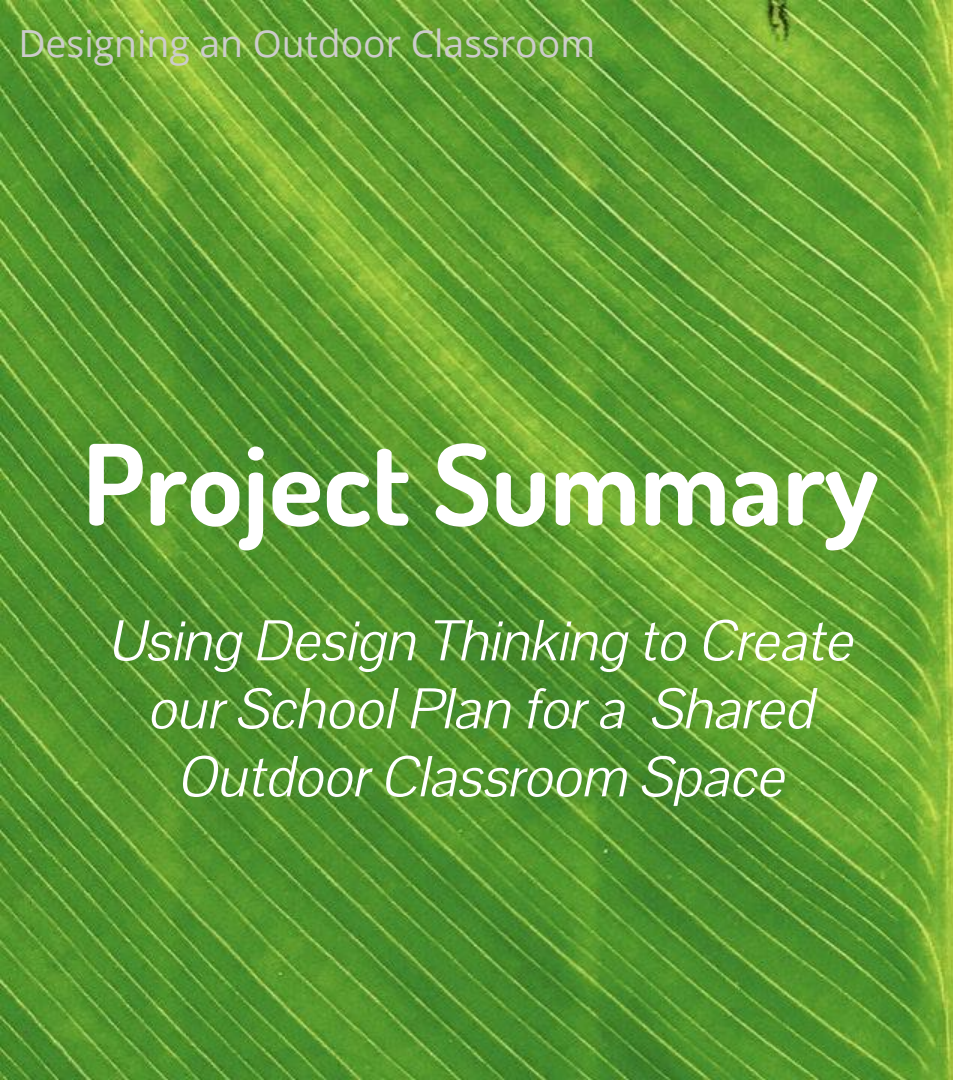# Designing an Outdoor Classroom to Promote Aboriginal Ways of Knowing and a Connection to Nature

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Project Summary

Using Design Thinking to Create our School Plan for a Shared Outdoor Classroom Space

This project explored the process of creating a design plan for an outdoor learning space in the courtyard of Carpathia School.

Input, ideas, insights, and expertise of stakeholders and end users, like students, parents, school staff, and teachers, were included in the creation of this design plan. Some individuals were surveyed and where necessary some individuals were interviewed. This survey process got our school connected with contacts who were able to provide us with quotes for the cost of our design features and provided feedback on the various design elements.

