that she and her students co-created, because I can apply it to my current pod seating plan and group work. Iverson's (2015, p. 10) rubric is presented in Table 1. My students have completed individual rubrics for self-assessment in the past, but not group assessment and reflection, and I can see the potential value this can add to our growth.
Lastly, Iverson shares strategies for developing leadership skills in her students, which could also apply to developing a sense of belonging by contributing back to the school community. She shares strategies including preschool buddy reading, kindergarten fitness buddies, and an elementary leadership council that received the John Gibbard United Nations Award for their commitment to working for humanity and a better world (Iverson, 2015). She shares regarding buddy reading, "I also noticed how my struggling learners were gaining confidence by having someone that wanted to be with them and hear them read. It builds their
self-esteem and they worked harder at their reading when it came to our reading activities” (Iverson, 2015, p. 27). Overall, I feel supported and encouraged in my approaches to building classroom sense of belonging in seeing Iverson's lived experiences in shaping her learning environment for the betterment of her students.

In his article on building resiliency, Sagor (1996) explains that certain key student experiences contribute to the building of student resiliency and suggests teacher strategies. Among his four key experiences he lists two that relate strongly to fostering a sense of belonging: "show them that they are valued members of a community (belonging)", and "reinforce feelings that they have made a real contribution of their community (usefulness)" (Sagor, 1996, p. 39). He argues that teachers need daily purposeful practices in order to instill positive feelings in students. This is in keeping with the idea that fostering sense of belonging is not a month long classroom theme in September, but rather is most effective when woven throughout the school year.

Of value to myself in refining my practices is Sagor's building resiliency web. He offers conditions of students with low resiliency, multiple strategic interventions, and the desired outcomes leading to students with greater resiliency. Strategies he suggests that fit with fostering sense of belonging include cooperative learning, service learning, authentic assessment, and student-led conferences. Sagor advises teachers and schools to adopt data-collection related to strategic interventions to check for effectiveness, and for teachers to adjust practices when some student needs are not met. Lastly, Sagor makes what I feel is an astute observation. He states, "...infusing the classroom and the curriculum with resiliency-building experiences can have a profound impact on our students' self-images. When taking this perspective, we begin to see that building resiliency and teaching are one and the same thing" (Sagor, 1996, p. 43).
strongly agree with Sagor's holistic viewpoint on resiliency. In fact, I would state that this broad approach also applies to fostering student sense of belonging as an ingrained part of daily teaching practice, rather than as a series of teaching moments.

**Learning Maps**

I defined *learning maps* for my action research as a specific teacher-led student self-reflection multi-stage graphic process. Within this learning map process, narrow and thick arrows are used to indicate relationships between the student self-image and other features. Mapping and learning maps in general have been used multiple ways for different purposes in education. One key reason that teachers use mapping with students is because mapping ideas visually is both highly engaging and more memorable (Margulies, 2004). Furthermore, the mapping "process enables students to organize their notes by categories and relationships while mapping" (Margulies, 2004). For my learning map process, as based on Goessman's (2017) explanation, it is vital that students can reflect and draw and immediately see the relationships and connections they are making on their maps. As Margulies (2004) articulates clearly about learning maps in general, "Making ideas visible, using both words and images, means that we are making our very process of thinking visible".

Jang (2010) presents an eight-week study with grade four elementary science students using visual mapping with a collaborative approach. 101 research subject were divided into four sample classes, two as control groups getting traditional science instruction, and two classes using collaborative concept-mapping methods. Before groupings, subjects received a pre-test and their final exam was their post-test. Post-test interviews were also held. As part of learning science, the conceptual mapping groups regularly added and updated their concept maps. Jang (2010) explains, "The constant revision of concept maps helps students become reflective
learners who monitor their understanding and make intentional efforts to improve their conceptual understanding” (p. 88). Here we see the value of using mapping to support students as reflective learners. In Jang's (2010) process, student groups presented their maps back to their peers for discussion. In the study's results, the increase in peer discussion through concept mapping was shown to improve student organization and academic understanding (Jang, 2010).

Somerville (2013) presented outdoor research with 39 grade 3-4 elementary students from Australia. She refers to her student reflective process as 'place learning maps'. Students were invited to draw and write their reflections after taking part in small group learning at a wetland. In this process, the wetlands were the central theme and typically presented in the middle by students. Somerville explains that she had to find a means to interpret student meaning in their place learning maps by looking at relationships between images and relationships between images and text (2013). In this example, the place learning maps were created as a single drawing exercise.

Lastly, Annan and Wootton (2016) using a learning map process they refer to as Infinity Learning Maps, which is a commercially-available product. Goessman's learning map process was modelled on Annan and Wootton's process. With Infinity Maps, students draw elements that represent their current learning environment. Students analyze their maps and develop one or two academic goals. Next students reflect on what actions they need to do to improve their learning situation, and family members are invited to contribute to how they will change their support to help their child reach their goals. Key differences in the Infinity Map process include the specific focus on academic development, and the inclusion of family input with goal planning.
Conclusion

Literature shows the positive relationship between students’ sense of belonging and academic development, and also demonstrates how teachers and peers impact student belonging. Literature also provides multiple strategies for developing sense of belonging throughout the school year. The National Council for Curriculum and Assessment (2009) highlights the role of a strong sense of belonging in building resilience in students. Conversely, Laldin (2016) reminds us that students lacking a sense of belonging may be applying their cognitive energies to self-protection rather than to learning. Notably, a healthy student sense of belonging is shown to have a positive correlation to academic development (Willms, 2000). The literature also shows that adults and peers can impact a student's sense of belonging. Students achieve higher grades through group learning, and students are more motivated to study when engaged in group work (Taqi & Al-Nouh, 2014). Ma's (2013) research underlines the cyclical role of self-esteem and developing sense of belonging in students. Teachers and other school adults play a key role in building students' self-esteem through class engagement and extra-curricular activities. Finally, the literature provides classroom helpful strategies for teachers, including cooperative games and learning (Pham, 2017), using learning strategies such as buddy reading (Liljedahl, 2016), using learning maps to reflect relationships (Annan & Wootton, 2016; Margulies, 2004), and building leadership skills in students (Iverson, 2015). Furthermore, Sagor (1996) reminds us that creating student sense of belonging is a daily ongoing practice woven into our teaching culture in order to build student resiliency and self-esteem. Altogether, the literature supports my desire to create a classroom environment that fosters students' sense of belonging through multiple strategies including collaborative learning.
Chapter 3: Research Methodology

Research Design

The aim of this research study was to investigate my experience as a grade 3-4 teacher learning how to shape a learning environment that fosters students' sense of belonging. As a teacher the process of implementing teaching practices to foster sense of belonging – specifically collaborative activities - was ongoing all year. As a researcher this process took place from October 2017 to March 2018. I applied three approaches in my methodology: 1) a review of literature on developing sense of belonging, 2) a self-study using my researcher's journal reflecting my teaching experiences, and 3) action research on using student learning maps as an indicator of student change in their sense of belonging.

Participants

I am the full-time teacher of a grade 3-4 class. I have worked in the education field for fifteen years in a variety of different roles, including administration, learning support, and classroom teacher. I taught a grade 2-3-4 class once. At the start of this study, I was a new teacher in the school. My grade 3-4 class which was invited to participate in this process had twenty-one students. In total, sixteen students gave consent to participate in this study. Of the sixteen students, there were ten boys and six girls, between the ages of eight and ten years old.

Our class collaborated with many adults, and in all cases I informed my co-workers about my research project and I also explained the importance of fostering students' sense of belonging. Our class regularly collaborated with a resource teacher which consisted of literacy lessons and co-teaching in my classroom. My class had no regular Teacher Assistant, but occasionally an extra staff member would assist students in my class. I acted as a Teacher Coach for a Teacher Candidate for three weeks shortly after students completed their final learning maps, but within
the time period of my researcher's journal. I shared my research project with my other colleagues and Administrators, and I informed my students' parents and guardians about my research project.

**Data Source 1: Researcher's Journal**

I kept a researcher's journal that reflected on my teaching practice. My researcher's journal captured my learning reflections from October 2017 to March 2018. I reflected in my journal between two and three times a week over the time period. I followed a format to guide my reflections about my practice and my next steps. The criteria for my researcher journal was based on Gibbs (1988) and were: 1) What happened, 2) So what, and 3) Now what (Appendix A). These are also the same criteria I had used for several years to debrief outdoor education activities and they are a commonly accepted and used approach for learning from experiences. Each journal page also included an area for Key Learning to help me focus on one key take-away for improving my teacher practice.

**Data Source 2: Learning Maps**

Near the beginning of my study in October, I taught learning maps to my entire class over five days. I closely followed the method outlined and recommended to me by Corrie Goessman (personal communication, July 27, 2017) who based her approach on the process outlined by Annan and Wootton (2016). At the end of this process each student had produced a learning map showing thick arrows connected to people who supported their learning and also thick arrows identifying areas that were a personal strength, such as making friends or science class. Their learning maps also contained narrow arrows that represent areas for growth. These maps were collected, stored, and then returned to students every three weeks for four additional opportunities to further contribute to their learning map. Details on the specific process are
explained in the Procedures section.

My rationale for using learning maps is that I hoped to observe students' sense of belonging grow over time, as represented by on their maps through increases in supportive connections with peers and adults, and through gains in their academic capabilities and personal strengths. A similar method was employed by Witterholt, Goedhart, and Sucre (2016) to assess changes in four math teachers' practice using concept maps as well as interviews. Witterholt et al. (2016) compared results from participant teachers' pre-concept map to their post-concept map, and the total number of concepts in these maps were counted and compared. Other education-based studies also support the use of concept maps for demonstrating change over time.

Llewellyn's (2007) article for the National Science Teachers Association outlines the process and benefits of using concept maps to teach science. "Concept maps are especially important in teaching science because they depict the interrelationships among the members of a group or a system" (Llewellyn, p. 1, 2007). Using his definition, this mapping of interrelationships can also apply to a classroom, with a student as the heart of the map. Llewellyn outlines a pre and post monitoring of student progress that is similar to Goessman's structure. "As the unit continues, students are regularly instructed to return to their concept maps in order to add, edit, or modify their understandings. With each revision, students use a different color marker or pen. By using various colors, students can dramatically visualize how their understandings have increased" (Llewellyn, 2007, p. 1). The key difference in approaches between Llewellyn and Goessman being that instead of monitoring for growth of new learning in science, I was watching for changes in students' sense of belonging as shown through increasing interconnectedness and academic and personal growth.

I believe grade 3-4 students can draw and record concepts like collaboration and
friendship better than if asked to express the same in a reflective journal or through conducting interviews. I believe that the multi-step art process is engaging for students and allows them to show complex ideas like growth and interconnectedness in a visual form. A learning map may also give me insight into how students perceived themselves. According to Goessman (2017) who has experience with using learning maps with elementary grades from three to eight, a teacher can examine how a student draws themselves in their learning map by looking for qualities including self-image expression (smiling, sad), self-image size, and whether the student attaches other items to themselves, such as a soccer ball or headphones or a book in their hand. The first self-image can also be compared with the final self-image on the learning map to see if there are interesting features that have changed.

Lastly, it was my expectation that as a teacher I would refine my practice based on students' needs that I perceive from observations of the first round of learning maps. For example, students' learning maps may reveal that most students have many connections with peers in their class because they have attended several years together and played sports together in the summer. This would suggest a class strength that I can build on. However, if within those same maps I saw few or no connections with school staff, this might suggest that my class is not familiar with school staff, either because of staff turn-over or because of limited previous opportunities to interact with school staff. This could steer me to adjust my practice to include in-school field trips, more projects with staff, or to ask administrators to be regular guest story tellers in our classroom. I see this as a continuous cycle where student belonging needs can influence teacher practice which in turn reveals new student belonging needs and so forth. I was curious to see if this concept of an influence cycle emerged in my practice. Without experience in the learning map process, there were many unknowns that could only be discovered through
trial and reflection.

**Procedures Followed**

An Application for Ethical Review for this study was submitted to the Research Ethics Board in August 2017. Ethics approval was granted in September 2017 for this study from the Vancouver Island University Research Ethics Boards and from my school Principal. Because of the sensitive nature of the data being collected, and because of the vulnerability of the participants as students of the researcher, significant efforts were made by the researcher to ensure students and parents/guardians were well informed about the study prior to giving approval, and an anonymous consent and assent form collection process was implemented to ensure that the researcher was not aware of who participated until after the school year was over.

In October 2017, all students created their first learning map in class, as part of regular classroom instruction. I kept a photocopy of these initial learning maps for potential data collection and analysis. Learning maps were not posted for ethical reasons related to privacy, although posting maps in class was suggested as part of the process by Goessman (2017). About every three weeks, students had the opportunity to add to their learning maps. Sometimes students added new staff or peers who supported their learning, or new areas for growth or strengths. Sometimes students thickened already existing narrow arrows to indicate an area for growth which they felt they had improved upon. I kept a copy of the completed first learning map after students had four opportunities to contribute to it.

