

ADST 8 Students Perceived Sense of Belonging Throughout a Collaborative Textile Art Project

**by
Crystal MacInnis**

Bachelor of Education, Simon Fraser University, 2018
Bachelor of Physical Education and Coaching, Douglas College, 2011

Project Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Education

in the
Educational Leadership Program
Faculty of Education

© Crystal MacInnis 2023
SIMON FRASER UNIVERSITY
Summer 2023

Copyright in this work is held by the author. Please ensure that any reproduction or re-use is done in accordance with the relevant national copyright legislation.

Declaration of Committee

Name: Crystal MacInnis

Degree: Master of Education

Title: ADST 8 Students Perceived Sense of Belonging Throughout a Collaborative Textile Art Project

Committee:

Chair: Cher Hill
Assistant Professor, Education

Dan Laitsch
Supervisor
Associate Professor, Education

Rebecca Cox
Committee Member
Associate Professor, Education

Gillian Judson
Examiner
Assistant Professor, Education

Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

- a. human research ethics approval from the Simon Fraser University Office of Research Ethics

or

- b. advance approval of the animal care protocol from the University Animal Care Committee of Simon Fraser University

or has conducted the research

- c. as a co-investigator, collaborator, or research assistant in a research project approved in advance.

A copy of the approval letter has been filed with the Theses Office of the University Library at the time of submission of this thesis or project.

The original application for approval and letter of approval are filed with the relevant offices. Inquiries may be directed to those authorities.

Simon Fraser University Library
Burnaby, British Columbia, Canada

Update Spring 2016

Abstract

It is important for teachers to facilitate a positive sense of belonging in the classroom. Improving students' sense of belonging has a wide range of positive benefits including lowered levels of bullying, increased academic achievement and improved mental wellbeing and happiness. This research explores to what extent implementing a class wide textile art project could alter students' perceived sense of belonging in the classroom. Students completed surveys assessing belonging before and after the collaborative textile art project which were used to compare students' pre and post belonging scores. Students need to feel connected with their peers and find a sense of belonging within their school community to thrive, a collaborate textile art project may be a way of improving their belonging in the classroom.

Keywords: Education; Belonging; Community; Classroom; Textile; Art; Collaborative Project

Acknowledgements

I want to thank all those who helped me throughout this journey. I want to thank my school department for all the help and support they offered during the research project. I want to thank the faculty at Simon Fraser University (SFU) for making this project possible and supporting me from start to finish. I also want to thank my family for encouraging me to finish and to keep on going even when the stress and frustration felt overwhelming.

Table of Contents

Declaration of Committee	ii
Ethics Statement.....	iii
Abstract.....	iv
Acknowledgements.....	v
Table of Contents.....	vi
List of Tables.....	viii
List of Figures	ix
List of Acronyms	x
Glossary.....	xi
Opening Image	xii
Introduction	1
Research Question	1
Importance	2
Literature Review	2
Belonging	2
Art education.....	3
Common themes.....	4
Belonging and academic achievement	4
Belonging and mental health	5
Belonging and school community	5
Points of Conflict.....	5
Gaps in the research.....	6
Methods	6
Research Site/Participants.....	7
Circle Weaving.....	7
Research Design	8
Data Collection.....	10
Data Analysis	12
Qualitative and Quantitative Data	13
Belonging	13
Names	15
Classroom Community.....	16
Inferential Data.....	17
Reliability.....	18
Statistical Significance	19
Negative Effects	20
Discussion.....	21

Belonging in the Classroom.....	21
Addressing Limitations.....	22
Factors Affecting Success	23
Research Practice and Procedures	24
Future implementations	25
Conclusion	26
References.....	27
Appendix A. Parent Consent Form	32
Appendix B. Student Consent Form	34
Appendix C. Class List Example	36
Appendix D. Survey 1 (Pre Survey)	37
Appendix E. Survey 2 (Post Survey)	38

List of Tables

Table 1.	Circle Weaving Process	8
Table 2.	Research Timeline	9
Table 3.	Measuring Belonging.....	11
Table 4.	Belonging Assessment Correlation Matrix	18
Table 5.	Pre and Post Survey Data.....	20

List of Figures

Figure 1.	Belonging Pre and Post Survey Results	14
Figure 2.	Mean Comparison of Belonging Responses	15
Figure 3.	Classmate Names	16
Figure 4.	Affect on Classroom Community	17

List of Acronyms

ADST	Applied Skills Design Technology
SFU	Simon Fraser University

Glossary

Applied Design, Skills & Technology	A program that teaches various hands-on skills and techniques using problem solving, creativity and design as well as the use of technologies required
Belonging	Peer, teacher, and class connectedness, as well as feeling accepted, respected, and supported by peers, teachers, and others in the class
Circle Weaving	Weaving using a circular loom
Loom	A circular loom created by students out of hula hoops and yarn
Lower Mainland	A Geographic region on the southern west coast of British Columbia comprised of the Greater Vancouver area and the Fraser Valley
Project	A multi-task assignment given to students to complete individually or as a group
Textile	A cloth or woven fabric
Textile Art	Creative expression using textiles as the primary medium
Textiles (class)	Study involving different types of fabric including various fibers, yarns, knits etc.
Weaving	A method of textile production where two threads or yarns are woven together to form fabric, wall hangings, and other textile art projects

"To have or be with people who respect and value you as a person"

"To feel accepted and like you are important"

"Accepted"

"To be included and accepted by others"

"To not be made fun of in a class environment"

"Fitting in with others"

"It means to be accepted by the people around you"

"To exist"

What does it mean to belong?

From an 8th grade perspective

"Be included and treated fairly"

"To fit in and feel accepted by your community"

"To be accepted by the community and to feel accepted"

"It's like you're not an outsider"

"To feel like your included and know that your welcomed"

"To fit in and know you have people you can feel comfortable sharing with"

"It means that you feel like you are supposed to be there"

"To feel happy/accepted as well as feeling comfortable in the environment"

Introduction

On September 14th, 2022, I participated in a collaborative art project put on by SFU. SFU invited all staff, students, faculty, and alumni to come and participate at the Surrey SFU campus. I spent 30 minutes painting a tile that would then be added to a larger mural and displayed in the school. While I was painting, there were three other students at my table. I asked them if they were enjoying participating in creating the mural. They replied with a resounding, "Yes!" After participating in the art project, I personally felt more connected to the SFU community. I felt like I was a part of an SFU project and knew that the art would be displayed at SFU. I work at a newly established high school in the lower mainland that is struggling with reconnecting students to the school community post Covid. There is very little research on using collaborative arts-based methods to increase school belonging and feelings of connection. I wondered if an art project (one of which had made me feel more connected and have an increased sense of belonging towards my own school community of SFU), would have the same effect on students at the high school where I teach.

Research Question

By means of this research, I wanted to explore to what extent implementing a class wide textile art project could alter students' perceived sense of belonging in the classroom. Students need to feel connected with their peers and find a sense of belonging within their school community. Art can increase sense of belonging because it helps youth make sense of the world and express their feelings (Borgan, 2018). To create a sense of belonging, students need to feel accepted and a part of something. Dixson & Scalcucci focused on three main aspects of school belonging: feelings about peers, feeling about teachers, and sense of importance (2021). During this research, I implemented a class wide collaborative circle weaving project to see if students' participation in the art project would positively affect their perceived feelings of belonging in the classroom. All students completed two surveys about belonging: one before the project and one after expressing their thoughts and experiences regarding their own views of belonging and how they felt during the textile art project.

Importance

Improving students' sense of belonging has a wide range of positive benefits not just for the students but for the school community as well: higher levels of belonging have been related to lowered levels of bullying and violence within the school (Svavarsdottir, 2008). Testing strategies educators can implement within the school to improve belonging are important for the future because students with a positive sense of belonging are happier and have increased well-being (Jose et al., 2012). The art project brought students together and created a physical representation of how we are connected as a school. I had hoped that this would help students feel like they are important within the school and connected to others around them.

Literature Review

Humans, by nature, want to belong. This notion of belonging has been around forever but has only been a topic in academic literature since the 1930's when Adler suggested that people are socially embedded and have a basic need to belong. (Adler, 1930, as cited in Yuen et al., 2021). In high school, part of adolescence is moving away from your parents and finding where you belong within the community around you. Feeling a sense of belonging is important for social, emotional, and executive functioning during adolescence, (Dixson & Scalcucci, 2021, Korpershoek et al., 2020), whereas feeling socially excluded and a decreased sense of belonging may interfere with brain development throughout adolescence (Raufelder et al., 2021) and promote lowered levels of self-esteem. (Walsh et al., 2009). Research shows that art activities can improve well-being (Jensen, 2013; Jensen & Bonde, 2018; Karpavičiūtė & Macijauskienė, 2016), however there is limited research on whether a collaborative art project can increase students' sense of belonging in a classroom.