The design plan evolved as divisional staff became involved and feedback was incorporated. As a result, the plan moved away from the original designs from staff and students, which had multiple tipis, grass ground cover, and a pond, to a design that included a single large tipi, mulch ground cover, and resolved the initial drainage issue by the resurfacing and leveling of the ground space. The three-sisters garden and traditional medicines were planted by our grade 4 and 5 green team and the space is currently set to undergo some of the major changes this fall.

Our aboriginal population's culture is now more visible in the school and our Aboriginal Academic Achievement Representatives have been using the space during the month of June for daily smudging ceremonies. They have also agreed to teach the staff about how to enter the tipi to prepare students for using the space appropriately and have gathered materials for sharing/telling traditional aboriginal oral stories and have made them available to the staff through the school library.

Finally, a makerspace was created that included all natural materials and allowed students to explore engineering type activities that support their classroom studies by developing their critical thinking and problem solving skills.

To follow is the process that took us from an unused inner courtyard space (which some teachers didn't even know how to reach) to a space that is already being used pre-renovations!

Project Evaluation

Project Successes

I believe that this project was very successful as we have a final design with pieces of it already fully funded and many of the elements are already ordered. We have had teachers going outside more and becoming more aware of the space. The strengths that really led to the success of the project was getting other staff members involved and having the support of my administrator. The challenge was then trying to keep up with a principal who was retiring this year and trying to get the project done before the year was over and gathering the information for stakeholders in time to ensure that the final design would reflect the needs and wants of our school community.

Goals and Objectives

The goal of this project was to create an outdoor classroom design that would increase student awareness of aboriginal ways of knowing, foster aboriginal students' sense of self-identity, and promote student well-being through increased time outdoors. The objectives of creating this design were to increase the amount of time teachers are taking students outside during the school year and to increase the amount of teacher time spent on lessons that are directly related to aboriginal education. The final design will certainly create a more inviting space, however, already we saw teachers participating in outdoor classroom day (new to the school), using the garden boxes in the courtyard space (location of the future outdoor classroom) and the increased interest by staff in having access to resources that will aid them in aboriginal education (including our Aboriginal Academic Achievement teacher representative providing professional development to the staff on how to access divisionally shared resources online).

Project Impact

As mentioned previously, the impact of the outdoor classroom space has already started at Carpathia School even before construction has taken place. Teachers participated for the first time in outdoor classroom day and more teachers started taking their kids outdoors! I had already created STEM bins for the outdoor makerspace and teachers started using them outside for an engaging way to experiment with patterns and structures outdoors. Students enjoy the time outside and having new ways to practice their critical thinking skills!

Learning from Experience

From this experience I learned a great deal about how to get others excited about a project or new idea. The key was continuing with my plan, sharing it with others, and letting the excitement and engagement of my class ignite a desire in others to get their rooms outside. Many teachers clearly wanted to get outside more and having another class already doing it was all the encouragement they needed. Furthermore, the creation of the STEM bins and my willingness to share them with other classrooms became a launching pad for classrooms to go beyond just reading outside with their classes and provided another option for them which was easy to implement. I had a number of staff members comment on how they were so surprised I was willing to share my resources and ideas with them. This is clearly the beginning of a cultural shift at Carpathia, especially as we saw all staff members request more time for collaboration with colleagues next year on their end of year feedback surveys for the administration. This resulted in the Professional Learning Communities being established in our timetables for next year!

Ups and Downs

One of the elements that worked was gathering information from staff and students on what they would like to see in the outdoor classroom. Students loved filling out the survey and drawing sketches to imagine a new courtyard for the school. However, a challenge was receiving feedback from parents. We only have 2 members on our parent council, both of whom are not parents of any students in my room and are not very active in our school community outside of showing up to parent council meetings once a month. I was able to get a couple parent surveys completed by parents of my students because of the relationship I have developed with these parents.