The last procedure in learning map creation was for students to draw a completely new learning map from scratch. This final map was drawn on February 16, one month after students added for the last time to their completed map one. I kept a copy of this new learning map for future data analysis. In summary I kept three items for data analysis purposes: 1) students' initial
learning map (First Stage of Map One), 2) students' completed copy of their first learning map (Completed Map One), and 3) students' new learning map from the last step (Map Two). I waited until the school year was complete to learn which students and parents/guardians provided consent for their learning maps to be used as data for this study. The learning maps for those who did not provide consent were destroyed.

I also kept a reflective researcher's journal about my teaching strategies and their impact on fostering students' sense of belonging and learning in my class, and also about my journey as a new staff member and my sense of belonging in my new environment. My researcher's journal started in July 2017, ended March 2018, and contained a total of 55 entries. A standardized template was used from journal three onwards to help establish consistency in my journaling process (Appendix A). My procedure for writing my reflective journal was to typically complete my writing at school, right after dismissal. I wanted to be able to record ideas and experiences from that day before shifting back to teacher duties. On occasion I would complete reflective journals at home at night. I typically would only write about what happened on that day. However, near the end of my study period, I wrote four journals that reflected on a series of consecutive teaching days, not just about one day. It was a particularly busy time period with a Teacher Candidate and a multi-day reflection approach was used.

**Validity and Reliability**

While instructing learning maps is a very subjective process by the teacher, I made attempts to establish some reliability in instruction and process. My learning map process with students started in October 2017 and ended in February 2018. In an attempt to keep my learning map process consistent, I closely followed the learning map process outlined by Goessman (2017) in her personal interview with me. I re-listened to her interview each time before leading
each learning map lesson so that I could apply her methodology without unintentionally changing the process. I taught the learning map process orally to students using myself as an example, and I also put up bullet points on the board of key criteria for students to have as a visual reference. I did not add examples to the criteria because I did not want to lead students to copy my examples, as can often happen especially at a grade 3-4 level. Once students began, I removed my personal example of my learning map from the board, again to try to minimize my influence. As students worked on their maps, I did not give individual feedback or suggestions, as a teacher might do in a typical art lesson. Only in one case where a student had drawn their self-image so large as to leave minimal space for the following steps did I intervene and suggest a fresh start.

Students revisited and added to their first learning map every three weeks for four sessions. I provided a short lesson each time to remind them of learning map criteria expectations. Again I tried not to influence students with examples, and tried to use personal examples in my life that would not apply directly to them, such as working on my parenting skills. In all learning map lessons, I feel that students were deeply engaged in their creation process. Students needed minimal teacher encouragement to stay focused on their task. Finally, I was the only teacher delivering the learning map process, and the only researcher analyzing the data. If, for example, I had been absent and another teacher delivered a learning map lesson, this would have reduced validity since the other teacher would not be knowledgeable in following Goessman's learning map process. Because of the personal and subjective nature of learning maps and because each classroom experience is unique, another teacher following my process would have their own unique results with their own students.

Lastly, I applied a consistent reflection method which improved the reliability of my
Data Analysis Techniques

Data was obtained from my researcher's journal and from student learning maps. My researcher's journal was conducted primarily over five months, for a total of 55 entries. To collect data from my journals I applied a systemic approach. I re-read my entries multiple times, making notes about what activities or strategies were present in my reflection. After reviewing my entries, I noted that the overall theme throughout my 55 researcher's journals was collaborative experiences. I analyzed my entries again and coded the different types of collaboration as sub-themes. Four sub-themes emerged: 1) my collaboration with adults, 2) student collaboration with communication games and social activities, 3) student collaboration for academic learning, and 4) student collaboration experiences with other adults. I then labelled these sub-themes directly onto my printed journal entries. Most journal entries were multi-themed, and even a single sub-theme might be repeated several times for different activities within a single journal entry. I summarized key statements from my reflections for each sub-theme into four individual tables. With all the sub-theme data sorted into separate tables, I examined each sub-theme for trends in activities and teaching practices in my Chapter 4 discussion. I also created a frequency table comparing the four sub-themes and their frequency over the time period of my journal entries (Appendix B). I was curious to see if there would be any pattern patterns in frequency over time for the sub-themes.

There were three sets of learning maps I analyzed as data: 1) First Stage of Map One, 2) Completed Map One, and 3) Map Two. I reviewed the learning maps and then created a table with nine attributes in an attempt to quantify student map data. The nine attributes I examined were: self-image characteristics, class friends, family support members, school staff, arrows to
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school subjects, arrows to non-school activities, narrow arrows that turned into wide arrows, total wide arrows, and total narrow arrows. I initially chose these attributes because they were important to the goals of the learning map process. After completing this table for several maps, I realized I was unsatisfied with this data collection process. I felt I was looking too closely at individual details within the student maps and missing any overall themes. In order to examine learning maps at a broader scale, I decided to quantify three important attributes based on the learning goals of learning maps. The three attributes that were at the heart of my learning map process and which students drew as their self-reflection were self-image, areas for growth, and connections and strengths.

Each of these attributes were straightforward to recognize and tally on student maps. I tallied map features for each attribute. I counted self-image features by assigning one tally for drawing themselves, and additional tallies when students added personal features, such as music notes or a hockey stick in their hand. I counted narrow arrows that students drew and labelled which represented their areas for growth. Connections and strengths were represented by wide arrows. If students drew and labelled multiple figures at the end of a single thick arrow, then I counted each person. A wide arrow labelled family received one tally, but a wide arrow with a drawing of each family member identified, received a tally for each member. These three attributes captured all data on the student learning maps and provided rich information for analysis of the three sets of learning maps.

Figure 1 shows two portions of student learning maps as examples of narrow arrows representing areas for growth and wide arrows representing connections and strengths. In the first example the student's connection and strength was Buddy Reading. Their areas for growth were soccer and typing. In the second example, the student has thickened their narrow science
arrow and turned it into a thick arrow indicating an area for growth that had developed into a strength. The second example also shows the social skill of helping represented as a strength.

Figure 1. Samples of student learning maps showing narrow and wide arrows.

To collect and analyze data, I compared students' First Stage of Map One to their Completed Map One by counting features on student maps for the three attributes. In Chapter Four, this data is analyzed and discussed by raw count, by per student average, and by a ratio of areas for growth to connections and strengths. The same process was repeated to compare students' First Stage of Map One to their Map Two. Lastly, ratios from all three learning maps were analyzed and discussed. It is proposed in Chapter Four that a ratio of areas for growth compared to connections and strengths is one means to measure sense of belonging in order to address the research question: To what extent can learning maps act as an indicator of change in students' sense of sense of belonging and as evidence of change in student collaboration?

Areas for growth were tallied and recorded in table format (Appendix C). This detailed list allowed for a closer examination of what was occurring within the broader theme of areas for growth. This allowed me to see if changes in areas for growth related to subject areas or social
areas or activities outside of school. Lastly, a table was created showing students' connections and strengths divided into six categories for each learning map (Table 6). The six categories were: peer connections, staff connections, subject-related strengths, hobby-related strengths, community activity-related strengths, and social strengths. This allowed for closer examination and discussion of changes in connections and strengths between maps for a clearer analysis of student data.
Chapter 4: Findings and Results

A part of understanding my experience is recognizing the unique beginning of my teaching journey this year. I started in September 2017 as a new teacher at an elementary school, within a new School District, within a new community. Our family moved the year before, and we were still settling into a new home and getting to know our community. Furthermore, my prior six years of teaching were as a resource teacher and an Administrator, so I had not been a direct classroom teacher for some time. The school year was full of new experiences, new connections, and new learning and growth for myself as an educator in my new environment. I recorded much of my experience with my students related to our learning journey, our collaboration with others, and with using learning maps in my researcher’s journal.

Data was analyzed from both my researcher's journal and from the student learning maps.

Data Analysis and Themes: Researcher's Journal

In my researcher's journal I made 55 entries reflecting on my teacher experience. I reviewed my researcher's journal to find dominate themes related to my experience. I then re-reviewed my entries to collect specific passages related to each theme. These passages were further examined for commonalities in my experience. The overarching theme throughout my journals was collaborative experiences. I had initially expected more reflections about the concept of student sense of belonging. I now posit that meaningful collaboration with others is the key factor in developing sense of belonging, since it implies a mutually beneficial relationship and requires supporting the people with whom you collaborate. I see the collaborative experiences recorded in my researcher's journal as a tangible form of sense of belonging in action.
In analyzing my entries, four main themes emerged related to collaboration: 1) my collaboration with adults, 2) student collaboration with communication games and social activities, 3) student collaboration for academic learning, and 4) student collaboration experiences with other adults.

**Theme 1: My collaboration with adults.** My experience collaborating with adults had a significant effect on improving my teaching practice and on developing my sense of belonging at my school. Of my four researcher's journal themes, I reflected the most about collaborating with adults. My teaching experience started with knowing only one person at my new school, but expanded to making vital connections with staff, parents, and a teacher candidate. I will explore three sub-themes which emerged most frequently from my researcher's journal related to collaborating with adults: 1) risk taking, 2) academic sharing and teaching practice improvement, and 3) my comprehensive collaboration with a resource teacher. Lastly, I will discuss changes in my frequency in reporting on collaboration with adults over the time period of my researcher's journal.

Prior to my new teaching role, I had critical experiences with collaborating with adults that influenced the direction of my research and my own sense of belonging while attending Vancouver Island University. It was through collaborating with adults in July 2017 that I first learned about the value of using a researcher's journal. It was also through collaborating with adults that I was inspired by fellow Masters student and elementary teacher Corrie Goessman to use learning maps as part of my teaching practice. Corrie role-modeled to me her significant generosity and kindness by sharing her learning maps process in detail while also encouraging me to take the risk needed to try a new approach. At the time I noted in my journal (2017), "Her passion about her students and this form of learning is contagious" (entry 3). I was grateful for
her sharing and I also felt a strong desire to reciprocate this relationship, to further our collaboration. This powerful feeling showed me the potential impact that collaboration with others can have when it's done from a genuine place of caring and sharing. As I left behind my strong sense of belonging to my fellow Masters students and instructors that had developed from sharing ideas and from supporting each other's growth, I looked forward to fostering this same rich sense of belonging for my future students and myself as I prepared to enter a new school.

**Risk taking.** A sub-theme that appears throughout my researcher's journal is taking risks in my teaching practice. In my journey I experienced risk in trying new teaching approaches, in forming new collaborative relationships, and in acting as a teacher coach for a teacher candidate.

From reviewing my July 2017 journal, I noticed that I had many more questions than answers about collaborative classrooms and about how to integrate learning maps into my practice (entry 1). This is notable because I left myself vulnerable to significant risk in adopting a new teaching practice without more concrete evidence or experience. Here I was about to start a learning process I had never used or seen used, but which felt powerful and inspired me. As a traditionally-cautious teacher who wants to see others implement a practice before attempting it myself, I am surprised that I embraced learning maps and collaboration as central themes in my teaching practice. It was the first of many risk-taking steps I took during the school year that proved to positively influence my practice and my overall sense of belonging.

An example of risk-taking in my teaching was trying new student collaboration methods. In October I tried a circle-within-circle sharing strategy that I had only experienced with adults. The risk came in two parts – it was a spontaneous decision on my behalf to attempt this sharing, and I had never led this exercise with students. My sharing lesson progressed well and I reflected (2017), "do more activities like this that involve sharing, do more that rotate so students
get to know each other better. Good sharing at the end "I learned that ............" which helped ME as the teacher to learn more about them" (entry 9). I also cautioned myself that even more benefit could come from sharing strategies if I had pre-planned using this method. The reward from my risk was I learned much about my students, they did likewise, and I learned that my grade 3-4 students can perform structured sharing activities and enjoy the process. My early successes encouraged me to continue trying new teaching practices such as vertical math and walk and talks with my students, while ensuring better pre-planning when implementing new strategies.

In October I wrote about having more faith in my students when it comes to supporting each other with reading, and about trusting in the Daily 5 CAFÉ process. I was teaching the skill of Quiet Partner Reading. "I was hesitant to teach this skill - I underestimated their ability to do the task. I need more faith in the process. Two challenging students ended up snuggled together in the beanbag chair reading" (2017, entry 7). I had expected classroom management problems but my risk was rewarded with students exceeding my expectations. Our partner reading program expanded over the year into a key element of our core reading program. Had I not taken the risk to try partner reading, I would have robbed myself and my students of the joy and growth they had during these reading blocks. I needed to trust my students' abilities to try new ways of learning, to trust recommended teaching guides like Daily 5, and to trust my ability to implement new practices.