Belonging

In schools, belonging has been a popular topic in literature due to its relationship to development as well as the positive and/or negative effects it can have on students.

The research states that there are a few key predictors that affect a student's sense of belonging. The most common theme noted as affecting a positive sense of belonging in students is having positive student-teacher and peer to peer relationships (Ahmadi et al., 2020; Allen et al., 2018; Arslan, 2021; Blum, 2005; Boston & Warren, 2017; Craggs & Kelly, 2018; Riley, 2019; Wallace et al. 2012). Young people feel that "being seen and understood by teachers" (Riley, 2019) contributes to their sense of belonging. Teachers play a vital role in a student's sense of belonging. When teachers have positive relationships with students, and students feel supported by their teachers, they feel more connected to the school and have higher levels of engagement and attendance (Niehaus et al., 2016; OECD, 2003; Rosenfeld et al., 1998). Students also need to feel socially accepted by their peers to feel a sense of belonging (Vas et al. 2015).

The idea that one's belonging in life can have positive or negative emotional and physical effects on a person has been noted since the early 1900's. "Adler stated that the fundamental human motivation was belonging and participating with others for the common good" (Ferguson, 2020). Since then, understanding about the sense of belonging has evolved over time and is multifaceted. Sense of belonging can be defined as feeling accepted, included, valued, respected, and supported by others in your environment and community (Hamm & Faircloth, 2005; Goodenow & Grady, 1993). Students have described feeling a sense of belonging as "being a part of something" (Shaw, 2019, p. 84). When studying sense of belonging, there are many other aspects that can be related to school belonging such as connectedness, engagement, attachment, companionship, affiliation, and community (Carroll et al. 2017; Goodenow & Grady, 1993; Lee & Robbins, 1995; Hamm & Faircloth, 2005). For my research, I am defining belonging as, "peer, teacher and class connectedness, as well as feeling accepted, respected and supported by peers, teachers and others in the class" based on the scholarship of Carroll et al., 2017; Goodenow, 1993; Kercher, 2001; and Lee & Robbins, 1995.

Art education

The BC curriculum website states "Arts Education curriculum promotes the arts as a means of self-expression and understanding of identity, and as a place to connect with artists, art processes, artwork, and arts learning in students' own community" (Introduction to Arts Education, 2022). Arts education encourages self-expression,

identity, connectedness, and community, all items which are tied into one's sense of belonging. Students state that art is "therapeutic and enjoyable" (Fleck, 2002). Art activities have also been found to increase well-being, reduce stress, improve health, and empower participants (Jensen, 2013; Jensen & Bonde, 2018; Karpavičiūtė & Macijauskienė, 2016; Leong, 2005; Maclagan, 2005; Secker et al. 2007). Using arts-based education in the classroom is a hands-on way to engage and connect students to the curriculum as well as promote overall well-being.

Burton (2004) studied the effects a student art-exhibit can have on students. They found creating an art exhibit and sharing it with others can increase student engagement and learning. Students engaged in arts-based experiences in school were found to have reduced disciplinary infractions as well as increased compassion towards others and a higher willingness to help students who are treated badly (Kisida & Bowen, 2019). These outcomes are all aspects that could positively impact student belonging.

Common themes

A positive sense of belonging has been shown to have many positive benefits during adolescence. Researchers who studied a sense of belonging, generally agree that students can benefit from having a positive sense of belonging in school. Students have a more positive sense of belonging in their school if they feel connected to and supported by their teachers and peers (Ahmadi et al. 2020; Allen et al., 2018; Arslan, 2021; Riley, 2019), if they participate in school activities outside the classroom (Svavarsdottir, 2008), and if they feel accepted by the school community (Dixson & Scalcucci, 2021; Goodenow & Grady, 1993; Vaz et al., 2015). A positive sense of school belonging increases academic engagement and achievement, improves mental wellbeing and happiness, and improves attendance (Niehaus et al., 2016; O'Rourke & Cooper, 2010; Rosenfeld et al., 1998).

Belonging and academic achievement

Another common theme is the relationship between a sense of belonging and an increased academic achievement and engagement (Blum, 2005; Goodenow & Grady, 1993; Niehaus et al., 2016). When students feel a sense of belonging in their school,

they are more likely to participate in classroom activities (Vas et al., 2015), then, when students participate in classroom activities, they are more likely to engage with the content and this can increase academic success in school. Students who feel connected to their peers are also more resilient: meaning that they have fewer absences and are less likely to drop out (Korpershoek et al., 2020), further strengthening their academic outcomes. Students who feel a sense of connection with their teachers are also more likely to be engaged in classroom activities (OECD, 2003).

Belonging and mental health

Students with a sense of belonging have a reduced risk of depressive symptoms and mental health problems (Jose & Lim, 2014; Joyce & Early, 2014; Langille et al. 2015; McLaren et al. 2015; McLoughlin et al. 2019). Students who have a strong sense of belonging were also less likely to be affected by negative school experiences such as bullying (McLoughlin et al. 2019), while students with a lowered sense of belonging had feelings of being “exacerbated by bullying, feelings of isolation, and poor relationships with teachers” (Riley, 2019, p. 97).

Belonging and school community

There is also a correlation between a sense of belonging and involvement in school extracurricular activities: students who participated in extracurricular activities exhibited higher levels of belonging than those who didn’t (Svavarsdottir, 2008). When schools promote a positive inclusive school atmosphere and offer ways for students to interact with one another through activities outside the classroom, students feel more connected with the school and have higher levels of belonging (Vang & Nishina, 2022).

Points of Conflict

One topic of contention that I have noticed in the literature is the relationship between bullying and belonging; some researchers have noticed a negative correlation between belonging and bullying, in that, as bullying increases, students’ feelings of belonging decreases. However, if students already have a high sense of belonging within the school, it can counteract the negative effects associated with bullying. Is it

bullying that affects a student's sense of belonging, or the sense of belonging that affects how they respond to the bullying? It would be interesting to do a future study on students' perception of how often they are bullied and how that affects them then comparing that to their perceived sense of belonging.

Gaps in the research

There is limited research on how a collaborative art project can affect students' sense of belonging in the classroom. The research states arts-based education can improve well-being and that peer and teacher support can improve sense of belonging. I can hypothesize that a collaborative art project will help increase belonging because an art project made me feel a sense of belonging when I participated in SFU's collaborative art mosaic. However, I am only one person. In this research, these gaps and the potential benefits a collaborative art project can have in the classroom are addressed.

Methods

This research was intended to evaluate the implementation of a collaborative class wide textile art project and determine whether students felt an increased sense of belonging after the experience. Throughout the duration of the project four participating classes created a collaborative circle weaving project where each student made their own individual loom using a hula hoop and yarn then wove a circle weaving project with the help of all other students in the class. To complete this research, the following questions guided this work; What is belonging from a research perspective? How do Grade 8 students in Applied Design Skills Technology (ADST) 8 define belonging? Does a classroom collaborative textile art project positively impact a student's perceived sense of belonging? Can this data be used to improve classroom belonging in the future? These questions were examined by comparing the data from surveys taken both before and after the textile art project.

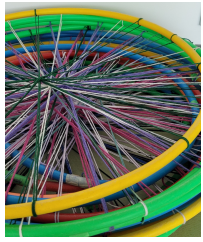
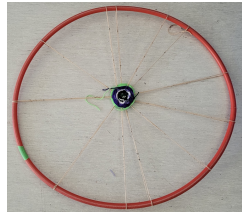
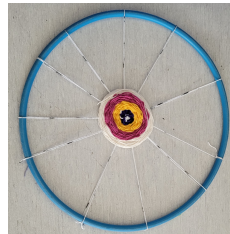

Research Site/Participants

The research took place at a newly established high school in the lower mainland. The school community consisted of roughly 1400+ students, of which around 5% were Indigenous and around 16% were students with designations needing extra support (Government of British Columbia, 2021). All students who were taking the Textiles portion of their ADST 8 rotation in June 2023 were given the opportunity to participate; that consisted of four ADST 8 classes which equated to 96 possible student participants. Each classroom community consisted of 24 ADST 8 students of varying backgrounds and designations as well as a classroom teacher and sometimes education assistants or others who were offering support in the classroom. Parent and student consent forms were given to 94 students (Appendix A & B) to return if they wanted to participate in the research. Of those 94 students, there was a 26% consent form return rate leaving a data set of 25 students.

Circle Weaving

What is circle weaving? The Oxford dictionary defines weaving as “The process of making a fabric by intermeshing twisted or spun threads. The warp threads are stretched on a loom and the weft threads are passed through them to create a crisscross of threads” (Weaving, 2023). Circle weaving is when a design is woven using a circular loom. In this situation, looms were created out of hula hoops and yarn, the looms are created by pulling yarn around the hula hoop to create a pattern that looks like bicycle spokes. These threads that make up the bicycle spokes are the warp threads. To create the fabric pattern, they then wove a secondary thread (the weft threads) around the circle over and under the spokes or warp threads in a circular direction to create the fabric pattern. The students started the weaving from the center and wove up and down as they worked towards the outer part of the hula hoop. This step-by-step process can be seen in Table 1 below.