Changes at Carpathia

Our school appears to be more involved in working together, collaborating, and sharing ideas. The conversations around the courtyard's potential sparked interest in sharing resources and ideas. We began a smudging club, ordered a tipi, and planned for a tipi ceremony in the fall of next year. We are seeing a focus on Aboriginal Education moving through the school with staff members asking for resources and professional development in this area. Much of these movements through the school started with finding out that there was a tipi ordered and that the tipi ceremony would be happening next year. We also had teachers becoming interested in outdoor classroom day and developed a desire to share resources in professional learning community groups (organized by grade group) after my willingness to share my STEM bins, research, and ideas with staff so openly.

Sustainability

I believe that this project could be replicated by another teacher at another school because it follows the design thinking process and seeks out that ideas and feedback of all stakeholders. Further, by using the design thinking tool kit anyone can follow along with the process outlined to work with their staff teams to create a space that would work for their school's population. In order to create a space that will be maintained and continues to be maintained, however, we need to ensure that the staff are not leading the maintenance of the space but rather having grade 5 students leading the maintenance and then training grade 4s alongside them. This way the grade 4s next year become the grade 5s and can train the upcoming grade 4s. This also creates a team of experts in the grade ⅘ classroom who can then support the teacher who takes over the green club. This has already started but the teacher who is helping the green club is switching grades to grade ¾ and so she is hoping to use younger students next year requiring training to happen with both grade levels again next year.

Leading Change Learnings

I have learned that leading change involves being open and honest with colleagues, becoming a person they can trust and inviting them into the conversation. For this project, I gave some suggestions and ideas based on the inspiration sources I had already researched but I was also open to their ideas and suggestions. Asking questions was critical. Asking open-ended questions was the most productive. I learned that by doing so others would become more passionate about the project, perhaps even more passionate than I was! Getting my principal on board had the largest impact as he was able to submit the requests for much of the work to be completed and had ultimate control over how much of this would really happen. Demonstrating to him that this type of project had been successful at other schools and that it was worth pursuing for our population was important to gaining his approval and ultimately having him submit the requests and orders.

Skills and Knowledge Gained

     Some of the skills I have gained from doing this leading change project have been an ability to inspire more teamwork and establishing connections with staff members to develop a sense of trust and understanding. I have learned that in order to get things accomplished within my division I need to get the support of not only my administrator but also appeal to the passions and objectives of a superintendent. Learning to navigate the channels of the division I work in and find out who I should be speaking to about different topics is knowledge that I am sure will aid me in the future during my career in this division. Finally, I have learned how to follow the design thinking process to implement ideas effectively in an organization and work with a variety of groups of people.

Future Learning Needs

My future learning needs relative to being a teacher or organizational leader are in terms of how to best communicate ideas to adults who are less willing or open to change. One of the biggest hurdles that I hear from others is navigating the negative. Although I did not find that I had to battle much negativity on my staff I know that this can be very difficult when you have a staff who are not open to change.