I experienced risk whenever I gave up control of my teaching environment, or at least I felt this way early in the school year. In my early under-confident state, I was apprehensive about letting other adults teach or lead my students. I had anxiety about working with another person in my classroom as seen in my journal (2018), "Trusting other staff with my students –
sharing my learning space...all things that make me a little uncomfortable but valuable for me" (entry 36). It took positive successes with collaborating with other teachers and with testing new teaching strategies for me to gradually believe the benefits of taking risks with my teaching practice. As a teacher I was regularly asking my students to take risks, and they modelled this to me successfully and frequently. My shy students shared their stories at our whole school assembly, submitted other writing for local publication, worked with other teachers on projects, and regularly presented to each other in the classroom. By mid-year I was keen to take more risks in my practice.

My success with risk taking encouraged me to volunteer as a teacher coach, even though this was my first year teaching grade 3-4 in some time, and I had never been a teacher coach before. No other teachers showed interest in this contributing role. I knew little of the process but, despite being apprehensive, I felt it was the right time for this step.

I know that taking risks leads to growth and new opportunities...but I’m always still hesitant. Being a teaching coach has already been a supportive process and the risk has already been beneficial, and the process is just getting started. How can I promote risk taking for my students? Can I share my story or ask them for their stories of taking a risk? In September we talked about different kinds of “Courage” – sharing courage, making a friend courage, etc...maybe I can revisit that theme and encourage my class to keep practicing their courage (entry 49).

I believe part of the reason my teacher candidate and I reached a deep level of collaboration in a short time started with my approach to his transition. When I learned he was unable to travel to meet, I took the initiative to travel to his community. I brought with me twenty-one student letters welcoming him to our learning community, and teacher materials he would need. This
sharing gave him insight into my students and set a collaborative and welcoming tone. I also invited him to our class for curling as a pre-visit before starting his placement. I believe these small but important steps helped facilitate his quick transition into our classroom. By his first day he already knew many students and he smoothly integrated into our community. I pushed him to take teaching risks and to try different approaches, while I also role-modelled collaborative-based teaching strategies. From my last journal entry (2018):

The importance of community was ingrained in my Teacher Candidate. We discussed its impact, but more so he saw how well students could do group and partner learning, even though we have some challenging and high-needs students. He commented "While it is a great group of kids, I realize that a lot of that is due to your hard work in creating an amazing classroom community." (Ewald, March 9, 2018 – personal correspondence) I believe he'll grow into a teacher that naturally builds and applies group learning dynamics in his daily teaching and I'm pleased I was able to influence and shape some of this learning (entry 53).

Not only did my students experience great learning from another teacher, my teacher candidate and I collaborated very well, benefitting the development of both of our practices. Finally, I connected well with the leaders from the local teacher's college. Two staff were teachers I knew from previous experience. Through my success as a coach, and from my connections with UNBC in Terrace, I formed a greater sense of belonging to an education system beyond my own school boundaries.

**Academic sharing and teaching practice improvement.** Based on my researcher's journal, the majority of my collaboration experiences with adults related to refining my teaching pedagogy with a secondary benefit of helping me connect with staff in my school. I believe that
this focus on developing my practice comes from my lack of recent teaching experience. I was driven to collaborate because I felt a personal urgency to quickly refine my grade 3-4 teaching skills. While I have a depth of teaching experience from many different roles, I knew I would feel more confident as a teacher if I improved my teaching skills. This confidence would in turn help me develop my sense of belonging. If I felt proficient in my abilities to teach grade 3-4, then I would feel more integrated into my school; more able to contribute to others and to our school as a whole.

My early adult collaboration was mostly with other grade 3 to 5 teachers, since they assisted me the most with understanding routines and processes, and with finding critical resources. This same group met monthly over morning coffee, and this routine gathering was important for me in order to learn the culture of our staff team and ultimately to feel more connected. It was also a rare face-to-face opportunity to seek out new collaborations and to share new ideas, since small group meetings were infrequent. I noticed one teacher was an sporadic attender, and I specifically made efforts to connect with them in order to develop our teacher-sharing relationship.

As the year progressed, my collaboration with other adults became more targeted in nature, more specific in who I was working with in order to meet their needs or my needs. I began to collaborate deeper with staff who shared common teaching values and shared a positive approach to collaboration. I also found myself over the hurdle of being new in the school and being just a receiver of help, to reaching a role where I could share my knowledge with other teachers. This was an important stage to reach for me because I believe that long-term successful collaborative relationships must be balanced in the sharing and taking. From my researcher's journal (2017):
Just spoke with another teacher about going curling and she invited us to join her class for six curling lessons – this is great news. If I hadn’t asked, nothing would have come from my idea. Also, took the initiative to connect with another teacher about the Christmas concert. We are developing a positive, helpful teaching relationship as the year goes on. I’m feeling more and more like I’m part of the Nechako community. I’m networking well with both librarians who are helping me with project books, buddy-reading books, and with weekly lessons that complement my classroom theme. Also collaborating with the high school teacher to run co-op games from her class to my students next month. Certainly not feeling like working in isolation – lots of good connections with other teachers in the building. (entry 22)

From this excerpt I feel that I had reached a level of collaborative momentum where some of my relationships with adults were leading to meaningful improvements in my teaching practice, all the while being based on positive energy and strong communication. It was encouraging to me to see that I was on the right path of collaborating and as my future journal entries would show, it pushed me to continue to develop more collaborative adult relationships.

An example of how collaborating with another teacher impacted my practice relates to our bi-annual School Wide Write (SWW). I had some experience with SWW in my other school, so I was interested in the approach used by our school. I asked a lot of questions to different staff to better understand their process, and then I asked my grade-level teachers to meet after school and I made several SWW process suggestions I thought might strengthen our approach. I noted in my journal (2017), "Keep finding the time to share and make connections with staff. This is my long term support network and I need to keep sharing my ideas while harvesting ideas from them at times. Good to feel that sense of connection and getting helpful
feedback” (entry 24). I was pleased to see my SWW ideas were supported and adopted by other teachers. At this point in time, I had struggled to connect with one particular teacher about teaching practices. I happened to notice the following week that this teacher started using my SWW approach. "I want to be able to contribute in relationships, even if I am new, so it was good to see this happening” (entry 29). I saw this change as an opening to our developing relationship.

A second example of collaboration improving my teaching practice came when I was struggling with a story writing project. I had a teaching process in mind, but I felt that it could be refined if I shared it with other teachers to get their feedback. When I met with teachers about how they teach story writing, I was surprised to learn than many teachers do not find time to teach writing beyond short journal writing. That said, multiple teachers provided ideas to improve my writing process methodology which I then shared back as a package to teachers after it was refined. At the time, I reflected about why teachers do not seem to seek each other's support more often, especially since the end result is improved teaching practice.

From each person I was able to pick up a trick or two to improve my lesson, and now I'm more excited to model teaching writing for my teacher candidate. Why don't teachers share their concerns or ask for help more? We teach our students to collaborate and ask for help, but I just don't hear the teacher conversations often in this regard. Is it fear of looking foolish or unprepared? My lessons will be more effective because I made the time to approach my colleagues and seek their advice....maybe this modelling will help others do the same with time. (entry 50)

I believe that I may have indirectly influenced some teachers to include more story writing in their practice, especially since they now had a helpful tool which they helped to produce.
I had multiple positive collaboration experiences with adults including with parents and
our school Parent Advisory Council. I will share two brief examples to demonstrate how they
improved my practice, ultimately benefitting my students. After I built a relationship with one
parent who I had invited to support us on field trips, this parent shared with me that she is an
artist, much like her student daughter. To this I inquired if she would consider being a guest art
teacher. This simple conversation led to her delivering two excellent art lessons to our class and
multiple layers of benefits. I benefitted from learning new approaches to teaching art and from
gathering new resources. I believe the parent benefitted from the opportunity to share her talents
with the class. I believe her daughter benefitted from seeing her mother as a talented guest
teacher, and the rest of my students all connected more with this parent as a community member.

As a second example, I attended a PAC meeting to learn about new playground
fundraising and to ask for class funds. At this meeting I learned that the head of our PAC also
runs the local gymnastics club, and the net result was our class participating in two field trips to
the gymnastics club. No other teachers from our school had used this facility in a long time but I
believe my role-modeling will encourage other teachers to re-visit this worthy learning
experience. Also, I made other helpful connections by attending the PAC meeting. I was
informed by PAC that it was rare for teachers to attend, but I saw it as another form of
collaboration. During the year our class did fundraising to support PAC's playground, and I
interacted often with PAC parents about special school functions. For myself, I felt even more
connected to the whole community of Nechako school from my collaboration with PAC parents.

My comprehensive collaboration with a resource teacher. One particular adult's
influence on my teaching practice was most frequently reported in my researcher's journal. This
particular adult was one of several resource teachers in our school, but in this thesis I will refer to
her as ‘the resource teacher’. I will explore examples of how our collaborative relationship influenced my practice and I believe ultimately shaped my overall sense of belonging within my school.

My class's weekly routine included a literacy lesson delivered by the resource teacher. It was positive happenstance that the resource teacher taught an impactful lesson on classroom inclusion based on the book *The Invisible Boy*. This lesson fit neatly into the classroom environment I was shaping, so I changed my lesson plans and led a student collaborative discussion extending this lesson. It was a spontaneous shift in teaching that shows how the resource teacher could influence my practice. From my journal on that day (2017) regarding our class discussion, "It also inspires me to do more of these activities. By chance, [resource teacher] came by afterwards and gave me another extension activity as well as sharing the success of the process. Staff collaboration allows for celebrations - even mini-celebrations which can carry me over the humps and frustrations" (entry 9). In many ways we had similar approaches to education and our collaborative relationship grew weekly. We often shared student successes and teaching ideas over lunch breaks, always with a positive viewpoint, and I felt comfortable sharing my weaknesses with her and asking for suggestions.

In January, the resource teacher volunteered to help in my classroom for a time block. We decided to co-teach a science unit using a split class approach which would allow for smaller group instruction and hands-on experiments. This was an exciting shift in instruction for me, because up to now this type of approach was rarely integrated into my practice. Our success in this collaborative co-teaching approach led to several more science lessons and experiments. My students and myself grew to see the resource teacher as an important member of our classroom community, as observed in my journal:
Very engaging, very satisfying for me as a teacher. In the past I avoided these [hands-on experiments] because of the time consuming and lack of materials and resources. This time I have better structure and resources, all from collaborating with other staff. A strong feeling, on a difficult Monday, of quality teaching and connection with students as they predict and watch the experiments. (entry 44)

This particular teacher influenced my professional growth throughout the year and was my steadfast teaching role-model. When I refined my approach to teaching story writing, the resource teacher provided me with helpful feedback and made extra time in my classroom to support my students with their story writing. Given that I had no Teacher Assistant support in my class, and that I had multiple students with significant needs, this extra support for students was invaluable. At this time, we collaborated further to interconnect the literacy lessons with my classroom writing lessons. As I reflected in February (2018), "All the lessons start to weave together – as the [literacy lesson] and class lesson interconnect for the first time, the quality of the instruction and support strengthens…very organic, intentional sense of purpose" (entry 51). This deeper collaboration flowed with positive energy and strong intention. Having never worked closely with a teacher mentor, this relationship certainly lifted and sustained me emotionally. "Such a powerful feeling to have a person supporting your growth and ideas. Also – the follow through is important – not just verbal ideas but coming into the class and helping. A great role model for me and my Teacher Candidate. Although tired, it’s energizing to have this connection with a teacher-mentor" (2018, entry 51). Overall, my students and myself greatly benefitted from our collaboration with this particular resource teacher.

My collaboration with adults grew deeper and expanded as the school year progressed, ultimately improving my teaching practice and adding to my sense of belonging within my
learning community. More importantly, my collaboration with adults improved the quality of learning experiences for my students. I believe that my early successes collaborating with adults motivated me to take more risks and seeking more opportunities for collaboration, culminating in an enriching experience as a teacher coach. My rate of collaboration with adults in my journal nearly doubled from the first half of my experience to the second, supporting the idea that early success leads to further and deeper collaboration. I started knowing one staff member and finished with having 36 collaborative relationships with adults, with deeper collaborative relationships with three key staff. I purposely sought out relationships, knowing the value they could bring to shaping my practice. Another benefit that emerged in my journals is the energizing effect that I felt from deeper levels of collaboration. Given that some of my past teaching roles were in isolation with little collaboration, this energizing effect was a welcome experience. Ultimately, my sense of belonging to my overall learning environment was greatly enhanced by the collaborative experiences with adults over the school year. Next I will examine themes that emerged in my reflections regarding my experience with students collaborating with each other via social development activities.