Table 1. Circle Weaving Process

			
<p>Step 1: make the loom</p>	<p>Step 2: Weave the center</p>	<p>Step 3: weave around the loom until desired size</p>	<p>Step 4: Cut and tie off the circle</p>

Research Design

A survey research design was used along with deductive analysis to explore the sense of belonging in the participants. The hypothesis was that, by implementing a classroom wide textile art project, connections could be built among students within the class and increase their sense of belonging. All students in the four ADST 8 classes participated in the circle weaving unit over five days. During this time, they completed both surveys as reflections that encouraged them to think about their own sense of belonging and how their actions affect others' sense of belonging in the class. After the second survey, students participated in a class discussion about belonging and how students in the class could help others feel like they belong.



Each student made their own loom using a hula hoop and yarn and wove their own circle weaving project with the help of every other student in the class. They started the weaving process by weaving around their own loom 10 to 20 times to create a circle. They then had to bring their loom around to every other student in the class to weave around their loom and sign off on their class list. They did this by swapping looms with every other student in the class. After they swapped looms with a student, each student signed off the other student's class lists and then each of them went around to find another student with whom to swap looms. This continued until every student in the class had woven around every other classmate's loom. Once the project was finished, each student had a woven circle that was started by themselves and completed by their classmates. To help students keep track of who had already helped weave around their loom, they received a class list of names to check off. (Appendix C.) To increase creating connections and improve overall belonging each student was encouraged to weave at least four to six times around each of their classmate's looms. When finished, all the woven circles were arranged together to create a Textile Art installation to be displayed in the school, seen right. The timeline for the project can be found in Table 2 below.

Table 2. Research Timeline

Timeline	Action	Outcome
Preparatory Work	-Communicate with teachers whose classes are taking surveys -Send out parental and student consent forms	-Have a summarized list of students participating
Day 1:	-Students complete the first survey (Appendix D) -Students create their individual circle looms with the help of a partner using a hula hoop and yarn	-Data from first survey is collected and formatted -Students have a completed loom and are ready to start weaving

Day 2:	<ul style="list-style-type: none"> -Students start weaving their circle by weaving around their own loom 10-20 times -Students weave around each classmate's loom and sign off on their class list once they have woven around four or more times 	<ul style="list-style-type: none"> -Students started weaving their project and started weaving around other students looms in the class
Day 3:	<ul style="list-style-type: none"> -Students continue weaving around other students' looms helping them finish their project 	<ul style="list-style-type: none"> -Students helped weave around every other student's project
Day 4:	<ul style="list-style-type: none"> -Once all classmates have helped students finish weaving, they then tie off their loom -Students complete their second survey (Appendix E) 	<ul style="list-style-type: none"> -Data from the second survey is collected
Day 5:	<ul style="list-style-type: none"> -Students arrange their woven circles on the art installation displayed in the school 	<ul style="list-style-type: none"> -The art is displayed in the school

Data Collection

The data was collected using before and after surveys which consisted of both qualitative and quantitative items. A mixed method design was chosen to help gain a deeper understanding of how participants felt about the topic while also having numerical data to compare the before and after results. Mixed method design is a way of gathering different but complementary data (Almalki, 2016). The validity and reliability of the survey was assured by reviewing past research and questionnaires used to assess belonging then incorporating thoughts and ideas into the survey used for this research. The belonging assessments (Table 3) were reviewed and compared.

Table 3. Measuring Belonging

Scale	Description	Created By
Social Connectedness & Social Assurance Scale (SCS-R)	A scale used to measure one's belonging within their surroundings, has 16 questions separated into two sections	Lee & Robbins, 1995
Self in a Social Context—Social Connectedness Scale (SSC-SC)	A scale developed to measure the social connectedness of high school students	Carroll et al., 2017
The Hemingway: Measure of Adolescent Connectedness (H-MAC) (version 4)	Scale developed to measure adolescent connectiveness using 75 questions and	Kercher, 2001
Psychological Sense of School Membership (PSSM)	18-item scale developed to assess belonging in early and mid-adolescent students	Goodenow, 1993

After reviewing the research and past surveys and questionnaires used to assess belonging, seven key themes were chosen to incorporate into the surveys for this study. Did students feel?

1. supported
2. comfortable asking for help
3. like they belong
4. accepted
5. respected
6. included
7. named (did others used their names in class)

Students completed the surveys as reflection assignments that were part of the circle weaving unit, prior to sending out the surveys they were reviewed by a handful of high

school aged students who did not attend the school. I asked these students two questions; Did you understand the questions and format? Do you think this survey is an accurate measure of belonging? All students said they felt the surveys were an accurate measure of belonging and understood the questions. Draft surveys were also reviewed with classmates, co-workers, and faculty advisors, then feedback accordingly was applied to finalize the surveys used for this research. (Appendix D and E) Students were given as much time as they needed to complete the surveys and encouraged to take time to think about the questions and answer thoughtfully. The surveys were completed by the students using the SFU survey monkey account. Students had access to the surveys through a QR code and students could choose to use their own device or an iPad that was provided by the school to complete the surveys.

Data Analysis

Throughout the duration of this research project, I analyzed the data with one main question in mind: How does participating in a collaborative textile art project affect Grade 8 students' overall sense of belonging? I first organized the data by filtering the data in survey monkey so that only the data from those who had obtained consent would be reviewed. Then, I exported the raw numerical data onto an excel spread sheet where all student names were removed to ensure the data could not be linked to any of the participating students. Microsoft excel was chosen because "Excel offers powerful features that can spare its users countless hours of tedious and unnecessary effort" (Miller, 2014, p. 94). I reviewed the numerical data, and the before and after averages were calculated and compared using a T-test. The T-test is used to compare the means of two groups or sets of data (Kim, 2015). I read through all the open-ended questions and noted common key words and themes that arose from student answers. Once I reviewed all the data, the numerical data that I analyzed was compared with the data in survey monkey to ensure the numbers matched. The findings are displayed in the graphs and charts that can be seen in the findings section.

Qualitative and Quantitative Data

I analyzed the qualitative data by looking at how students felt about belonging in the classroom as well as comparing the classroom community before and after the project. The numerical data I collected was quantified into numerical averages and percent increases. Then I compared the numerical averages from the 6 key themes used to assess belonging along with the percentage of students who answered most or all the time to the belonging questions. The participating students showed a slight increase in their belonging averages between the pre and post surveys.

Belonging

What is belonging to an 8th grader? Before teaching anything about belonging, I asked participating students to describe what it meant to belong. One key theme that came up in the data was being or feeling accepted. Of all students, 48% felt belonging was, or had, something to do with acceptance or feeling accepted. One student described belonging as “To feel accepted and supported in an environment where you are free to be expressive and enjoy yourself and feel safe”, this definition showcases the participants’ broader understanding of belonging. All students described belonging in their own way highlighting acceptance, community, comfort, inclusive environments, and respect.

The class saw a slight increase in most factors affecting one’s belonging that were incorporated into the survey. Figure 1 shows a comparison of student responses to the belonging questions from the pre and post surveys. It can be seen in the tables that most students answered positively towards the questions even before the textile art project had occurred, showing that the classroom environments were already generally positive; 52% of students stated they felt supported most of the time or all the time by peers, 68% stated they felt like they belong in the classroom most or all of the time, and 68% stated they feel accepted most or all of the time by their peers. After the project, 72% of students felt they were supported most or all the time by their peers, an increase of 20%. 78% of students felt they belonged in the classroom most or all the time after the

project, an increase of 10%. 79% of students felt *accepted* most or all the time after the project, an increase of 11%.