I want to learn more about effective leadership and presentation. I struggle when asked to speak in front of others and wish that I had greater confidence when speaking in front of a large group. I hope that I will be able to find rich literature on this subject and will be able to take part in our divisional leadership program that aids teachers in developing the skills needed for becoming divisional consultants, vice-principals, and principals.
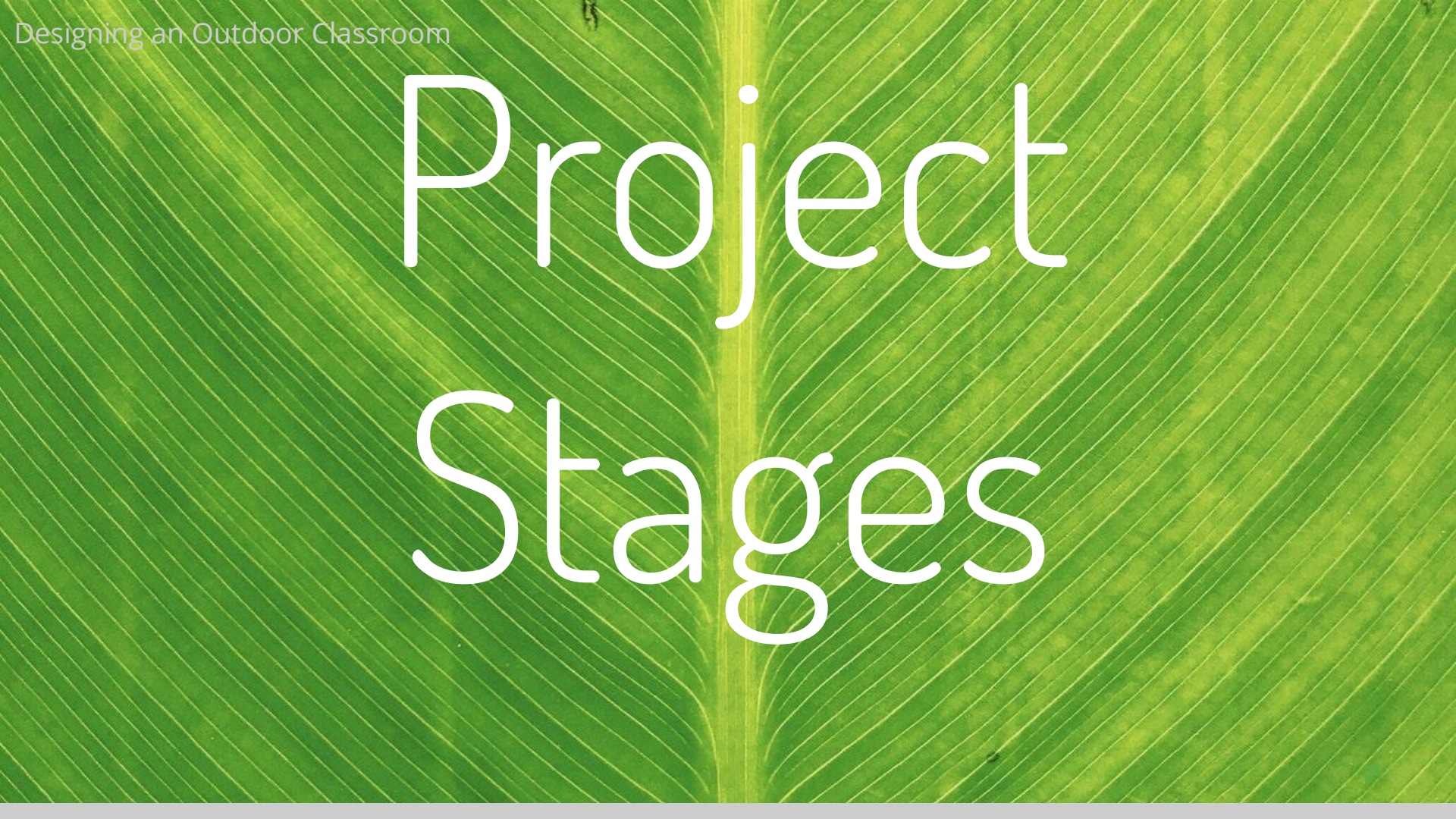
Project Stages

Design Thinking Stages

The process of this project took me through each of the 5 stages of design thinking allowing for a full immersive experience of this process and the ultimate creation of a design for our outdoor classroom space.

Discovery → Interpretation → Ideation → Experimentation → Evolution

Discovery

I have a challenge. How do I approach it?

Discovery Phase

The discovery phase is the first step in the design thinking process and builds the foundation for your ideas. This phase is about building understanding and opening up to inspiration and opportunities for the design challenge.

Understanding the Challenge

Aboriginal Education has been a longstanding priority in the Winnipeg School Division and, as outlined in the Aboriginal Education report in 2010, the goals for Aboriginal students are "to develop a positive self-identity through learning their own histories, cultures, traditional values, contemporary lifestyles, and traditional knowledge" and "to participate in a learning environment that will equip them with the knowledge and skills needed to participate more fully in the unique civic and cultural realities of their communities" (Winnipeg School Division, 2010). Our aboriginal students need to be aware of their history and culture in order to develop a positive self-identity. Research has shown "that personal and collective self-esteem have a considerable impact on school success for Aboriginal and minority children, and that this is connected to the presence of appropriate cultural and linguistic representation in the classroom" (Morcom, 2017). The creation of an outdoor learning space that incorporates representations of aboriginal culture and the promotion of aboriginal ways of knowing will allow the school to encourage a positive sense of self-identity in our aboriginal population.