**Theme 2: Student communication activities and social building activities.** The second most discussed theme in my researcher's journal relates to classroom activities I implemented that I label as Student Communication Activities and Social Building Activities. These are spontaneous and planned activities where the primary goals include developing student communication skills, guiding social growth, practicing collaboration, and helping students learn more about each other. These goals are in line with addressing much of the BC core competencies curriculum. My goal for these activities was not related to subject-based learning. Three themes were prominent in my journaling, specifically: 1) small group sharing strategies, 2)
the use of free play time, and 3) the benefits I observed from student communication activities and social building activities. I will explore each theme using examples from my reflections.

**Small group sharing strategies.** When I started teaching in September, I had two pre-conceptions about how I would help shape my class learning environment. I have a lot of experience with leading structured team-building games and initiative games, so I expected to lead many of these hands-on activities to help my class learn strategies to work together. I also had the expectation that my students already knew each other well since they had attended several years of school together, and that I was the only 'new' person to the group. As I will show, both of my beliefs were very wrong and I needed to re-think my approach in using activities to build student interconnectedness. In September I started with some ice-breaker sharing activities to help students get to know each other. We passed around a Courage Lion and students had multiple chances to share about themselves to the whole group. We had an important discussion about different types of courage, such as making a new friend courage, or sharing with a group courage, and this courage expression was revisited over the school year. Later in September I led a few team-building games, such as transporting an object as a group with just one finger each, when I noticed that students were not communicating well in these games, and were reluctant to work together. Because we were a split class of grade 3 and 4, I had two groups of students who did not know each other as well as I had expected. I also realized that within each grade there were students who barely knew each other. I needed to shift my approach to away from team-building games and towards more activities that involved sharing dialogue and getting more acquainted with each other. From my journal (2017), " Funny – I thought I would be doing more formal initiative games, but it’s other ways that we have been sharing and connecting (more organic?) and less formal team-building games. I need to look for
more ways they can share and lead little lessons….I think they would like this" (entry 28). I also made changes in my approach to how we shared in class.

Initially, class sharing involved sitting in a large circle and giving each student their chance to share on a topic. It was structured, controlled by the teacher, and unfortunately a little boring because of the length of time it took to complete a round with 22 students. I was losing their interest and I knew I had to improve my sharing process. Also, this type of sharing did not reflect how most people naturally converse, which is in small groups sitting closer together, listening and responding in a more fluid manner. I shifted having one large circle into two circles, and eventually into mini-pods of four students for our sharing discussions. I still provided a topic and some structure to the discussion, but now the sharing was being student led and student managed. An example of a successful topic was: Discover three things that everyone in your group has in common. My small group approach was very successful as I discussed in my journal (2017),

I observed laughter and sharing and a certain closeness as students sat in small, tight circles. No one sat out. I made the groups so I made sure there was a balance of energy and grades. It had a more natural feel than the large circle, and there was more time for sharing and less time waiting your turn. Slowly we are making connections with everyone in the class. We are less and less the 3s and the 4s, and more a whole class (entry 18).

One way I held students accountable for staying on topic with their sharing was requiring them to report back afterwards to the whole class about something they heard from another person. This requirement meant students took the role of listening just as seriously as the role of sharing.
This also allowed for the whole group including myself to learn more rather than keeping the sharing locked within a small group.

By mid-year, I wanted an additional method for students to share socially in small groups so I introduced going for community walks. From my journal after our first class walk (2018), "I think students need the informal time to socialize and connect with each other as a class, but without formal lessons. It was a pleasant walk with LOTS OF chatter behind me, lots of socializing going on" (entry 42). This simple success led us to include community walks about once every two weeks, sometimes as part of a field trip destination, but most often as a chance to simply enjoy being together and talking in a natural setting.

The exception to small group sharing was during our three rounds of Show and Tell. I had never led Show and Tell as a teacher before, and I was surprised when my students really wanted this activity because I thought it was more suited for younger grades. It resulted in being a great vehicle for sharing and for practicing oral presentation skills. We formed one large sharing circle for Show and Tell and everyone stayed focused for this lengthy activity. From my journal about our second Show and Tell (2017), "Circle sharing for 1.5 hours, including seeing two large dogs. More personal connections, a few items related to family members now passed away, so some tears and genuine sharing. Good exercise in listening and building connections" (entry 31). Students were asked to bring in items that were important to them. Show and Tell provided interesting insight into each student as they shared about their personal item and students asked follow-up questions. I believe that our positive classroom culture we had developed created a safe environment for students to share their personal family stories. Another vehicle to develop social growth and communication came in the form of unstructured play.
**Unstructured play.** In late October our class had our first swimming trip. This was an unstructured opportunity for students to intermingle and I choose not to swim but rather be an observer of how they played together. I noted in my journal (2017), "I saw my students doing lots of interaction. We don’t have much ‘free time’ in class, so it was interesting to see who they choose to play with. I’m pleased that I did not see any students alone. I did see some grade 3s having fun with the 4s, which makes me happy because those two grades do not always mix" (entry 15). From this experience, I saw that it was valuable to provide some blocks of free time to allow students to choose their own activities and make their own groupings. I overcame my reluctance to provide unstructured play in class and I gave students occasional blocks of free activity time. After one occasion I noted (2017), "During free time students slipped into small groups and played games, drew, built, all without monitoring or prompting. No one was left out – lots of natural play and laughter without noise or meanness. Great end of year [calendar year] atmosphere in class" (entry 33).

One noteworthy example of students interacting socially was during a rainy lunch period after school had returned from a five day break. I sometimes let students stay in a lunch for academic or social reasons, and on this day in particular, nearly everyone asked to stay in to play board games. I observed (2018), "Nice to see how natural and relaxed everyone is with each other. It felt like students had missed each other – they were away for 5 days…and just wanted to hang out together…very casual and friendly feel" (entry 51). By this point in time I believe my students had reached a family-like level where they could play together and enjoy each other's company without needing supervision or structure. They had become very comfortable with each other and had overcome early tendencies of forming cliques or of ignoring students
they did not know well. I believe my students experienced multiple benefits through participating in structured social sharing and from free play opportunities.

**Benefits observed from student communication activities and social building activities.**

I believe students experienced meaningful benefits from participating in social sharing and free time activities in my class. From my journal I observed benefits in overall student behaviour, in reduced classroom management issues, and in positive changes over time for three students as examples.

For Halloween we had an afternoon class party with donated treats, games and dancing. This was when I first recorded in my journal about emerging positive student behaviour (2017). "Very fun and positive afternoon - NO BEHAVIOUR issues – which is great on a day with lots of potential for behaviour. Perhaps a side-benefit of a class with belonging is a reduction in issues…when you feel safe and cared for you keep positive" (entry 16). Over time I began to notice that I was having fewer and fewer classroom management issues. Even typical problems appropriate for grade 3 and 4 such as teasing or tattling rarely occurred. I observed these behaviours in other similar grades. I felt my students had reached a point of caring for each other rather than teasing or bothering. As noted in my journal (2017), "I would like to think that as my students get to know each other more and deeper, they have less need to tease or bully each other. Some of my behaviour challenged students are having much fewer power struggles in class. More time is spent on learning and connecting, and less on addressing behaviour" (entry 31). The benefit of improved overall student behaviour is especially significant when in a split class with multiple high needs. My experience was that I had more time and energy to teach two different curriculums and to better meet my students' diverse learning needs.
My approach to classroom management through developing a caring, connected classroom community seemed to be working. As a result, my stress level was healthy compared to my teaching-related stress at a previous school. In January I noted (2018):

I don’t have a measuring system or reward or incentive system. Another class uses currency and pretend money that they earn for good behaviour (and lose for negative) and they spend this at the class store weekly. I can’t imagine the tracking and work that goes into this system. To me it feels like our approach of connecting and getting to know each other is a big part of my classroom management system. I still hear some negative comments between peers and I address these, but compared to my old teaching role, I am spending 90-95% of my time teaching and engaging, and very little time in addressing behaviour. My personal stress level is way down compared to my last school (entry 37). I also wondered at this time if my students might be feeling the same way about each other and their own stress. I believe that they were even-tempered as students because they generally got along and knew each other very well. I also suspect that this makes them more likely to take social and learning risks and connect with other students and staff.

Many students had positive changes in their social development over the year. By mid-year the social cliques that came into our class had mostly dissolved and through frequent opportunities to learn and share together, we had formed into a very interconnected learning environment. One additional benefit came in the change to my role in leading social development activities. With early large sharing circles, I was the controller and manager. But, when we shifted to smaller group discussions and to free play periods, my new role became observer of student behaviour and listener to their discussions. Observing free play times and
sharing circles gave me some insight into who was making new friends, who was sticking with old relationships, and who was still struggling to connect with their peers in our class.

I can observe from my journal that I provided social development opportunities regularly throughout the school year. I believe many teachers start their school year with lots of sharing and student getting to know activities in September, but then time and curriculum pressures reduce or eliminate these social development games. From my journal, I recorded 21 cases of student communication activities in the first half of my recording period, and then 19 cases of student communication activities in the second half of my recording period. I believe that this balanced year-long approach shows students the importance of connecting and supporting each other both socially and with learning and provides enough time over the year for deeper relationships to form and grow.

Theme 3: Students collaborating with other students on learning activities. While I had some experience with leading social development collaboration activities, I had minimal teaching experience implementing subject-based learning activities requiring student collaboration. I collected ideas for these lessons from reading different articles on student collaboration for learning, and from participating in similar activities in adult only learning situations. I was keen to implement a variety of collaborative learning activities to see how effective they were in supporting student learning and engagement. From my researcher's journal, three themes are evident which I will explore: 1) my use of a variety of collaborative learning activities across a variety of subject areas, 2) the shift I saw in student collaboration initiative, and 3) my observations on student engagement and having fun in collaborative learning activities.
**My use of a variety of collaborative learning activities.** I recorded implementing a variety of collaborative learning activities in different subject areas. I feel I was driven as a teacher to try new approaches to peer learning, with different subjects, to see which methods worked well and in which subjects. My experience in guiding students through these collaborative learning lessons was very positive. Students seemed happy to be out of their desks and trying something new. There was minimal to no complaining about group make-up since they were used to working regularly in mixed groups. I did monitor to ensure that the learning within each group was being shared and that no one student took over the whole process. I was pleased to see my Teacher Candidate also implement group learning lessons and to observe students responding well to his lessons. From my journal, "Many of his lessons have been dynamic partner and peer group lessons – they are going well and he's improving his technique while using different methods. Indirectly he is role-modeling back to me some methods for collaborative learning I might have not used in a while" (entry 52). As a sample of collaborative learning lessons I led, five sample activities are explained in Table 2.

Table 2

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<tr>
<th>Learning Activity</th>
<th>Description</th>
<th>Outcome Reported in my Journal</th>
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<tbody>
<tr>
<td><strong>Read to Partner</strong></td>
<td>Based on Daily 5 approach, students sit knee to knee, elbow to elbow, and take turns reading a self-selected book or a teacher assigned reading passage. Students use Daily 5 coaching techniques to help their peer with reading challenges. I often assigned strong readers to pair with weaker readers to encourage learning support. Our Read to Partner skills extended from Language class to Socials and Science and was my most frequently used collaborative learning activity.</td>
<td>&quot;They partnered well - no complaining - and read VERY WELL to each other. Better results than I could have predicted&quot; (entry 7).</td>
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Vertical Math

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<td>Vertical math refers to providing opportunities for students in small groups to work out math problems through standing and drawing on vertical learning surfaces. I was excited to test this approach and I installed peel-and-stick white boards in multiple places in my classroom. Combined with my teacher boards, I had six distinct vertical spaces for student work groups. This learning approach is not limited to math, but was how I mainly used it. I also led vertical language games. Student groups were blended between grades and abilities so each group had at least one strong student would could lead or support problem-solving. Overall students really seemed to like this approach. It gave them responsibility to find a solution together and freedom to move around and try different methods. Students always seemed happy to get out of their desks for learning and engaged well in these learning activities.</td>
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"Good activity – working in close space helping each other and needing to listen to each other. Remember to do more whiteboard activities to get students out of their desks and learning to work together on fun games and learning" (entry 12). |

"I heard lots of problem solving, lots of engagement, no arguing and little reluctance to work with others. Some groups distracted by art work vs problem solving, some groups immediately into attacking the problem. Great to see all students engaged and active in solving a task. Keep looking for vertical learning experiences" (entry 43). |

Walk and Talk

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<td>I used Walk and Talk in order to give pairs of my grade 4 students the chance to drill each other on their math multiplication facts. Students were excited and engaged in the idea of having permission to freely roam the school without supervision while quizzing each other. This was an extension activity for grade 4s done their work early, and was limited to a few pairs of students at one time.</td>
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"Also did a Walk & Talk for Math facts – this seemed to go well. Students quizzed each other as they walked the school. Lots of responsibility and a chance to share and partner" (entry 26). |

Partner Writing

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<td>I used partner sharing as a pre-writing activity, and in the example following, as a writing lesson. This was a partner writing activity that worked very well. I had bought three plants and I explained to students that they were to think of a staff member who most deserved a gifted plant and to write a letter advocating for that person. Students worked with another peer who also wanted to really write for one particular staff member of their choice.</td>
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"No arguing – students keen to write for their person – GREAT motivator for writing and fun too! Also –nice to see how excited students were about giving secret gifts" (entry 45). |
Students writing was persuasive and they gave specific examples of why their staff deserved a plant. I believe key to this positive writing lesson was students’ caring motivation. I was happy to see students pair up not with their best friend but with another student who shared the staff they wanted to advocate for. We also received very positive feedback from staff. 