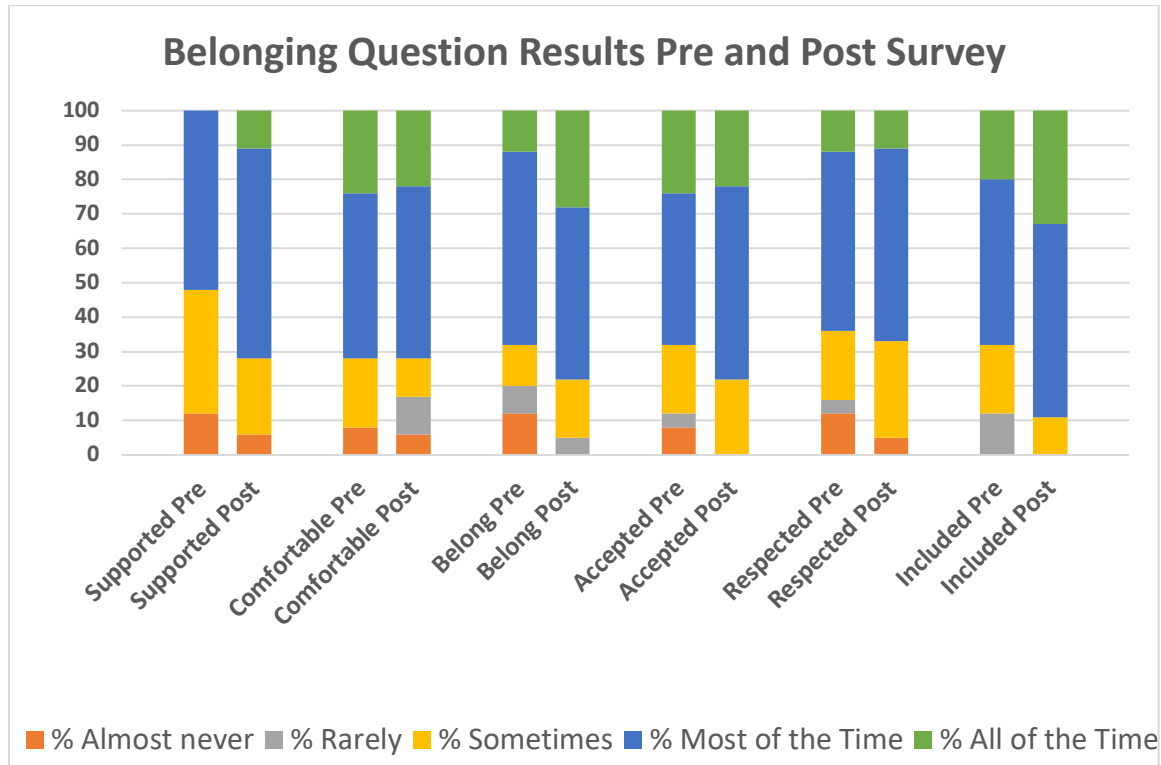


Figure 1. Belonging Pre and Post Survey Results

The largest increase noted, however, was the difference in students' perceived feelings of inclusion from their classmates. Before the project, 68% of students felt their classmates included them during class. After the project, 89% of students felt they were included most or all the time during class. Students felt included because to finish the assignment they had to interact with all the students in the class by asking them to help weave around their loom, and then getting their initials on their paper after they had finished their part. After the textile art project, only 5% of students answered 'almost never' to any of the questions, compared to 8-12% before the project. The global average scores also increased for every question except if they feel comfortable asking for help. Some students voiced they felt uncomfortable interacting with peers they don't normally interact with. This could be a potential reason for the scores of that section going down slightly. These comparisons can be seen in Figure 2.

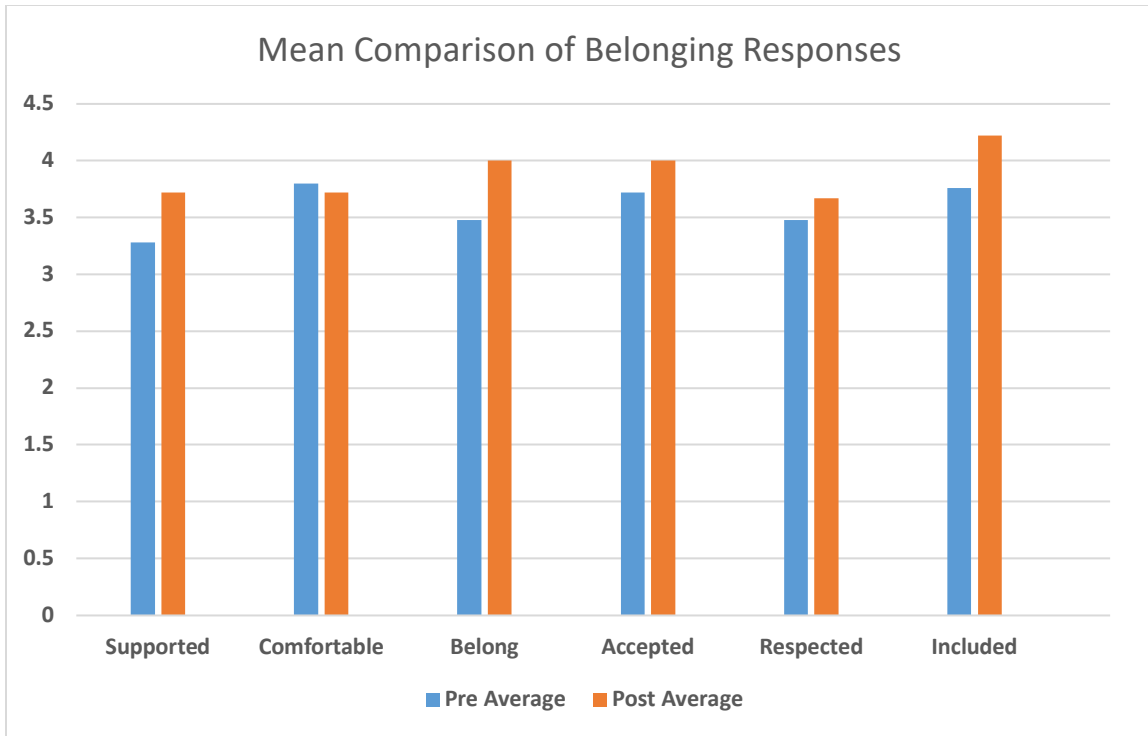


Figure 2. Mean Comparison of Belonging Responses

Names

Knowing and using someone’s name is important to create connections and build relationships. Names “carry deep personal, cultural, familial, and historical connections. They also give us a sense of who we are, the communities in which we belong, and our place in the world” (Baobeid, 2023, p.1). It was important to incorporate a section on names because of the importance one’s name can hold when looking at perceived belonging. Students were asked if they felt their classmates used their name in class and 84% of students felt their classmates used their name ‘*most or all* the time’ before the project compared to 89% after the art project. There was also a positive change in how many students felt classmates used their name *all* the time. Before the project, 48% of students felt classmates used their name ‘*all the time*’, compared to 61% after the project.

Another curiosity was about how many names the students learned during the textile art project, because they were required to interact with every student in the class and have them sign their paper. Fifty percent of the students stated they already knew everyone's name in the class and the other 50% stated they learned at least one other student's name during the project (Figure 3). One student stated the project "gave me a strong understanding of everybody's name and interests". No students chose the option 'No' they did not learn any names during the textile art project when answering the question, did you learn a classmate's name during the textile art project.

Q4 Did you learn a classmates name during the textile art project?

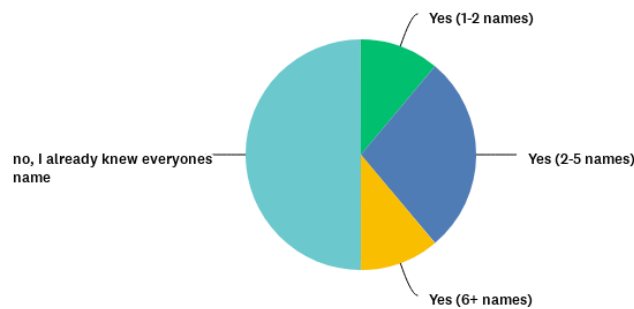


Figure 3. Classmate Names

Classroom Community

One of the questions asked in the second survey was: How do you feel the textile art project impacted the class as a whole? Of the 18 responses, 10 students mentioned it helped them interact with other students in the class, and 8 students mentioned learning other students' names. One student mentioned, "I think that people who were shy got to know others and know other names and maybe feel more comfortable in inquiry". The project helped students work together towards a common goal and create a piece of artwork they could all be proud of at the end. One student came up to show me his circle weaving project and said, "Look! Isn't mine good? I think everyone tried really hard". I was pleased to hear that students were trying their best because they knew they were a part of everyone else's project. 56% of the students who participated felt the project had a positive impact on the classroom community, 39% stated they felt the

classroom community stayed the same and 5% felt the classroom community was worse after the textile art project. These findings are represented in Figure 4 below.

Q9 I think the circle weaving project made the classroom community:

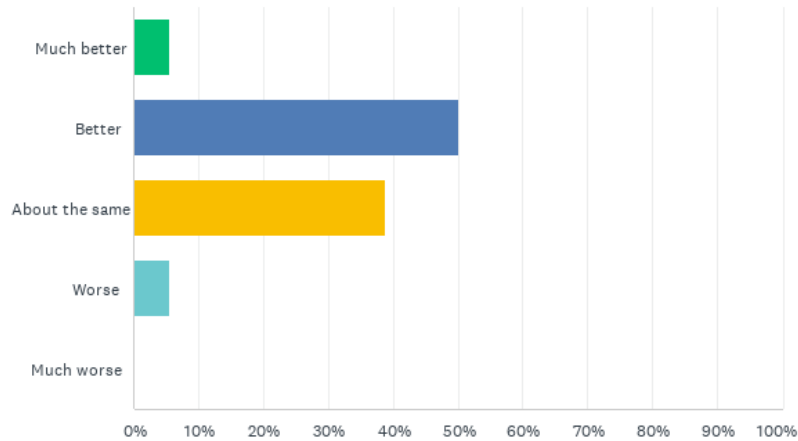


Figure 4. Affect on Classroom Community

When asked if students felt included and supported during the Textile art activity, 16 out of 18 students gave positive answers. Many of the students felt encouraged to participate and be part of the classroom community during the activity, and felt the activity positively impacted the classroom community.