Understanding the Challenge

Furthermore, the use of an outdoor learning space in the school will also have a positive impact on student health and wellbeing. As Palomino et al. outlined in their research summary, "research in public health, environmental psychology, landscape architecture and other disciplines continues to accumulate supporting the idea that nearby natural environments, green exercise, and nature-based activities positively impact human health and wellbeing" (Palomino et al., 2016). By creating an outdoor learning space with aboriginal cultural elements, we are supporting and benefiting the health and wellbeing of all students while also supporting the success of our aboriginal population.

The projected impacts on the non-Aboriginal student population are an increased awareness of Aboriginal culture and traditions which will lead to improved student relationships and respect for others. Also, non-Aboriginal students will have a positive impact on their own health and wellbeing through the increased time outdoors as mentioned above.

Background Information

The student population of Carpathia School is 212 students. Out of that 212, 134 reported their ethnicity as part of their student profile and 62 of those students are identified as aboriginal. Using this figure to roughly estimate the total population of aboriginal students, 46% of our students come from an aboriginal background. Many of the other families in our community are new immigrants and the creation of a space to instruct and inform around the topic of aboriginal ways of knowing will benefit these families as they integrate into Canadian society. We also have a large population of students who live in assisted living housing complexes and are living on social assistance. The low-socioeconomic status of our population results in parents having many fears about the safety of allowing their children to play outdoors. With students reporting that they are not allowed to play outside because their parents say the neighborhood isn't safe. This means many students spend most of their time outside of the school in their homes.

Preparing Research

In order to gather information to inform the design I created multiple surveys for various target audiences, including:

- A google form survey for staff members
- A paper survey for students
- A paper survey for parents
- Emailing divisional experts on the process
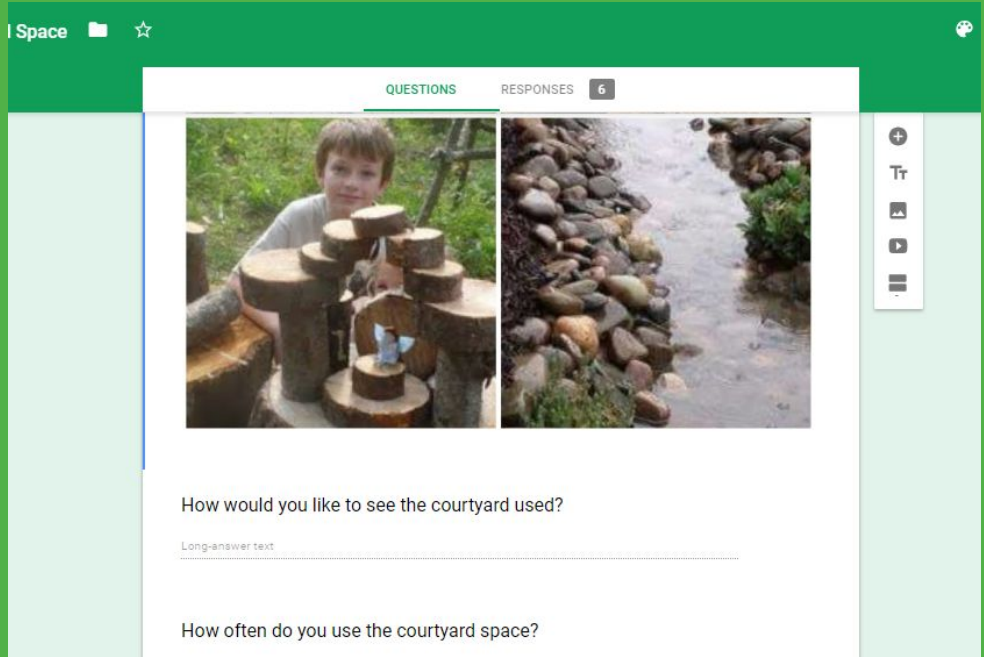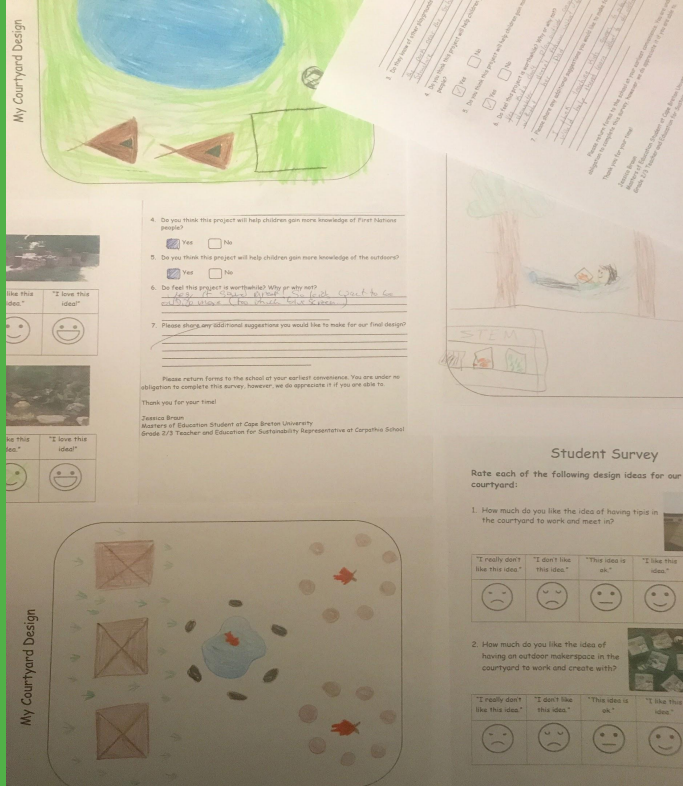
Some of the surveys collected from students and parents