**Hallway math**

This was a small group lesson on measuring in meters. It would have been easy but less interesting to teach it traditional style in class on paper. Each group had two measuring sticks and a clipboard to track results. The long length they were measuring made it a challenging group task. 

"They connected well and focused on the task. They measured a long distance carefully without losing interest. All groups came up with answers very close using measuring sticks x 62 placements. Keep looking for ways to make math more engaging and less routine" (entry 42).

An adjustment I made to my teaching practice was recognizing that my classroom alone was not large enough for students to engage in many collaborative learning projects. I needed more physical space. I sometimes could access other resource rooms when not in use, but the main tool I started usually regularly for collaborative learning was our hallway. Collaborative learning needs space and room for undisturbed conversation, and the hallway has become less of a place for time-outs and consequences, and more of a place for responsible small-group learning. I was pleased to observe my young students could be responsible to work together with minimal supervision and not disrupt other classrooms.

**Change in student collaboration initiative.** I observed changes over time in the initiation of student collaboration for learning. At first, when given the choice, most students naturally worked with existing friends in the class and also choose to partner with same grade-level peers. In particular, three peers who were very close to each other were reluctant to integrate in learning
and social activities with their other classmates. I noted in my journal at the end of October (2017):

When I create the pairings, I can see some discomfort by the 4s with the 3s. This tells me we have a long way to go in building a classroom where we support and care about everyone. Even though my 4s are great students and kind to each other, they sometimes don’t extend that kindness to others. This is an area for growth to have a truly connected classroom (entry 13).

I believed that my social building collaboration activities would help encourage students to take more initiative to collaborate with all of their classmates in learning activities.

Over time I began to notice that students were more comfortable with each other when collaborating for learning. I observed in my journal, "Halloween cards – I noticed students helping each other out without direction from myself. They are getting better at sharing space and having looser boundaries" (entry 14). I reminded myself to share back to the class the following day that I am seeing their interconnectedness growing in order to keep encouraging this progress. By mid-year, students were interconnecting well. I observed that previous cliques were breaking up during partner work and were collaborating well with other peers (entry 30).

As the year progressed, I detected more moments of students initiating collaborative support for learning. Sometimes students were engaged on a task and peer collaboration would naturally ensue. During a hands-on Science project I observed, "This type of helping seemed organic today. Sometimes I’ve had to encourage it, but students were ‘into’ their projects and seemed to naturally help each other. It had a FLOW sense to the moment and I was able to stand back and observe and see active helping and project building" (entry 19). When we moved from paired seating into seating in group pods, I noticed students regularly initiating learning support. I was
also learning how to manage student noise levels in pods while encouraging students to support each other's learning. This seating plan was successful and we kept this seating format for most of the remainder of the school year. Overall I observed a positive change in initiation of collaboration for learning, away from teacher-initiated collaboration to student-initiated collaboration and peer support.

During a planning for writing collaborative exercise, I noticed another change in how students were connecting. Students were sharing their writing ideas, laughing and taking turns, when I heard one student interject firmly but nicely to her group in order to bring their conversation back on task (entry 25). As a teacher I was pleased to hear students take responsibility for learning seriously, while still having fun. In the same exercise I also heard students sharing personal examples from home suggesting they had reached a comfortable level with each other in their sharing for learning.

**Student fun and engagement in collaborative learning activities.** I noted multiple times in my journal about students having fun and sharing positive energy with each other during collaborative learning activities (entry 20, 22, 26, 32, 42). This positive energy and fun contributed to our learning environment while students were engaged in challenging projects and new learning. I noted in my journal, "Their Science projects seemed to improve as they helped each other and saw each other’s examples. Positive sharing energy in class. Nice to see and hear students accepting and giving help" (entry 20). In December, our class was working hard to memorize lyrics to two songs for our annual concert. We had lots of fun rehearsals while pushing students to sing their best. I observed (2017), "Lots of positive participation, positive energy, no complaining, good effort. Great to see them as one unit, even if the voices weren’t in sync...yet. Singing is perhaps another way to build community that I had not considered. I
I think I’ll try to do a few rounds of singing, not just for the concert but with other fun songs” (entry 22). As the year progressed, we continued to learn new songs and sing as part of our Art program, but mostly as a way to have fun together singing as a class.

**Theme 4: Students collaborating with other adults.** As I pushed myself to collaborate with other staff at my school, I also created opportunities for my students to formally and informally collaborate with other adults, both within and outside of our school. I feel that part of feeling safe and feeling like you belong within a community is building relationships with multiple community members. My intention was for students to feel that they were a contributing member of three levels of community: 1) of their class community, 2) of their whole school community, and 3) as part of the community of Kitimat. These three expanding levels of connectedness were reflected throughout my researcher's journal. Also evident from my journal was the wide variety of collaborative adult relationships my students experienced this year, much like my own learning journey. Most of my students' collaborative relationships were intentional by design. Our class reached out to other adults and either invited them into our class or travelled to meet with them.

**Student collaboration with adults in our classroom.** Students collaborated primarily with two adults and with certain parent volunteers in our classroom. The adults were a resource teacher, my Teacher Candidate, and a group of five parents who volunteered to help in class on projects. It was important to me to invite other adults into our classroom to support our learning and to expand our sense of belonging. I strongly feel that it benefits my students' learning and engagement to have multiple opportunities to collaborate with other adults in class. It also provided for different perspectives on learning and provided much needed additional support for students with learning challenges.
As previously mentioned, I invited a particular resource teacher to co-teach in my classroom as a natural extension of the literacy teaching they already did with my students. Even though I was teaching half the class in one corner of our room, I still managed to observe their teaching and my students’ responses to the experiments they led. From my journal (2017):

[They] led a hands-on thermometer experiment that did not work at first but then suddenly worked! [Their] small group was very involved and engaged in the lesson. I’m happy to see positive results. We collaborated well together to plan our lessons and now next week we reverse the process and teach each other’s groups (entry 40).

Overall my students often collaborated the most with this particular resource teacher and I feel she contributed to students’ sense of belonging and to their connectedness with school staff.

The other key adult my students collaborated with over extended time was my Teacher Candidate. Students wrote to him ahead of time to welcome him into our learning community and to share a bit about themselves. I believe this warm outreach supported a smooth transition for my Teacher Candidate into our room. Sometimes he worked with a one grade level group on an interactive lesson, such as teaching 3D geometry to the grade 3s, and other times he taught to the whole class. He experienced numerous successful collaborative lessons with my students in a variety of subjects (entries 52, 53). For my students, it appeared to be energizing to learn from a different adult with different teaching approaches.

The last group that interacted with my students in our classroom was parent volunteers. Students knew these parents well and interacted positively with their support. Parents came in and collaborated with students in various ways including to assist with tricky art projects, to aid with popsicle bridge building, to support students with Show and Tell, to led a class lesson, and
to assist with fundraising efforts in class. Overall, my students expanded their adult support network through collaborating intermittently with classroom volunteers.

**Student collaboration with adults in our school.** Students had numerous opportunities to collaborate with adults outside of our regular classroom structure. I believe it was important for students to develop supportive relationships with adults outside of the classroom as part of forming a strong sense of belonging to their school. According to my researcher's journal, students interacted with at least 15 other adults within our school. In some cases these connections were for all students in class, and in other cases it was for specific students only. One example of a reoccurring opportunity for students to work with other adults was called Fun Friday.

Fun Friday was an existing tradition at Nechako for grades 3-5 to allow students to sign up for fun activities being led one of four other teachers on Friday afternoons. Fun Fridays ran for most of the school year, thereby creating multiple opportunities for students to interact and connect with other teachers. For my young students, it also allowed them to start building a relationship with different teachers they would likely have in their near future. I believe Fun Fridays were meaningful opportunities for students to feel more connected to other teachers within Nechako.

Nearly all teachers at our school participated in weekly reading buddy sessions with a paired class. My students formed a collaborative relationship outside of the class with our reading buddy's teacher. My students became reading buddies with her students, and interacted weekly with their class outside of our classroom. My students formed a trusting, friendly relationship with this teacher, and she became another adult they could connect with and go to for help at recess or lunch. This teacher invited my students to her class for learning activities
and to join their class year-end field trip. I observed my students forming strong bonds with their reading buddies and this particular teacher over the school year. As this relationship developed, the two classes moved beyond typical reading buddies and started working on more challenging technology-based language projects together. It was a good example of a simple collaborative relationship that deepened and expanded over the school year based on positive interactions.

Other examples of students collaborating with teachers outside of the classroom but within our school include: 1) students participating in a weekly literacy club, 2) students volunteering to be trained by another teacher as WITS constables, 3) students working regularly with two different resource teachers, and 4) students writing Christmas letters and Thank you letters to school staff. As a teacher, my experience with my students collaborating with other staff at school was very positive. I often received insight and compliments back from those teachers about my students. This contributed to my feelings of being a member of an overall teaching team. For my students, it helped them form supportive connections within the school, providing for a greater sense of belonging and providing future layers of support.

**Student collaboration with adults and organizations in our community.** As our school year unfolded, my students had progressively more opportunities to collaborate with adults outside of our school. Three key examples of these outside collaborative experiences include: 1) different learning experiences at MEMSS, 2) our gymnastics trips, and 3) working with parents on a home-based project.

All classes at my school attend five different presentations over the school year at Mount Elizabeth Middle Secondary School (MEMSS). These were positive learning experiences for my students, as well as a chance to become familiar with the only secondary school in Kitimat. In addition, I arranged four more experiences at MEMSS for my students to collaborate with
different MEMSS staff and students. During one visit, a class of MEMSS students led my class through fun cooperative games. This class had completed a learning unit on cooperative games, and this was their chance to apply their leadership skills with my students. I noted about this experience (2018), "Great participation – everyone played and had fun. They were pushed out of their safety zone – they did not know the [class] but they engaged well anyway. Played a team race game with the mats and had to learn to work together to race the other 3-4s" (entry 27). An example of a different visit was when my students collaborated with a different MEMSS class to learn iPad skills and to make a short iMovie with their secondary student partner. As a result of this experience, my class continued to be interested in working with iPads and iMovie, and we completed several projects in our class as the year progressed. Through our MEMSS trips, we collaborated with five secondary teachers and many MEMSS students, all of which I feel were valuable community connections for my students.

This year my students participated in two trips to our local gymnastics club. They received a warm welcome from the club manager, and excellent coaching during their experiences. I feel what made these experiences collaborative in nature was the strong relationships my students formed with the coaches in a short time, and the strong level of student participation and follow-up. We were the first class within my school in several years to visit the gymnastics club. For many students, this field trip was a chance to learn about a facility and club within their community that they had never experienced. Our first visit was a terrific success and the coaches were instrumental in encouraging student achievement. Many students tried activities for the first time and learned new skills. From my researcher's journal (2018):

As a follow-up, students wrote thank you letters to the two coaches. I provided very little framework or prompts for their letters, but in marking them, most students wrote
excellent letters with lots of details and thanks. The connection I'm making is students who genuinely feel connected to an activity or event are grateful, and can also express themselves well in writing (entry 50).

The coaches were surprised and touched to receive the students’ letters, and my class was excited for their second visit.

An additional example of students collaborating outside of school is seen in our Socials class Treasure Map project. Students learned in class the skills to make a grid-based Treasure map with specific criteria, and to write compass and scale-based directions to find their treasure. I felt that this project's learning level was fairly challenging, especially for some of my younger grade 3s. This led me to write a special letter to all parents, encouraging them to treat this as a collaborative project with their child, and encouraging parents to be actively involved with helping. From my journal (2018), "I feel the parent-child relationship is good to tap into. I like to think of parents connecting over learning with their child over the weekend. It’s maybe a simple thought, but may create some meaningful parent-student time together. It also addresses some stress that students might have if not encouraged to work together" (entry 43). The resulting projects from this collaborative exercise were excellent. Students were very proud to share and display their maps, and great effort could be seen in the quality of the maps. Students also enjoyed the chance to follow each other's map directions to seek the treasure. As a teacher, it can be easy to overlook parents as a collaborative resource for learning. I was pleased with this project's outcomes.