Inferential Data

I used the qualitative and descriptive data to determine the reliability of the assessments along with the statistical significance of the research findings. With the guidance of my supervisor, I compared the seven sections of the belonging assessment using a correlation matrix as well as using the Chronbach's Alpha score and then calculated the statistical significance using the T-test.

Reliability

I used two different tests to determine the reliability of the belonging survey. Firstly, the correlation matrix in Table 4 shows an overall strong correlation between six of the seven items used in the survey to measure belonging. This along with past research on belonging supports the notion that all these factors are related and are accurately measuring the belonging. There is however a weak correlation with the belonging question 'my classmates use my name' and the other six questions. This could be how the students interpreted the question or that the question was not as relevant to their sense of belonging. The question could have been worded differently to say all my classmates *know* my name instead of my classmates *use* my name, which was too vague since most students know a few classmates who use their name. Because of this weak correlation, the question "students use my name in the classroom" may not reliably represent belonging and therefore has been taken out of the data set when comparing students belonging before and after the Textile art project.

Table 4. Belonging Assessment Correlation Matrix

	Supported	Getting help	Belonging	Accepted	Respected	Included	Use my name
Supported	1.000						
Getting help	0.606	1.000					
Belonging	0.592	0.627	1.000				
Accepted	0.746	0.665	0.778	1.000			
Respected	0.574	0.646	0.730	0.738	1.000		
Included	0.858	0.450	0.636	0.686	0.500	1.000	
Use my name	0.270	0.082	0.007	0.159	0.248	0.356	1.000

I also confirmed the reliability of the surveys measurement of belonging by comparing the consistency of the answers given using the Chronbach's Alpha. When I compared students answers from the survey the Chronbach's Alpha score was 0.86 (DATAtab, 2023) and when comparing the students score while excluding the question regarding students using classmates names the score went up to 0.9 (DATAtab, 2023).

These scores suggest the survey showed internal consistency between all the questions relating to belonging, and therefore these questions are a reliable measure of belonging.

Statistical Significance

The numerical averages belonging question data from the pre and post surveys can be seen and compared in Table 5. The table shows a general increase comparing the mean from the first set of data (pre-survey) compared to the second set of data (post survey) that shows that overall, there was a slight increase in participants sense of belonging after participating in the textile art project.

I tested the statistical difference by using a t test. Because the number of observations recorded in the pre-survey data is substantially higher than the post-survey data, I used a T-test assuming unequal variances. When comparing populations where the variances differ the students T-test assuming equal variances is unreliable (Ruxton, 2006). If you want to compare the central tendency of two populations based on samples of unrelated data, then the unequal variance T-test should always be used. Since I hypothesized that the intervention would have a positive effect, I used a directional (one tailed) T-test. The one tailed T-test (unequal variance) resulted in a p-value of 0.045, suggesting there is a statistically significant difference between the two sets of data at the $p < .05$ level. Therefore, I can assume that the perceived sense of belonging in ADST 8 students went up throughout the duration of the textile art project.

Table 5. Pre and Post Survey Data

t-Test: Two-Sample Assuming Unequal Variances		
	<i>Pre Survey</i>	<i>Post Survey</i>
Mean	3.691	3.889
Variance	1.146	0.754
Observations	175.000	108.000
Hypothesized Mean Difference	0.000	
df	261.000	
t Stat	-1.698	
P(T<=t) one-tail	0.045	
t Critical one-tail	1.651	

Negative Effects

Overall, the project was successful in that most of the results showed increases in the areas which affect a sense of belonging. However, some students did feel there were some negative outcomes from the project. One out of the 18 students felt the project made the classroom community worse. This could be for a multitude of reasons; during the activity students some students were saying things like, “Don’t mess mine up!” and “You better do a good job”. The students were reminded to be supportive of all the other students in the class and to understand that everyone’s ability level is different. Most students were receptive, kind and encouraging to others, yet some students were still frustrated that the other students could not weave as well as they could, and therefore their project did not turn out as good as they wanted it to.

Some students also mentioned other students in the class did not want them to help weave their loom for fear of ruining it. One student felt the interactions were not genuine, stating, “They were only talking to me because they had to”. One other student also felt they weren’t included “because they are not trading with me”. It was hard to keep track of students and who was trading with whom. This project benefited the students who are more confident and comfortable going up to other classmates whom they don’t know that well. It was hard to encourage students to get out of their comfort zones and go ask others to participate. It was clear the students still feel a bit

uncomfortable asking other students for help because the replies to this question went down slightly in the results.

Discussion

This study indicated that a collaborative textile art project can have a positive impact on students' sense of belonging and improve the classroom community. How can we now relate this to educational practices? The BC curriculum focuses on three core competencies: communication, thinking and personal social. The collaborative art project focused on all three competencies: Communication: it required students to communicate with others to connect with every student in the classroom. Thinking: it required critical and creative thinking when tying and untangling yarn as well as choosing colours to weave around their looms. Personal and social: It required students to work on their personal and social awareness when interacting with and supporting others.

Moving forward, it is important for all teachers to incorporate large scale collaborative classroom wide projects into their teaching practices. The project itself need not be a textile art project. It just needs to be a project that focuses on the core competencies and encourages all students in the classroom to work towards a common goal. The skills and content learned during the collaborative project would be different for each subject, but the concept is the same. The research in this paper has shown that participating in a collaborative textile art project, where students are required to interact and work with all students in the class in a low-stakes way, increases the sense of classroom community and improves the sense of belonging in the students who participated.

Belonging in the Classroom

Students were asked how they felt they could help other students feel like they belong in the classroom. When they were asked this question three themes emerged. Students felt inclusion in the classroom was important for positive student belonging. Students stated, "including others in activities" and "being inclusive" would positively

affect belonging. Students felt “helping others” or “helping when they need it” was also important for a positive sense of belonging in the classroom. Finally respect and kindness were mentioned by many students stating “Be respectful”, respecting others’ opinions” and “Be kind and don’t be rude”. “This project encouraged students to think about belonging in the classroom and how their actions affect others sense of belonging. They were required to work together towards a common goal and create connections, this gave students a greater understanding of how they can promote a positive classroom environment that help all students feel like they belong. Most students understood afterwards that, by not including or by teasing students, they are actively making them feel like they don’t belong in the classroom.

Students also felt that helping students was another way they could encourage their classmates and make them feel like they belong. Students had the opportunity to discuss the importance of feeling like they belong in a space, and how each individual student can encourage others in the class to help them feel like they belong. Most students in the classes expressed that they hadn’t thought much about belonging in the classroom or how to help others feel like they belong before this activity. If one’s sense of belonging has been known to affect happiness and well-being (Allen et al. 2018; Jose et al. 2012; Law et al. 2013; Midgen et al. 2019; O’Rourke & Cooper. 2010) why is it not a topic actively brought up in the classroom? During this project, students had a lot of questions and were noticeably interested in how their actions affect others and how they can be more aware in the classroom. They understood it was important to feel like you belong, however, before the project and discussion, I don’t think students realized how much their own actions affect other students’ sense of belonging in the classroom.

Addressing Limitations

Time was the main limiting factor, it took quite a while to go through the ethics approval process, the original proposal for the research project was turned down at the district level, a new proposal then needed to be resubmitted to ethics. By the time the second proposal was approved, there was just over a month left of school. Because of this, the project needed to be completed in one week. I was hoping to complete the textile art project after spring break in April 2023. However, the project was delayed and

because of this delay I was unable to select the best week to complete the project and, therefore, the project had to be completed during a week when some of the students were gone.

Two classes were missing half of those students on the last day because of a large school event. This was because our school decided to hold a large-scale event on the Friday when we had planned to complete the project and the post survey. This meant that a fair number of Grade 8 students were out of the classroom all day, and thus did not get to participate in the last day of weaving, tying off their woven circles and filling out the post-survey. For the pre-survey, 73 of the 96 completed the survey and, of those 73, 25 returned the consent forms. For the post-survey, 58 students out of 96 completed the survey and, of those 56, 18 returned the parental consent forms. Because there were so many students missing, some of the remaining students felt there was no point in finishing the project and nor did they feel the project had the same impact as the other two classes had. This showed that, when doing collaborative work, it is of utmost importance that all community members are included. The students did not want to complete the project when half their class (community) was missing. They did not see value in completing the project without their peers. These low participant numbers and decreased student 'buy in' may have skewed the results. Because some of the students were missing for the second survey, it is hard to say if the results are accurately representing how this group of students changed during the project.