Survey Sent to Teachers and Daycare Staff
Click Here To View Survey

Survey Results

- Many of the surveys indicated that a need for shade was a large priority in making the space usable.
- Also, the desire to have a writing surface for teachers was important for staff members hoping to use the space.
- Students loved the nature STEM bins.
- Students also indicated they would like to have mini tipis to work in during group projects.
- Parents stressed the importance they see in having kids play outside and learn how to be outdoors unplugged from their devices
- Some of the aboriginal families were excited to hear about smudging being offered as many families smudge at home but were nervous about smudging before school because of the odour

Inspiration

After emailing with our divisional expert she pointed out some of the schools that had created outdoor learning spaces in our division. As a result, I looked at those schools to see what was possible in our school division. I looked at:

- [Ecole Riverview](#)
- [Sargent Park](#)
- [Shaughnessy Park School](#)
- [Lord Nelson](#)
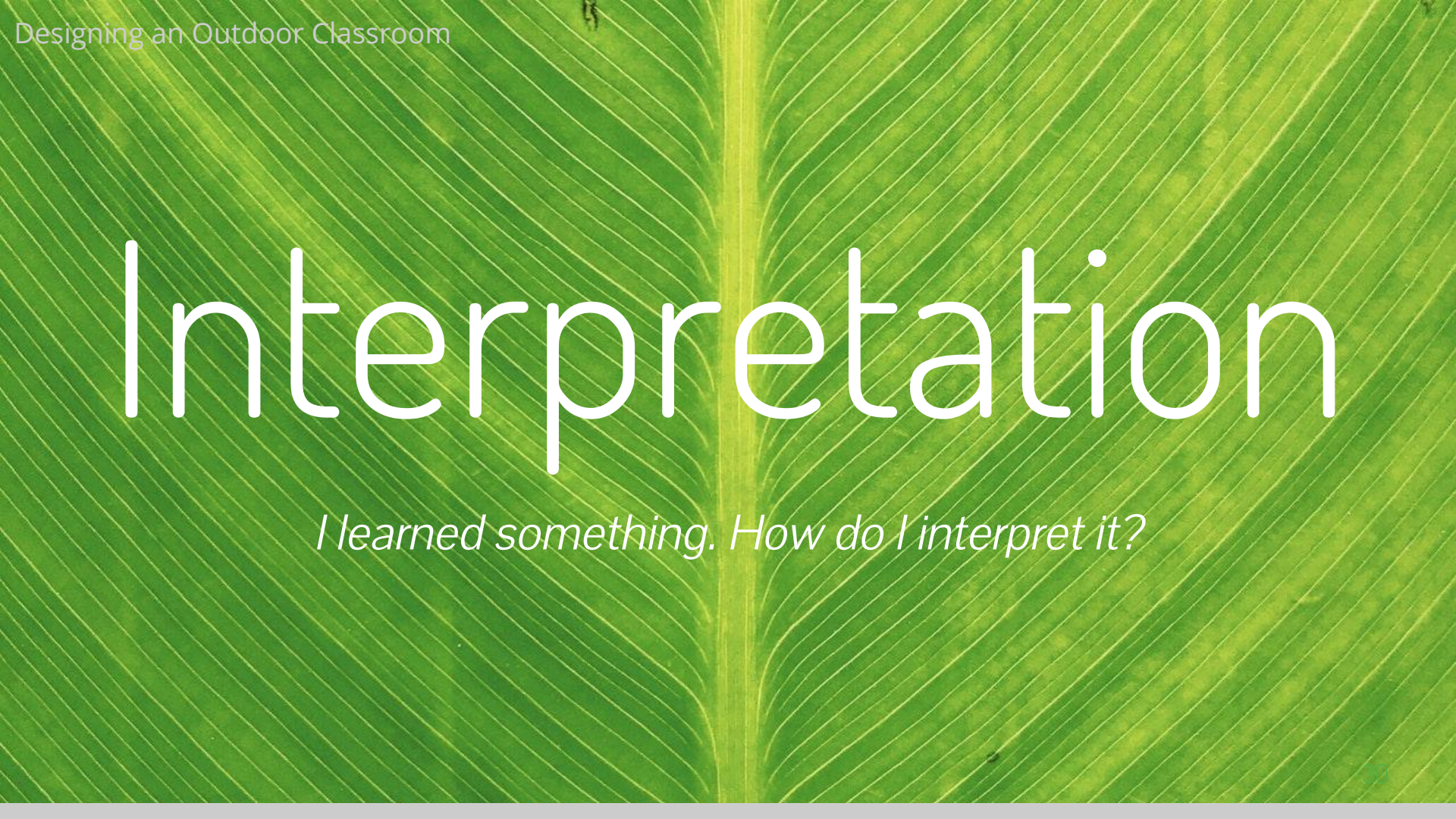
Lord Nelson School

École Riverview School

Shaughnessy Park School

Sargent Park School

Interpretation

I learned something. How do I interpret it?

Interpretation Phase

The interpretation phase is the second stage in the design thinking process and involves turning the insights gained in stage one into actionable opportunities.

Looking at the Space

After receiving feedback from staff members, students, and parents it was important to look around the space again and look for some of the problems that were identified (ex. a broken tap that was identified in one survey submission) and to measure the space to see what ideas would actually be possible.