Some additional examples of students collaborating with adults outside of our school include students entering a regional Popsicle Bridge Building Competition, students working
with guests artists from our local Museum, students participating in four swimming field trips, and students submitting and seeing their writing published twice in our local newspaper.

**Data Analysis and Themes: Learning Maps**

Students provided three different sets of learning maps for use as data: 1) First Stage of Map One was produced on October 2, 2018, 2) Completed Map One was finished on January 24, 2018, and 3) Map Two was created on February 16, 2018. The greatest difference in the quantity of features drawn by students between these three maps is between the first stage of map one and completed map one. These two maps were analyzed to determine what features changed and by how much, and to examine possible reasons for these changes. Map analysis is presented from both a broad view and at a closer, detailed level. A second analysis and discussion of First Stage of Map One and Map Two subsequently follows.

**Comparing First Stage of Map One and Completed Map One.** Table 3 presents a comparison of three categories of features between First Stage of Map One and Completed Map One. The three categories were self-image, areas for growth, and connections and strengths. Self-image features were recorded by counting how many features students drew as part of their self-representation on their Learning Maps. Each time students added to their learning maps they were also invited to add to their self-image.

Areas for growth features were recorded by counting how many narrow arrows students drew and labelled on their Learning Maps. Each time students added to their learning maps they were invited to add new areas for growth, and to also thicken existing narrow arrows if they believed they had improved in this area for growth. Students had a total of four opportunities to add to their learning maps in order to create their Completed Map One.
Lastly, connections and strengths features were recorded by tallying how many thick arrows students drew and labelled on their learning maps. A summary of features per student for the First Stage of Map One and Completed Map One is presented in Table 3.

Table 3

Comparison of Three Categories of Features for First Stage of Map One to Completed Map One per Student (n=16)

<table>
<thead>
<tr>
<th>Student</th>
<th>Self-Image Features</th>
<th>Areas for Growth</th>
<th>Connections &amp; Strengths</th>
<th>Self-Image Features</th>
<th>Areas for Growth</th>
<th>Connections &amp; Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>4</td>
<td>18</td>
<td>9</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>14</td>
<td>3</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>3</td>
<td>19</td>
<td>5</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>8</td>
<td>14</td>
<td>5</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>5</td>
<td>18</td>
<td>7</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>5</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>5</td>
<td>15</td>
<td>2</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>13</td>
<td>4</td>
<td>4</td>
<td>14</td>
<td>4</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>12</td>
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<tr>
<td>15</td>
<td>2</td>
<td>2</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
<td>5</td>
<td>15</td>
<td>4</td>
<td>2</td>
<td>32</td>
</tr>
</tbody>
</table>

Each time students added to their learning maps they were invited to add more thick arrows to new connections and strengths, and to also consider thickening existing narrow arrows if these
had grown into new strengths. If a student labelled multiple connections or strengths at the end of a thick arrow, each labelled item was counted.

The purpose of collecting this data is to examine to what extent learning maps can act as an indicator of students' sense of belonging and as evidence of change in student collaboration. I suggest that change in sense of belonging can be measured as students feeling more proficient over time, represented by reduction in areas for growth, combined with student gains in their reported connections and strengths. Taking a broad view approach, I quantified this perspective by examining the ratio of areas for growth to connections and strengths, as shown in Table 4. For the First Stage of Map One, the average student had 2.5 connections and strengths for every one area for growth. Notably, by Completed Map One, this ratio increased to students having 8.9 connections and strengths for every one area for growth. While I expected increases in connections and strengths since students had four further opportunities to add to their learning maps, this positive result is greater that I would have expected.

Table 4

*Ratio of Areas for Growth to Connections and Strengths (n=16)*

<table>
<thead>
<tr>
<th></th>
<th>First Stage of Map One</th>
<th>Completed Map One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average student areas for growth</td>
<td>4.69</td>
<td>2.75</td>
</tr>
<tr>
<td>Average student connections and strengths</td>
<td>11.75</td>
<td>24.56</td>
</tr>
<tr>
<td>Ratio of areas for growth to connections and strengths</td>
<td>1 : 2.5</td>
<td>1 : 8.9</td>
</tr>
</tbody>
</table>

The factor that most influenced this change in ratio was the sizable increase in connections and strengths from 188 to 393, as shown in Table 5. Although students recorded 29 fewer areas for growth on Completed Map One, students drew 205 additional connections and
strengths thereby affecting the ratio's growth the most. All students experienced positive changes in connections and strengths. This suggests that students were making new connections with their peers and with other adults, since there was no change in the quantity of family connections. The increase in student strengths stemmed from some areas for growth evolving into personal strengths as seen when narrow arrows were thickened, and from students recording new strengths on their Completed Map One as well as students making new connections with peers and adults.

Table 5

*Summary of Changes from First Stage of Map One to Completed Map One (n=16)*

<table>
<thead>
<tr>
<th></th>
<th>First Stage of Map One</th>
<th>Completed Map 1</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total self-image features</td>
<td>58</td>
<td>66</td>
<td>+ 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ 14%</td>
</tr>
<tr>
<td>Average student self-image features</td>
<td>3.625</td>
<td>4.125</td>
<td>+ 0.5</td>
</tr>
<tr>
<td>Total areas for growth</td>
<td>75</td>
<td>44</td>
<td>- 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 39%</td>
</tr>
<tr>
<td>Average student areas for growth</td>
<td>4.69</td>
<td>2.75</td>
<td>- 1.94</td>
</tr>
<tr>
<td>Total connections and strengths</td>
<td>188</td>
<td>393</td>
<td>+ 205</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ 109%</td>
</tr>
<tr>
<td>Average student connections and strengths</td>
<td>11.75</td>
<td>24.56</td>
<td>+ 12.81</td>
</tr>
</tbody>
</table>

The average quantity of First Stage of Map One connections and strengths per student was 11.75 (Table 4). This average grew to 24.56 per student, or more than double. It is notable and worth examining student six’s results since they experienced the most change in their
connections and strengths. This student's connections and strengths grew from 14 to 40. Their Completed Map One shows a variety of new connections and strengths that includes new class friends, new strengths in subject areas, new connections with community activities, and new connections with school staff. It is interesting to note that their growth came from a balanced variety of sources rather than from just one area. Also, seven of their areas for growth evolved into new strengths. From teacher observations of student six, I feel that they have represented their growth fittingly on their learning map. Over the same time period, I observed this particular student expand their social network from a few peers to making new class friends. This student also connected well with school staff and had positive experiences on our community trips. In this example, student six's learning map data seems to be a strong reflection of their experience as seen through my observations.

Concerning student connections and strengths, I wondered what the additional 205 features represented. A closer examination of the data might explain whether the growth was in new peer friendships or in adult connections, in personal hobbies or community activities, in academic subjects or in social skill development. As shown by Table 6, the majority of new features came from growth in two areas: peer connections and subject-related strengths. Students recorded 51 additional peer connections in Completed Map One, nearly doubling their initial quantity of 55 peer connections. This suggests to me that my students connected with more of their classmates from October to February. As a teacher, this time period represents a change from students initially meeting each other to students participating routinely and frequently in collaborative social and learning activities. Peer connections were significantly greater than staff connections.
Table 6

*Comparison of Connections and Strengths for Six Types of Features (n=16)*

<table>
<thead>
<tr>
<th>Types of Features</th>
<th>First Stage of Map One</th>
<th>Completed Map One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer connections</td>
<td>55</td>
<td>96</td>
</tr>
<tr>
<td>Staff connections (not including myself)</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Subject-related strengths</td>
<td>29</td>
<td>89</td>
</tr>
<tr>
<td>Hobby-related strengths</td>
<td>19</td>
<td>58</td>
</tr>
<tr>
<td>Community activity-related strengths</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Social Strengths</td>
<td>8</td>
<td>24</td>
</tr>
</tbody>
</table>

Students indicated minimal growth in forming staff connections. Because two students listed a total of seventeen staff, there appears to be some growth, but it was mostly limited to those two students (Table 6). The impact of staff collaborating with my students was not being represented by students on their learning maps. Possible reasons for this include: students not feeling a strong connection to other staff, students accepting this connection with staff as ordinary within a school and therefore not reporting on it, or perhaps the student-staff relationship needed more time to mature before students report on it as a support.

As a teacher, I was pleased to see some of the social language and skills we practiced in our class being represented on student maps as 24 social strengths features (Table 6). Student social strength labels on their maps included helping others, being kind, listening better, making friends, and getting along. While the increase in social strengths were modest in quantity, it indicates that students see themselves as both academic learners and as social members of our learning community.
An area where I had expected more additions was in self-image features. I expected that students would add extra features about themselves during each of the four learning map rounds. In fact, there was little change in this area. The average student drew 3.62 features on their initial map, and on average added only 0.5 new features (Table 5). It is possible that I did not give examples of this step or reminders each time we revisited our learning maps, or it is possible that students were mostly satisfied with their initial image. The latter is more likely because students had significant time on the first day of learning maps to draw their self-image. I would also suggest that as students added to their learning maps they were more excited to record their new growth and their new connections, and less interested in drawing more features reflecting themselves.

Subject-related strengths also grew significantly during this period, from 29 strengths to 89 strengths as shown in Table 6. This growth goes hand-in-hand with the reduction in areas for growth. Possible reasons for this change are discussed with the examination of areas for growth below.

A table showing specific features that students recorded as areas for growth between all three maps is presented in Appendix C. I noticed three interesting changes between First Stage of Map One and Completed Map One. There was a reduction by more than 50% in areas for growth related to school subjects, especially for math, typing, art, science and reading. One possible reason for this reduction was that students were now past the mid-point of the school year and were feeling more competent in their knowledge and skills. Also, it is possible that the extra adult help we received in class during this period is reflected in this reduction in areas for growth. Another reason may be that the peer collaboration for learning that was prevalent in our class was helping students become more proficient in their areas for growth and in their school
subjects in general. Finally, it is also possible that students were more keen to draw connections and strengths, and that students simply drew fewer areas for growth. As their teacher and researcher, I suggest that this reduction in their areas for growth was a result of combining the above four reasons.

Another change seen in Appendix C was the elimination in certain social behaviours that impact learning and behaviour in class. The areas for growth of paying attention, listening, not getting frustrated, and being tired were reduced to zero. This suggests that some students were recognizing improvement in their own behaviour in class as these narrow arrows were thickened into strengths.

Finally, one area for growth that showed no real change was in hobbies at home and activities in the community. The total count for these features remained similar from First Stage of Map One to Completed Map One. The only notable increase was in gymnastics. After students had one field trip for gymnastics, many students added this activity to their areas for growth suggesting a new personal interest and a desire to improve.

Overall, I feel that changes from students' First Stage of Map One to their Completed Map One are an appropriate indicator of positive change in students' sense of belonging. From the period from October 24 to January 24, the learning map data showed that students reduced their areas for growth by nearly 40%, while at the same time increased their connections and supports by over 100%. The two greatest factors driving this growth was increasing peer connections and the growth of subject areas as strengths. Connections with staff were minimally reported, except on the learning maps of two students. An increase was noticed in positive social strengths by students. As their teacher, I facilitated and observed collaboration to different extents on a daily basis, and I observed carefully as students grew to know each other better and
made new adult connections in and out of school. I also observed students gaining new skills and confidence in our classroom learning activities. In conclusion, my students progressively interconnected and strengthened giving them a greater sense of belonging within their class and to their school. This appears to be evident on student learning maps based on the positive changes from First Stage of Map One to Completed Map One.

Map Two examination and analysis. I followed the process for teaching Map Two as outlined by Goessman (2017). In preparation, I altered our classroom environment to create a workshop-like atmosphere. Desks were arranged in a semi-circle and a table was prepared with healthy snacks for students. The regular learning routine was paused and a full morning was provided to complete their Map Two. Part of the purpose of these changes was to influence students to take extra time to immerse themselves into creating their final map. It had been a month since students produced Completed Map One, so I did a review of learning map criteria on the board for students. Students drew a new learning map from scratch, without using their previous learning maps as reference. The reason for not allowing the previous map as a reference was to encourage students to re-draw their self-image, their areas for growth, and their strengths and connections without any influence from their original learning map.