Factors Affecting Success

The research project was a success in that we saw an overall increase in the mean belonging scores of all students, however there were some items that affected the success of the project and could have been done differently. The first limitation that needs to be addressed was the skill level required for the project. Doing a project like this, it is best to ensure that all students have the skills required to complete the project. It would have been best to teach each student how to make a loom and weave a circle independently. Then, after each student had completed their own individual project, a class wide collaborative project could have been incorporated.

Another factor affecting the success was the student 'buy in'. Some students were excited to create something with their peers, whereas others were frustrated and nervous that they had to work with some peers due to past incidents related to bullying and other negative interactions. It was important to set the tone of the project in the beginning. Before starting the weaving project, expectations and how one can have positive interactions with classmates were discussed. Most students were interested in working with others and encouraged other classmates to complete their project. One student stated, "I did feel included in the project with most of my classmates. However, there were some appeared not to care much for the project and didn't do much". Finding a way to encourage those students who don't really want to participate would help them feel more connected to the classroom and a deeper sense of belonging. Svavarsdottir (2008) found that a student's participation had a positive correlation with a student's feelings of connectedness to their school. Students who actively participate are more likely to be positively affected by collaborative classroom projects and feel a greater sense of belonging afterwards.

The final factor affecting the success of the research project was the amount of time it took students to find a student with whom to swap looms. It took an average of three to five minutes for the whole class to find a classmate with whom to swap looms and, because of this, a lot of class time was wasted, and the project took much longer than anticipated. When completing a collaborative project of any kind that requires finding partners and swapping with everyone in the class, it's recommended to allot extra time to find partners or create a way that all students can interact with every other student in the class efficiently.

Research Practice and Procedures

Considering all ethical regulations is important when it comes to completing research within a university and within school districts. This research project had been planned in July of 2022, but it didn't receive the final ethics approval until May of 2023. There are a lot of steps required to gain ethics approval when completing human research, even more so, research with minors. The approval process took 10 months and therefore, there were major time constraints because ethics approval was received

so late, and, because of this, the research was not as meaningful as it could have been. It would have been better to include all students and to have additional time to complete the project.

My original project was implementing a 'school wide' textile art project and how that would affect the perceived sense of belonging in the students at the school. Throughout the ethics application process, the research project had to be changed in accordance with the ethical requirements set up by SFU and the participating school district. The research completed within the classroom did still have an impact and showcase the positive affects a collaborative textile art project can have in the classroom.

Future implementations

If you survey the research about student belonging, you will know that having a positive sense of belonging is important for everyone. It helps people feel a sense of purpose and as if they are part of something, as well as improving one's well-being. The literature states students who feel like they belong are happier, higher achieving, more engaged, and have increased self-esteem as mentioned earlier. But how do we really increase one's sense of belonging? The research states peer connections, student teacher relationships, extra-curricular activities, and social acceptance all play a role in one's perceived sense of belonging. Collaborative projects like the one completed in this paper can improve peer connections and social acceptance within the classroom.

What to do now? How can teachers use projects like this to improve their classroom community and increase students' sense of belonging? Based on the research completed, in conjunction with this paper, all teachers are encouraged to try to incorporate a class wide collaborative activity. The collaborative textile art project required all students to work with others, and no students were excluded and, to complete their project, every student needed to check in with each one of their peers. It is recommended that teachers create a sense of community and belonging in their classroom within the first few weeks of school. Small activities that require talking to

each person in the class can be a start, eventually working towards larger scale classroom projects.

Conclusion

This project showed that participating in a textile art project can have a short-term effect on students perceived sense of belonging. There was a statistically significant change in the pre, and post surveys used for theme assessment. 56% percent of all participating students stated that they felt the classroom community improved throughout the duration of the project. Six of the seven factors used to assess student perceived belonging improved throughout the duration of the weaving project. Most students felt they were supported and included by classmates during the textile art project and 50% of all participating students stated that they learned one or more student's names during the textile art project. There were limited negative effects from the project and most of the students thought the project itself was a positive experience and it helped them interact with students in the classroom with whom they otherwise wouldn't normally interact.

Completing a collaborative classroom project is a great interactive way to include all students in the classroom and improve a sense of classroom community and perceived student belonging. There is no definitive research showing if this type of project would have a lasting impact on students perceived sense of belonging in the classroom, however the textile art project did seem to positively impact students' perceived sense of belonging when comparing the before and after surveys. More research needs to be done regarding collaborative projects in classrooms to gain a better understanding of how they can affect students' sense of belonging long term in the classroom. Teachers are encouraged to try incorporating collaborative class wide projects into their teaching practices because it can positively affect student perceived belonging in the classroom and improve the classroom community.

References

- Ahmadi, S., Hassani, M., & Ahmadi, F. (2020). Student- and school-level factors related to school belongingness among high school students. *International Journal of Adolescence & Youth*, 25(1), 741–752. <https://doi-org.proxy.lib.sfu.ca/10.1080/02673843.2020.1730200>
- Allen, K., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2018). What Schools Need to Know About Fostering School Belonging: a Meta-analysis. *Educational Psychology Review*, 30(1), 1–34. <https://doi-org.proxy.lib.sfu.ca/10.1007/s10648-016-9389-8>
- Almalki, S. (2016). Integrating Quantitative and Qualitative Data in Mixed Methods Research--Challenges and Benefits. *Journal of Education and Learning*, 5(3), 288–296.
- Arslan, G. (2021). School belongingness, well-being, and mental health among adolescents: exploring the role of loneliness. *Australian Journal of Psychology*, 73(1), 70–80. <https://doi-org.proxy.lib.sfu.ca/10.1080/00049530.2021.1904499>
- Baobeid, Iman. (2023) On the Importance of Names. Retrieved 3 June. 2023 from https://students.ubc.ca/sites/students.ubc.ca/files/Importance_of_Names_Guide_v2.pdf
- Barber, B. K., & Olsen, J. A. (1997). Socialization in context: Connection, regulation. *Journal of Adolescent Research*, 12(2), 287. <https://doi-org.proxy.lib.sfu.ca/10.1177/0743554897122008>
- Blum, R. W. (2005). A case for school connectedness. *Educational Leadership*, 62(7), 16–20.
- Boston, C., & Warren, S. R. (2017). The effects of belonging and racial identity on urban African American high school students' achievement. *Journal of Urban Learning, Teaching, and Research*, 13, 26–33.
- Brogan, M. (2018, December 1). A Mosaic of Belonging. <https://www.ascd.org/el/articles/a-mosaic-of-belonging>
- Burton, D. (2004). Exhibiting student art. *Art Education*, 57(6), 41-46.
- Carroll, A., Bower, J. M., & Muspratt, S. (2017). The conceptualization and construction of the Self in a Social Context—Social Connectedness Scale: A multidimensional scale for high school students. *International Journal of Educational Research*, 81, 97–107. <https://doi-org.proxy.lib.sfu.ca/10.1016/j.ijer.2016.12.001>

- Craggs, H., & Kelly, C. (2018). Adolescents' experiences of school belonging: a qualitative meta-synthesis. *Journal of Youth Studies*, 21(10), 1411–1425. <https://doi-org.proxy.lib.sfu.ca/10.1080/13676261.2018.1477125>
- DATAtab. (2023). <https://datatab.net/statistics-calculator/reliability-analysis/cronbachs-alpha-calculator>
- Dixson, D. D., & Scalcucci, S. G. (2021). Psychosocial perceptions and executive functioning: Hope and school belonging predict students' executive functioning. *Psychology in the Schools*, 58(5), 853–872. <https://doi-org.proxy.lib.sfu.ca/10.1002/pits.22475>
- Ferguson, E. D. (2020). Adler's Motivational Theory: An Historical Perspective on Belonging and the Fundamental Human Striving. *Journal of Individual Psychology*, 76(1), 51–58. <https://doi-org.proxy.lib.sfu.ca/10.1353/jip.2020.0016>
- Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *Journal of Experimental Education*, 62(1), 60–71. <https://doi-org.proxy.lib.sfu.ca/10.1080/00220973.1993.9943831>
- Hamm, J. V., & Faircloth, B. S. (2005). The role of friendship in adolescents' sense of school belonging. *New Directions for Child & Adolescent Development*, 2005(107), 61–78. <https://doi-org.proxy.lib.sfu.ca/10.1002/cd.121>
- Introduction to Arts Education. (2022) Province of British Columbia, <https://curriculum.gov.bc.ca/curriculum/arts-education/introduction>
- Jensen, A. (2013). Beyond the borders: The use of art participation for the promotion of health and well-being in Britain and Denmark. *Arts & Health: An International Journal for Research, Policy and Practice*, 5(3), 204–215. <https://doi-org.proxy.lib.sfu.ca/10.1080/17533015.2013.817448>
- Jensen, A., & Bonde, L. O. (2018). The use of arts interventions for mental health and wellbeing in health settings. *Perspectives in Public Health*, 138(4), 209–214. <https://doi-org.proxy.lib.sfu.ca/10.1177/1757913918772602>
- Jose, P. and Lim, B. (2014) Social Connectedness Predicts Lower Loneliness and Depressive Symptoms over Time in Adolescents. *Open Journal of Depression*, 3, 154-163. doi: 10.4236/ojd.2014.34019.
- Jose, P. E., Ryan, N., & Pryor, J. (2012). Does social connectedness promote a greater sense of well-being in adolescence over time? *Journal of Research on Adolescence*, 22(2), 235–251. <https://doi-org.proxy.lib.sfu.ca/10.1111/j.1532-7795.2012.00783.x>