For self-image, students recorded 68 features on Map Two as compared to 58 features they drew on First Stage of Map One, as shown in Table 7. This is similar to 66 self-image features that students reported on Completed Map One. Overall, students were consistent in the quantity of their self-image features. There were no significant changes to report in how students drew their self-images.
Table 7

Summary of Changes from First Stage of Map One to Map Two (n=16)

<table>
<thead>
<tr>
<th></th>
<th>First Stage of Map One</th>
<th>Map Two</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total self-image features</td>
<td>58</td>
<td>68</td>
<td>+10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+17%</td>
</tr>
<tr>
<td>Average student self-image</td>
<td>3.63</td>
<td>4.25</td>
<td>+0.62</td>
</tr>
<tr>
<td></td>
<td>features</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total areas for growth</td>
<td>75</td>
<td>21</td>
<td>-54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-257%</td>
</tr>
<tr>
<td>Average student areas for</td>
<td>4.69</td>
<td>1.31</td>
<td>-3.38</td>
</tr>
<tr>
<td>growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total connections &amp; strengths</td>
<td>188</td>
<td>289</td>
<td>+101</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+54%</td>
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<tr>
<td>Average student connections &amp;</td>
<td>11.75</td>
<td>18.06</td>
<td>+6.31</td>
</tr>
<tr>
<td>strengths</td>
<td></td>
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</tbody>
</table>

On Map Two students reported 21 areas for growth as compared to 75 features on First Stage of Map One (Table 7). This is a large reduction of 257% in areas for growth. One possible reason for this reduction is that students were more keen to recognize and draw their connections and strengths, rather than drawing areas for growth. Another possible reason for this reduction is that students were feeling confident in their personal growth since the school year was more than half complete, and that they did not feel the need to add many narrow arrows representing areas for growth. The 21 areas for growth were shared between 14 features, suggesting that there was no one or two major areas for growth dominating student maps, as can be seen in Appendix C.

On Map Two students reported 289 connections and strengths, increased from 188 features on First Stage of Map One (Table 7). While I expected to see growth in drawing
connections and strengths, the increase was only 54%, which is half of the increase in features that students drew on their Completed Map One. I was surprised with the reduced quantity of connections and strengths that students drew on their Map Two. Upon reflection, the fewer amount of connections and strengths drawn may have occurred for a few reasons. Students had multiple sessions to contribute to Completed Map One, and as such, they had more time to add features. For Map Two, students were starting with a large, empty sheet, and had to complete their self-image features as well as areas for growth and connections and strengths. In short, students did not have as much time to create Map Two as the cumulative time they had with Completed Map One. Also, I noticed some students spending considerable time on their Map Two artwork, so it is possible that students drew fewer features but with more detailed art. Finally, I reflected on whether students may have been experiencing some fatigue with learning maps. Map Two represented the eighth time working with a learning map, and it is possible some students were just not as interested in building their map as they were before.

However, when Map Two results were examined as a ratio between areas for growth compared to connections and strengths, there was a considerable increase in this ratio in Map Two, as shown in Table 8. The ratio of areas for growth to connections and strengths grew from 1:2.5 on First Stage of Map One, to 1:8.9 on Completed Map One, and increased further to 1:13.8 on Map Two. In Map Two, both the large reduction in areas for growth and the 50% increase in connections and strengths equally boosted the ratio. As noted earlier, this ratio of areas for growth to connections and strengths is one perspective to quantify student sense of belonging and interconnectedness. By comparing First Stage of Map One to Map Two it can be asserted that learning maps can act as an indicator of students' sense of belonging.
Table 8

*Ratio of Areas for Growth to Connections and Strengths for All Learning Maps (n=16)*

<table>
<thead>
<tr>
<th></th>
<th>First Stage of Map One</th>
<th>Completed Map One</th>
<th>Map Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average student areas for growth</td>
<td>4.69</td>
<td>2.75</td>
<td>1.31</td>
</tr>
<tr>
<td>Average student connections and strengths</td>
<td>11.75</td>
<td>24.56</td>
<td>18.06</td>
</tr>
<tr>
<td>Ratio of areas for growth to connections and strengths</td>
<td>1 : 2.5</td>
<td>1 : 8.9</td>
<td>1 : 13.8</td>
</tr>
</tbody>
</table>

One possible reason for this overall ratio progression is that I continued to facilitate peer and staff collaborative learning activities and social building games throughout the year. In Chapter 5, I examine how the changes in student areas for growth and student connections and strengths as presented in student learning maps relate to my experience as a teacher as reported in my researcher’s journal.

As noted, student connections and strengths grew by 101 features in Map Two. Table 9 provides a closer inspection of the nature of these additional 101 features. Of note is the significantly lower reporting for peer connections on Map Two compared to Completed Map One. As their teacher who had observed students connecting well all year long, I had expected students to list more individual peer names as supports on their maps. However, there was not a consistent change in reporting friends. Some students added more class friends, some students had no peers listed, and some students just wrote class or friends but had no specific labels. One student drew a seven-friend interconnected web which included his pre-existing friends and several new cross-grade friends.
Table 9

*Connections and Strengths for All Learning Maps (n=16)*

<table>
<thead>
<tr>
<th>Types of Features</th>
<th>First Stage of Map One</th>
<th>Completed Map One</th>
<th>Map Two</th>
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<tbody>
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<td>Peer connections</td>
<td>55</td>
<td>96</td>
<td>60</td>
</tr>
<tr>
<td>Staff connections (not including myself)</td>
<td>5</td>
<td>22</td>
<td>36</td>
</tr>
<tr>
<td>Subject-related strengths</td>
<td>29</td>
<td>89</td>
<td>52</td>
</tr>
<tr>
<td>Hobby-related strengths</td>
<td>19</td>
<td>58</td>
<td>31</td>
</tr>
<tr>
<td>Community activity-related strengths</td>
<td>5</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Social Strengths</td>
<td>8</td>
<td>24</td>
<td>17</td>
</tr>
</tbody>
</table>

A change that was apparent in Map Two was an increase in the amount of teachers that students included as supports. While family size reporting did not change, students drew 36 school staff as supports on Map Two as compared to 5 staff represented on First Stage of Map One. It is noteworthy that the resource teacher who co-taught Science lessons in our classroom was included in Map Two by most students. A variety of students drew connections to other teachers including our buddy reading teacher, our Fun Friday teachers, and our Administrators.

Another difference I perceived in Map Two were labels to social strengths that students drew. In First Stage of Map One, for example, nearly all strengths related to subject areas or hobbies. On Map Two, students included 17 social-related strength labels including happy, making friends, being kind, connecting together, listening, getting along, and being helpful. While these social strengths labels were not present in all student maps, I was pleased to see them included, albeit reduced from the 24 social labels in Completed Map One.
Overall, I feel that comparing students' First Stage of Map One to their Map Two is also an appropriate indicator of positive change students' sense of belonging. The student ratio of areas for growth to connections and strengths increased considerably in Map Two. Of interest were more students including more staff as supports in Map Two. Student peer connections changed little from First Stage of Map One to Map Two.

**Conclusion**

Data from my researcher's journal and from students' three learning maps was presented and analyzed. An overall theme of collaboration was found to be present throughout my journal, and four sub-themes were reviewed and discussed with examples. The sub-theme most prominent in my journal was my collaboration with other adults. Other sub-themes included my students' experience with peer and adult collaboration. It was proposed that collaboration at all levels can be viewed as a tangible form of sense of belonging in action. Data from all three learning maps was presented and examined for change over time. While there was minimal change in student self-image features between all learning maps, there was sizeable reduction in areas for growth and notable increases in student connections and strengths. A ratio of areas for growth to student connections and strengths was presented. The ratio of areas for growth to connections and strengths grew from 1:2.5 on First Stage of Map One, to 1:8.9 on Completed Map One, and increased further to 1:13.8 on Map Two. This ratio was presented as one method of determining how learning maps can act as an indicator of sense of belonging. A discussion follows in Chapter 5 examining connections, ideas, and recommendations from my literature review combined with analysis from comparing researcher's journal data with student learning maps data.
Chapter Five: Discussion

Chapter One introduced my aspiration to build a classroom environment that uses collaborative experiences to help develop a strong sense of belonging in my students. It also introduced my goal of teaching student learning maps to see if they could be an indicator of student sense of belonging. Chapter One provided key definitions for student sense of belonging and learning maps. Chapter Two investigated literature within the education field related to four themes: the importance of sense of belonging as it relates to academic growth, the role of peer relationships on sense of belonging, how teachers impact student sense of belonging, and different methods for teachers to foster sense of belonging through collaborative experiences. Chapter Three described my research method of keeping a researcher's journal to record my experiences as a teacher, and described my action research process of teaching student learning maps. Chapter Four analyzed and discussed themes from my researcher's journal and findings from student learning maps.

Key Results with Reference to Literature

My teaching journey this year started with learning what is student sense of belonging, why it is important in education, how I can foster it in my classroom, and learning more about the learning map process. The final outcome of my research and my experiences was personal and student growth in sense of belonging primarily through collaboration. In between my start and finish, my learning journey in a new school paralleled much of my students' experiences this year at school. I will share my journey and my key results by presenting three themes prevalent in my research: 1) academic and social benefits of student sense of belonging and collaboration, 2) strategies for collaboration, and 3) my overall experience with sense of belonging. This
discussion will include connections between my literature review, outcomes of my researcher's journal, and outcomes from student learning maps.

**Academic benefits of student sense of belonging and collaboration.** Chapter Two presented many of the benefits of students having a positive sense of belonging in education, especially regarding academic benefits. The National Council for Curriculum and Assessment (2009) suggested that feeling a sense of belonging can act as a foundation for future learning and growth. Pittman and Richmond (2007) found that a strong sense of belonging was a good predictor for academic progress. The OECD report on student engagement and sense of belonging also suggested that sense of belonging and academic success walk hand-in-hand (Willms, 2000). The same OECD report offered that all students, regardless of their social economic status, can achieve a sense of belonging at school. Taqi and Al-Nouh (2014) presented findings related to group-work, motivation, and creativity. In their study, three-quarters of their subjects reported preferring group work over individual learning, and reported that subjects felt peer collaboration was more motivating than learning individually. A secondary benefit was that students felt the learning that they presented was more creative than had they worked alone. Lastly, Wiliam and Leahy (2015) stated that a benefit of collaborative learning is that students can be excellent supports for learning for each other.

From my researcher's journal, I saw first-hand how student collaboration supported academic learning and engagement. I used a variety of collaborative learning lessons across multiple subjects. Over time I reported observing a shift where students engaged in collaborative academic lessons took more responsibility for their group's learning, and also began to take more initiative to support each other with learning. Collaborative learning started to feel more organic, less teacher-led, and group learning activities flowed with positive energy and engagement.
Student collaboration in class partner reading and buddy reading was especially effective in improving reading participation and reading development. My collaboration with other staff lead to another teacher providing significant learning support to students in our class in two subjects, and in doing so, boosted the academic progress of students.

Student learning map data also seemed to support the positive academic benefits of having a sense of belonging and of collaborating for learning. Learning map data showed that student subject strengths and peer collaboration increased hand-in-hand over time, while student areas for growth decreased significantly over time. Over the action research period, students also reported increased connections with teaching staff on their learning maps. A possible reason for the growth in student subject strength was the increased academic collaboration amongst peers and between students and additional teacher support in class. Overall I submit that learning map data demonstrated that students felt more success with school subjects over time while also feeling a sense of belonging through their increased connections with peers and with other school staff.

In conclusion, the literature presents that students' positive sense of belonging is a contributing factor for student academic success. A key result was that I observed student academic growth and greater engagement in learning through our peer collaborative learning experiences, which I suggest students also recognized through recording increased school subjects and greater peer connections as new strengths.

**Social benefits of developing student sense of belonging and collaboration.** Along with academic benefits, there are social benefits for students from having a strong sense of belonging. Teachers are expected to incorporate social skill development as outlined in the BC curriculum on core competencies (n.d.). The BC curriculum has six core competencies, many of
which relate to developing student sense of belonging. Core competencies call on students to engage with peers and share and develop ideas, to develop their community-mindedness, to explore their self-worth, and to build positive peer relationships, all while learning how to contribute to their own learning environment. Taqi and Al-Nouh (2014) shared their results that students with a positive sense of belonging who participated in peer learning experienced boosts in morale, self-image, and motivation. They found growth in student social skills, including students having more confidence to present to their peers. Bouchard and Berg (2017) argued that once students have a sense of belonging, they can focus on developing in other ways, including building friendships and completing tasks. Furthermore, Bouchard and Berg (2017) reported that students want teachers to be involved with supporting their emotional-social needs. Lastly, Laldin (2016) explained what can happen in a learning environment that does not foster a sense of belonging. She described how a student who does not feel that they belong or fit in with peers, may use some of their mental energy to scan for threats or concerns within their class, rather than focusing on learning and positive social interactions.

I observed and recorded social benefits in my students over five months in my researcher's journal. I lead social development activities evenly throughout the school year, and recorded 41 examples of social collaboration in my reflections. The nature of social activities I lead quickly evolved from formal team-building games to small group sharing opportunities. As their teacher, I realized that my students had a strong desire to communicate and that they needed more sharing opportunities to further connect. A key result that I feel students achieved was making new friends across our grade split while gently dissolving pre-existing friendship cliques in our class. My goal was for students to enjoy collaborating with all other students and not just a select few. Students grew proficient with small group sharing and they developed the
responsibility over time to self-manage these conversations. Many times I recorded observing laughter, turn-taking, genuine sharing, participation of all students, and a relaxed atmosphere in student sharing circles. Small sharing circles appeared to play a key role in developing students' sense of belonging as they grew to know each other with depth.

Finally, I believe that student social collaboration efforts lead to a significant reduction in negative classroom behaviour. I noted in my journal part-way through my experience that I was having fewer classroom management challenges. Negative behaviours that are typical at grade three and four were progressively diminishing. A few students who had very challenging behaviour in September were showing excellent improvements in their self-regulation. Their behaviours were less intense, lasted for shorter periods, and these students returned to positive learning much quicker. My classroom management approach of fostering a caring class of interconnected students was effective. In my journal I noted that my happiness as a teacher was positive, and I believe my students experienced similar positive feelings about school through having a strong sense of belonging with their teacher and their peers. Lastly, I observed that students who had initially been on the social fringe within our classroom were now innately included and engaged in peer activities and peer learning.

Students were encouraged on each set of learning maps to record their areas for growth and to record new peers connections and strengths. Students reported strengths related to hobbies, subjects, community activities, and to social skills. Eight social-related strengths appeared on students' First Stage of Map One. This quantity grew to 24 social-related strengths on Completed Map One. I observed that some of the social-related language that we used regularly in class, like kindness, helping, and making friends, appeared on student learning maps. While subject-related strengths were the main reported strengths, there was positive growth in
reporting social strengths, suggesting that students saw themselves both as academic class members and as part of a social learning network.

In conclusion, literature presented shows that having a sense of belonging is also beneficial for students' social development. Another key result was that I observed growth in social relationships and behaviours as students participated in class activities enabling them to connect more deeply with peers. While not as strongly represented as their academic growth, students did report more social skill strengths on their Completed Map One.

**Strategies for collaboration.** The literature was beneficial for me to comprehend and adopt new teaching practices that supported classroom collaboration, and ultimately, helped develop students' sense of belonging. Bouchard and Berg (2017) emphasized the value of having collaborative activities throughout a school day permitting students to share often with peers. Pham (2017) stated that cooperative games are more effective tools for building trust and acceptance when used over a long period of time, and not just at the beginning of school. Pham (2017) also explained how academic content can be woven into social building games. A study that impacted and improved my teaching practice was Liljedahl's (2016) explanation of teaching math with peer groups using vertical learning spaces. Liljedahl (2016) showed how peer groups collaborating on vertical math problems improved student persistence, participation, and learning. Similarly, Iverson (2015) explained strategies she used to promote sense of belonging including expanding the vertical math concept to other subject areas in her class, and adding buddy reading and other leadership opportunities for her students. Finally, Sagor (1996) strongly advocates for teachers to include daily purposeful practices to instill positive feelings in students, and he reminds teachers to weave these practices into learning all year long. Sagor (1996) believes that building resiliency in students and teaching are the same thing, and I would expand
this view to suggest that developing student sense of belonging is an ingrained part of ongoing teaching practice, and not just a series of teaching moments.

From my researcher's journal, I can see that I provided multiple opportunities for group learning and for peer-staff collaboration evenly spread over five months. I recorded 94 collaborative experiences for students. Some collaborative strategies I already knew and applied regularly, but many were new to me and I learned and improved my practice from trying new methods and observing outcomes. Of note I successfully introduced vertical learning with peer collaboration in some subjects. I found students were well engaged in discussion in problem solving while gathered in vertical learning spaces. While I did use some formal team-building games through the year, I found the most effective way to build student sense of belonging was through frequent opportunities for small sharing circles, for both academic and social development. Three physical changes to our learning space that made a difference to supporting collaborative learning were the introduction of portable cushions for partner reading, the addition of peel and stick whiteboards for vertical learning, and the expansion into other learning spaces to make more room for collaboration. Four other effective strategies that supported collaboration and sense of belonging was going for community social walks, having three rounds of Show and Tell, participating in buddy reading with another grade, and providing unstructured play opportunities for students to interact freely. Lastly, I sought out parent volunteers and community learning opportunities to enhance our social and learning experiences. We visited the local secondary school several times to participate in different learning events. I believe the opportunities to learn from other adults were valuable experiences for my students and for myself.
While the application of different collaborative strategies was not immediately apparent on student learning maps, I suggest that the outcomes from these strategies can be observed. Broadly speaking, over the course of the three learning maps, students had fewer areas for growth, while also recording more peer and staff connections and more subject-related strengths. Although academic growth is always an intended outcome of teaching, perhaps the strong growth in peer and staff connections is the outcome of carefully applied collaborative strategies over the same period of time. For example, some students did record buddy-reading and MEMSS and science with our resource teacher as strengths on their maps.

Overall, the literature informed me about new strategies for collaboration, especially about methods to get students learning together in vertical spaces. The literature also encourages teachers to weave collaborative opportunities throughout the school day, and regularly over the year, both of which I implemented. Another key result is that I effectively applied new strategies for promoting collaboration, in and out of the classroom, while also refining my existing methods. Student data from learning maps indicated progressively increasing peer and staff relationships, reflecting success in facilitating collaboration.

**My overall experiences with sense of belonging.** It is worth restating Hadfield's (1992) assertion that it is the teacher's role to pay attention to group process dynamics and to shape a peer learning environment that is fun and interdependent. A strong sense of belonging does not develop by happenstance, but rather is the product of intentional teaching practices. It was my aim and my role this year to foster a classroom learning environment, rich with collaborative experiences, with the goal of infusing students with a strong sense of belonging.

My journey with my own collaboration mirrored that of my students in many ways. From my researcher's journal, a vital factor in my success in implementing learning through
collaboration for students was in taking teaching risks. I took risks in trying new collaborative teaching strategies, in trying new instructional approaches like using Daily 5 CAFÉ, and in becoming a teacher coach for the first time. I was encouraged by my students' success with risk taking and I found that each positive risk pushed me to take more risks in my practice.

Being new to my school, I actively sought out support and collaboration with other teachers. This collaboration shifted from being a source of support early in my year, to becoming my opportunity to contribute back to staff and my school. Much like success with risk lead to more risk taking, early success with collaboration lead me to seek additional staff collaborative opportunities. My frequency of reported collaboration with staff doubled from the start of my journal to the finish. At the same time, I found more personal growth and value in further developing select staff relationships. My deeper collaborative experiences with two staff were key in improving my practice, much like my students' academic growth was affected by their peer collaboration. At the same time, my collaborative experiences were having an energizing, empowering effect on me. I felt supported, integrated, and appreciated as a staff community member. Taking the risk to be a teacher coach validated my sense of belonging, showing me that I could contribute meaningfully to other teachers. Positive support from parents and community members also enriched my learning and added to my students' experiences. Altogether, the strong, supportive feelings and positive energy I received from collaborating with others were important experiences to sustain my growth momentum and indirectly supported my students' sense of belonging and growth.

Finally, and most importantly, I had inspiring learning and social experiences with my students. I was apprehensive about my abilities in my new role, having had limited experience with teaching grade three and four. At the time, I felt much like a new student who enters an
FOSTERING SENSE OF BELONGING

established class mid-year, somewhat disconnected and unsure of my abilities. Through consistently cultivating an inclusive, caring, interdependent class environment, I formed strong teacher-student bonds with my class. We had a fun, energetic year of learning new skills together, of developing our ability to communicate and support each other, and of making new and lasting friendships. A key result was my teaching practice grew and improved, my collaboration broadened and deepened, my sense of belonging progressively expanded, and I believe the same can be said about my students' development, based on the overall growth they reported on their learning maps. Our collaborative experiences, taken as a whole over the school year, significantly impacted my sense of belonging as a teacher, and my students' sense of belonging to each other and to our school.

Implications

Limitations of the study. This study had several limitations. The action research findings are only applicable to this particular group of students. It was difficult to avoid researcher bias since the learning map process was presented by myself, and I was also the only person analyzing the data. It is possible and likely that I influenced students each time they added to their learning maps, even by giving simple examples at the start of each process. A solution would be to have a large poster outlining learning map criteria, and to present this poster each time to students, thereby reducing my own influence in delivering the lesson. To help improve validity I reviewed Corrie's learning map process each time to help me keep my instruction consistent.

Another limitation was that learning maps by nature and process are designed for students to progressively add more strengths and connections. Growth in supports and strengths is expected, and it's also expected that some narrow arrows would be thickened over time. That
said, the nature of student growth and peer connections are still interesting and valuable to observe and reflect upon.

Another challenge presented was in interpreting the learning map data. In some cases, student artwork and student spelling resulted in a confusing presentation and I made a subjective interpretation of their intended meaning. A future approach would be to conference individually with students the next day in order to clarify their learning map messages. Also with student drawings, a few students drew narrow lines with wide arrowheads, creating a mixed message. A future solution would be to ask students to draw areas for growth on one side of the page, or to draw areas for growth in a certain colour. This would improve learning map interpretation.

One additional limitation would be that not all grade 3 and 4 students have the academic skills to write staff and student names and strengths on their posters. Some students wrote Mr. or Mrs. and a first letter of a teacher name, indicating which teacher was a support. I would suggest that perhaps grade 5 students would be more capable of clearly labelling learning maps.

One important area of this study that was not a limitation was engagement in the learning map process. Students were highly motivated to complete their drawings, and they were able to sustain their effort and concentration for extended time periods. In short, the learning map process was highly engaging for students.

**Suggestions for future research.** Much of the referenced literature addressed sense of belonging, peer and staff relationships, and social and academic benefits of collaboration. However, much of this research was conducted with students from grade six onwards, with most being secondary and college students. I suggest it would be informative but ethically challenging to conduct research with students in younger grades regarding their sense of belonging and their social development. Early success in school is valuable for future school
FOSTERING SENSE OF BELONGING

success, and research that produces strategies to guide teachers to improve student sense of belonging in younger grades would be welcomed.

I would also suggest research into how learning maps can be used to show development of collaborative relationships and sense of belonging. A more detailed learning map process could be established and more rigorously applied to see if this could be an insightful tool for monitoring student growth and interconnectedness. As a teaching tool learning maps were highly engaging for students, and I think it has potential value as a research tool.

Next steps. My next steps as a teacher is to continue learning from literature and from other teachers about strategies for building a caring classroom environment that fosters a strong sense of belonging. I want to refine many of the collaborative strategies I used this year in order to better foster student learning and growth. I want to continue building strong collaborative relationships with my colleagues and to look for opportunities to support their growth. I want to keep taking smart risks in my instruction and to keep reflecting on my teaching practice. I want to share with other staff the importance of building a strong sense of belonging for their students and to share helpful strategies for this process. I would also like to introduce the learning map process to one or two key staff who I feel would adopt it into their teaching methods. I would like to see the learning map process organically expand to more teachers through collaborative sharing. I would like to see how other teachers apply learning maps in their classroom to help refine my approach. Finally, I want to look for more ways to contribute to my learning community and to find ways to keep developing my sense of belonging at my school.

Conclusion

I feel it was valuable for me to have taken this learning journey specifically as a new teacher at my school. Many of the risks I was asking my students to take, many of the
relationships I was pushing my students to build, many of the new experiences they faced, I faced as well, over the same time period. I watched as my shy students bravely shared their stories at our school assembly, and this gave me courage to share my stories at staff meetings. I saw students on the social fringe develop their ability to build new friendships, while I connected with new colleagues in my environment. My students' successful journey of collaboration, growth, and building their sense of belonging was, in short, my journey too.

I urge educators who struggle with class management and academic growth, who are frustrated with students not knowing how to share a learning space or how to support each other, to investigate more about the importance of creating an interdependent learning environment that fosters a powerful sense of belonging. As teachers we often rush into delivering core curriculum at the start of the new year with the time pressure to rapidly address all subject outcomes. Teachers will say there is not enough time to fit in social development activities, that these extra lessons will take away from academic learning blocks. I submit the opposite is true. I suggest that the literature and my experience illustrates that time invested into fostering a collaborative learning environment that weaves social skill development into the heart of daily learning all year long will reward both students and staff with a strong sense of belonging, with improved academic outcomes, and with instilled core competencies that will serve students well over their education journey. I also suggest that the same teachers who can foster a strong sense of belonging in their class will benefit professionally from developing their own collaborative relationships with other staff, and will ultimately experience more positive, energizing days of teaching and learning alongside their pupils.
References


Appendix A

Researcher Journal Template

<table>
<thead>
<tr>
<th><strong>What Happened</strong></th>
<th><strong>So What</strong></th>
<th><strong>Now What</strong></th>
</tr>
</thead>
</table>

**KEY LEARNING:**

Based on Gibbs (1988)
## Appendix B

Frequency of Four Themes found in Researcher's Journal

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<th>Theme 2 SCSL</th>
<th>Theme 3 SCOMM</th>
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### Appendix C

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## Appendix D

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