- Joyce, H. D., & Early, T. J. (2014). The impact of school connectedness and teacher support on depressive symptoms in adolescents: A multilevel analysis. *Children & Youth Services Review*, 39, 101–107. <https://doi-org.proxy.lib.sfu.ca/10.1016/j.chilyouth.2014.02.005>
- Karcher, M. J. (2001). The Hemingway: Measure of Adolescent Connectedness-- Validation Studies.
- Karpavičiūtė, S., & Macijauskienė, J. (2016). The Impact of Arts Activity on Nursing Staff Well-Being: An Intervention in the Workplace. *International Journal of Environmental Research and Public Health*, 13(4), 435. <https://doi-org.proxy.lib.sfu.ca/10.3390/ijerph13040435>
- Tae Kyun Kim. (2015). T test as a parametric statistic. *Korean Journal of Anesthesiology*, 68(6), 540–546. <https://doi-org.proxy.lib.sfu.ca/10.4097/kjae.2015.68.6.540>
- Kisida, B. & Bowen, D. (2019, February 12). New evidence of the benefits of arts education. <https://www.brookings.edu/blog/brown-center-chalkboard/2019/02/12/new-evidence-of-the-benefits-of-arts-education/>
- Korpershoek, H., Canrinus, E. T., Fokkens-Bruinsma, M., & de Boer, H. (2020). The relationships between school belonging and students' motivational, social-emotional, behavioural, and academic outcomes in secondary education: a meta-analytic review. *Research Papers in Education*, 35(6), 641–680. <https://doi-org.proxy.lib.sfu.ca/10.1080/02671522.2019.1615116>
- Langille, Donald B., Langille, Donald B, Asbridge, Mark, Cragg, Amber, & Rasic, Daniel. (2015). Associations of School Connectedness with Adolescent Suicidality: Gender Differences and the Role of Risk of Depression. *Canadian Journal of Psychiatry: Revue Canadienne de Psychiatrie.*, 60(6), 258–267. <https://doi.org/10.1177/070674371506000604>
- Law, P. C., Cuskelly, M., & Carroll, A. (2013). Young people's perceptions of family, peer, and school connectedness and their impact on adjustment. *Australian Journal of Guidance and Counselling*, 23(1), 115–140. <https://doi-org.proxy.lib.sfu.ca/10.1017/jgc.2012.19>
- Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The social connectedness and the social assurance scales. *Journal of Counseling Psychology*, 42(2), 232. <https://doi-org.proxy.lib.sfu.ca/10.1037/0022-0167.42.2.232>
- Leong, S. (2005, January 3). Integrating ancient Nanyin music within an interdisciplinary and national education school-wide curriculum: An Australian-Singaporean collaborative arts education project. *International Journal of Education & the Arts*, 6(1)
- Maclagan, D. (2005). Art Heals: How Creativity Cures the Soul. *Raw Vision*, 50, 77.

- McLaren, S., Schurmann, J., & Jenkins, M. (2015). The Relationships Between Sense of Belonging to a Community GLB Youth Group; School, Teacher, and Peer Connectedness; and Depressive Symptoms: Testing of a Path Model. *Journal of Homosexuality*, 62(12), 1688–1702. <https://doi-org.proxy.lib.sfu.ca/10.1080/00918369.2015.1078207>
- McLoughlin, L. T., Spears, B. A., Taddeo, C. M., & Hermens, D. F. (2019). Remaining connected in the face of cyberbullying: Why social connectedness is important for mental health. *Psychology in the Schools*, 56(6), 945–958. <https://doi-org.proxy.lib.sfu.ca/10.1002/pits.22232>
- Midgen, T., Theodoratou, T., Newbury, K., & Leonard, M. (2019). “School for Everyone”: An exploration of children and young people’s perceptions of belonging. *Educational & Child Psychology*, 36(2), 9–22. <https://doi-org.proxy.lib.sfu.ca/10.53841/bpsecp.2019.36.2.9>
- Niehaus, K., Irvin, M. J., & Rogelberg, S. (2016). School connectedness and valuing as predictors of high school completion and postsecondary attendance among Latino youth. *Contemporary Educational Psychology*, 44, 54–67. <https://doi-org.proxy.lib.sfu.ca/10.1016/j.cedpsych.2016.02.003>
- OECD. (2003). Student engagement at school, a sense of belonging and participation results from PISA 2000. Paris: OECD Publishing
- O’Rourke, J., & Cooper, M. (2010). Lucky to be happy: a study of happiness in Australian primary students. *Australian Journal of Educational & Developmental Psychology*, 10, 94–107.
- Oxford Reference. (2023) Weaving. Retrieved 27 May. 2023, from <https://www.oxfordreference.com/view/10.1093/oi/authority.20110803121502681>.
- Raufelder, D., Neumann, N., Domin, M., Lorenz, R. C., Gleich, T., Golde, S., Romund, L., Beck, A., & Hoferichter, F. (2021). Do Belonging and Social Exclusion at School Affect Structural Brain Development During Adolescence? *Child Development*, 92(6), 2213–2223. <https://doi-org.proxy.lib.sfu.ca/10.1111/cdev.13613>
- Riley, K. (2019). Agency and belonging: What transformative actions can schools take to help create a sense of place and belonging? *Educational & Child Psychology*, 36(4), 91–103.
- Rosenfeld, L. R., Richman, J. M., & Bowen, G. L. (1998). Low Social Support among At-Risk Adolescents. *Social Work in Education*, 20(4), 245–260. <https://doi-org.proxy.lib.sfu.ca/10.1093/cs/20.4.245>
- Shaw, E. (2019). ‘How do I know that I belong?’ Exploring secondary aged pupils’ views on what it means to belong to their school. *Educational & Child Psychology*, 36(4), 79–90.

- Secker, J., Spandler, H., Hacking, S., Kent, L., & Shenton, J. (2007). Art for mental health's sake. *Mental Health Today* (Brighton, England), 34–36.
- Svavarsdottir, E. K. (2008). Connectedness, belonging and feelings about school among healthy and chronically ill Icelandic schoolchildren. *Scandinavian Journal of Caring Sciences*, 22(3), 463–471. <https://doi-org.proxy.lib.sfu.ca/10.1111/j.1471-6712.2007.00553.x>
- Vang, T. M., & Nishina, A. (2022). Fostering School Belonging and Students' Well-Being Through a Positive School Interethnic Climate in Diverse High Schools. *Journal of School Health*, 92(4), 387–395. <https://doi-org.proxy.lib.sfu.ca/10.1111/josh.13141>
- Vaz, S., Falkmer, M., Ciccarelli, M., Passmore, A., Parsons, R., Black, M., Cuomo, B., Tan, T., & Falkmer, T. (2015). Belongingness in Early Secondary School: Key Factors that Primary and Secondary Schools Need to Consider. *PLoS ONE*, 10(9), 1–27. <https://doi-org.proxy.lib.sfu.ca/10.1371/journal.pone.0136053>
- Vaz, S., Falkmer, M., Ciccarelli, M., Passmore, A., Parsons, R., Tan, T., & Falkmer, T. (2015). The Personal and Contextual Contributors to School Belongingness among Primary School Students. *PLoS ONE*, 10(4), 1–21. <https://doi-org.proxy.lib.sfu.ca/10.1371/journal.pone.0123353>
- Wallace, T., Ye, F., & Chhuon, V. (2012). Subdimensions of Adolescent Belonging in High School. *Applied Developmental Science*, 16(3), 122–139. <https://doi-org.proxy.lib.sfu.ca/10.1080/10888691.2012.695256>
- Walsh, S. P., White, K. M., & Young, R. M. (2009). The phone connection: A qualitative exploration of how belongingness and social identification relate to mobile phone use amongst Australian youth. *Journal of Community & Applied Social Psychology*, 19(3), 225–240. <https://doi-org.proxy.lib.sfu.ca/10.1002/casp.983>
- Waters, S. K., Cross, D. S., & Runions, K. (2009). Social and Ecological Structures Supporting Adolescent Connectedness to School: A Theoretical Model. *Journal of School Health*, 79(11), 516–524. <https://doi-org.proxy.lib.sfu.ca/10.1111/j.1746-1561.2009.00443.x>.
- Yuen, M., Yau, J., Datu, J. A. D., Shui-wai Wong, Chan, R. T. H., Lau, P. S. Y., & Gysbers, N. C. (2021). Examining the Influence of Meaning in Life and Social Connectedness on Adolescents' Career Self-Efficacy. *Journal of Individual Psychology*, 77(3), 335–361. <https://doi-org.proxy.lib.sfu.ca/10.1353/jip.2021.0024>

Appendix A. Parent Consent Form



High School Students Perceived Sense of Belonging Survey

Parental/ Guardian Consent for a Child to Participate

Thank you for considering having your child consider participating in this research about high school student belonging. If you give consent for your child to participate, please return this form and the student consent form signed to [REDACTED] or their participating teacher.

I, [REDACTED] am conducting a research project exploring student belonging in a high school setting. All Students in ADST 8 will be participating in a collaborative textiles project along with a reflection about student belonging in class. If students, choose to participate in the research they will be consenting to sharing their reflective data to be used as part of my research project. I am a graduate student, and this project is a requirement for the Masters in Educational Leadership program at SFU. This research is being supervised by the SFU faculty of Education. I will write up the results of this research in the form of a research report, and I will share them in the form of a public presentation at SFU during the summer of 2023.

The purpose of this research is to learn more about student belonging and the effects of a collaborative textile art project. If you consent for your child to participate, the data from their in-class reflection will be used in this research. The questions explore their perceived sense of belonging in their ADST 8 classroom through the duration of a collaborative textile art project.

Your child's participation is voluntary. They may withdraw from this research at any point before they hand in their in-class reflection. It will not be possible to end their participation once the data is collected and reviewed as data will be exported anonymously (without the names of students attached). Your decision on whether or not your child participates in the research will not influence their grades in any coursework and will not affect their relationship with me or their other teachers in any way.

Potential Risks and Benefits. There are no anticipated risks or benefits to your child by participating in this research. By consenting, you or your child do not waive any rights to legal recourse in the event of research-related harm.

Confidentiality and Data Storage. No personal data collected will be used as part of the research, student names will be collected to ensure they have given consent to participate and will not be part of the research or data analysis. I will store the data on the [REDACTED] and the data will be deleted five years after the conclusion of the research project. Any data your child provides may be transmitted and stored in countries outside of Canada, as well as in Canada. It is important to remember that privacy laws vary in different countries and may not be the same as in Canada." This is to cover the use of a US-owned or registered company survey platform provider.

Results. In addition to producing the final report and presentation required of my M.Ed. program, I will be sharing the final report with the administration and staff at my school to help better understand student belonging at [REDACTED]

Regardless of your child's participation, you can contact me for the results of this research project by emailing me at [REDACTED]

Contact Information

If you would like to discuss this project, I can be reached at [REDACTED] or [REDACTED]. If you would like to talk to my faculty supervisor, you can reach [REDACTED]

If you have any concerns about your child's rights as a research participant and/or their experiences while participating in this study, please contact the Director, SFU Office of Research Ethics, at dore@sfu.ca or 778-782-6593.

If you would like to keep a copy of this consent form, you can download one from [REDACTED]

Name of Child: _____

Name of Parent/ Guardian: _____

Parent/ Guardian Signature: _____

Appendix B. Student Consent Form



Grade 8 Students Perceived Sense of Belonging During a Collaborative Textiles Project

Student Consent to Participate

Thank you for considering to participate in this research about high school student belonging. If you choose to participate and share your reflective data, please return this form signed to [REDACTED] or your participating teacher.

I, [REDACTED], am conducting a research project exploring student belonging in a high school setting. All Students in ADST 8 will be participating in a collaborative textiles project along with a reflection about student belonging in class. If students, choose to participate in the research they will be consenting to sharing their reflective data to be used as part of my research project. I am a graduate student, and this project is a requirement for the Masters in Educational Leadership program at SFU. This research is being supervised by the SFU faculty of Education. I will write up the results of this research in the form of a research report, and I will share them in the form of a public presentation at SFU during the summer of 2023.

The purpose of this research is to learn more about student belonging and the effects of a collaborative textile art project. If you agree to participate, the data from your in-class reflection will be used in this research. The questions explore your perceived sense of belonging in your ADST 8 classroom through the duration of a collaborative textiles project.

Your participation is voluntary. It is completely your choice if you want to take part in the study. You can stop at any time before the last reflection is submitted if you decide that you no longer want to be involved. If you change your mind about being in the study, you can tell your parents or me. No one will be upset with you, and you will not get in any trouble if you decide not to take part in the study. Your decision on whether or not you participate in the research will not influence your grades in any coursework and will not affect your relationship with me or your other teachers in any way.

Potential Risks and Benefits. There are no anticipated risks or benefits to you by participating in this research. By consenting, you do not waive any rights to legal recourse in the event of research-related harm.

Confidentiality and Data Storage. No personal data collected will be used as part of the research, student names will be collected to ensure they have given consent to participate and will not be part of the research or data analysis. I have asked your parents or guardian for their permission to allow you to take part in the study, but we will not tell anyone else. I will do my best to make sure that your name is not attached to any of the answers that you give me so that no one knows it was you who said them. I will store the data on the [REDACTED] and the data will be deleted five years after the conclusion of the research project. Any data you provide may be transmitted and stored in countries outside of Canada, as well as in Canada. It is important to remember that privacy laws vary in different countries and may not be the same as in Canada." This is to cover the use of a US-owned or registered company survey platform provider.

Version 2- 04/19/23 Application# #30001711

Page 1 of 2

Results. In addition to producing the final report and presentation required of my M.Ed. program, I will be sharing the final report with the administration and staff at my school to help better understand student belonging at [REDACTED]

Regardless of your participation, you can contact me for the results of this research project by emailing me at [REDACTED]

Contact Information

If you would like to discuss this project, I can be reached at [REDACTED] or [REDACTED]. If you would like to talk to my faculty supervisor, you can reach [REDACTED]

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, please contact the Director, SFU Office of Research Ethics, at dore@sfu.ca or 778-782-6593.

If you would like to keep a copy of this consent form, you can download one from [REDACTED]

Student Name: _____

Student Signature: _____

Appendix C. Class List Example

EXAMPLE CLASS WEAVING LIST

****Swap yarn colours with your partner every 2-4 classmates****

Classmates Name	What order did they weave your loom in?	How many times did they weave around your loom?	What color yarn did they use?	Classmates Initial
Classmate				
Classmate				
Classmate				
Classmate	1st	four	blue	CM
Classmate				
Classmate				
Classmate				
Classmate				
Classmate				
Classmate				
Classmate				
Classmate	2nd	three	blue	CM
Classmate				
Classmate	4th	two	pink	CM
Classmate				
Classmate				
Classmate				
Classmate	3rd	two	blue	CM
Classmate				
Classmate				
Classmate				
Classmate				
Classmate				
Classmate				

Appendix D. Survey 1 (Pre Survey)

ADST 8- Collaborative Textile Art Project Reflection 1

* 1. Please Write your first and last name below

* 2. Did you sign and return the parental consent form handed out?

Yes

No

* 3. Please answer the questions using the scale provided. Give one answer per question and read the scale carefully.

	almost never	rarely	sometimes	most of the time	all of the time
I feel supported by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable asking for help from my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I belong when I am in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel accepted by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel respected by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My classmates include me during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My classmates use my name during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. What does it mean to belong?

* 5. Describe the classroom community? Do you feel like you belong in the classroom? Are you part of the classroom community?

Appendix E. Survey 2 (Post Survey)

ADST 8- Collaborative Textile Art Project Reflection 2

* 1. Please Write your first and last name below

* 2. Did you sign and return the parental consent form handed out?

- Yes
 No

* 3. Please answer the questions using the scale provided. Give one answer per question and read the scale carefully.

	almost never	rarely	sometimes	most of the time	all of the time
I feel supported by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable asking for help from my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I belong when I am in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel accepted by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel respected by my classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My classmates include me during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My classmates use my name during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 4. Did you learn a classmates name during the textile art project?

- Yes (1-2 names)
 Yes (2-5 names)
 Yes (6+ names)
 no, I already knew everyones name
 no

* 5. Did you feel included and supported by your classmates during the textile art activity, why or why not?

* 6. How do you feel the textile art project impacted the class as a whole?

* 7. Describe the classroom community? Do you feel like you belong? Are you part of the classroom community? Do you feel like it changed during this textile art project?

8. List 3 ways you can help other students feel like they belong in the classroom?

* 9. I think the circle weaving project made the classroom community:

- Much better
- Better
- About the same
- Worse
- Much worse