Interpreting Surveys

Meeting with the small team of teachers on staff, that had demonstrated interest in the project, we looked at the surveys and conversations we had with individuals involved and looked at what was standing out to us as major themes or needs. These became the elements that we then decided would be shared in preliminary design sketches.
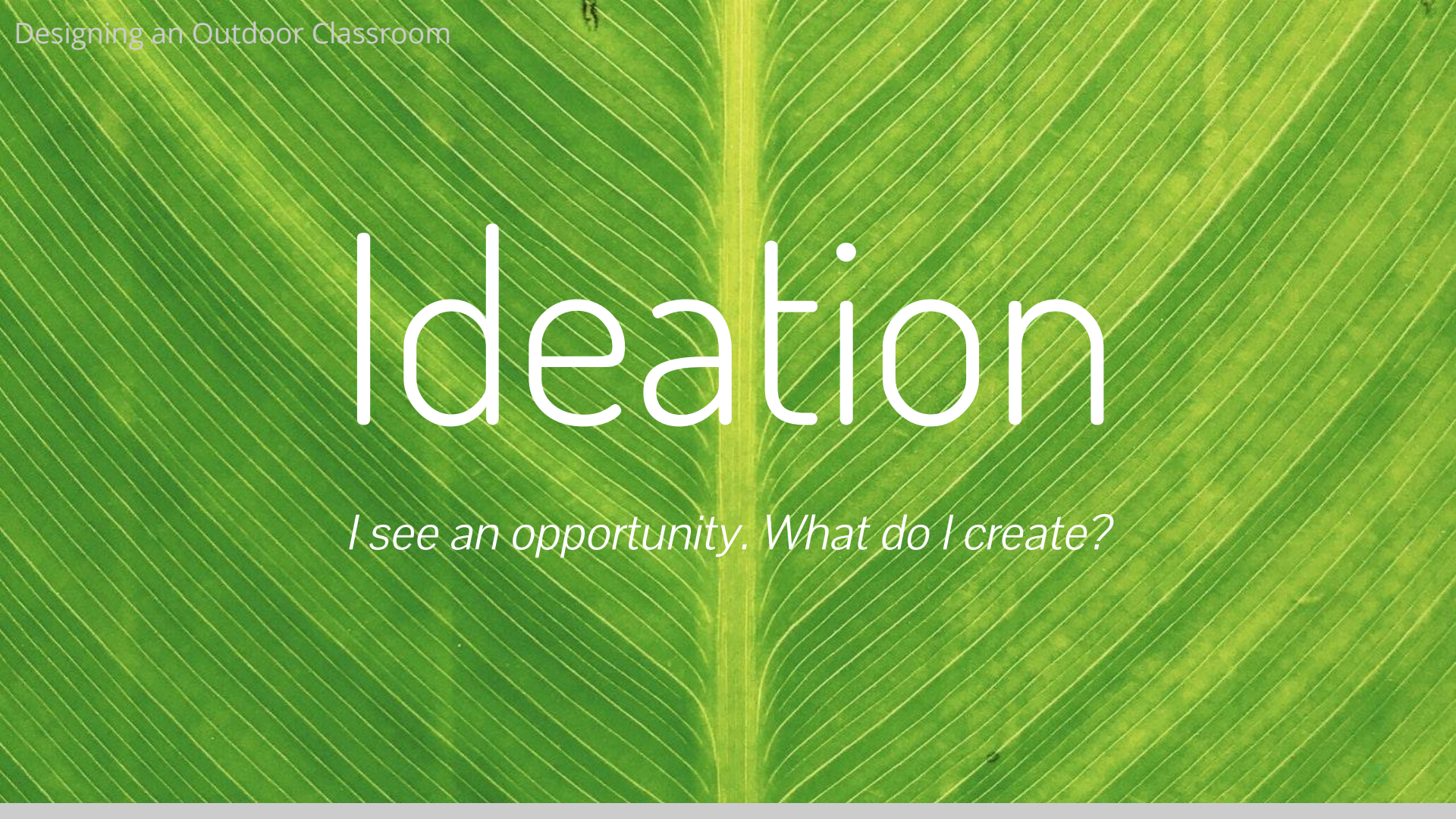
Early Sketches

Early sketches included:
- Grass ground cover
- Multiple small tipis for group work
- STEM station with table
- Log stools
- Roof slates for shade
- A small teacher cart or white board for teaching

Ideation

I see an opportunity. What do I create?

Ideation Phase

The ideation phase is the third stage in the design thinking process. In this phase, brainstorming multiple ideas is used to create fresh perspectives and ideas that can help push the project forward.

Generating Ideas

During this phase of the project discussions were happening not only with the core team of teachers about the project but also between our school's principal and the superintendent. From their discussion they began looking at alternative ground cover options that wouldn't require as much maintenance as grass and to look at the authenticity of including tipis as part of the final design.

Refining and Sharing Ideas

We also spoke with a designer and shared some of the ideas that we had generated. He began asking questions about the heights of the stools and ages of children using the space. This led us to begin looking into universal design for outdoor spaces and how we could create a space that was usable and welcoming to all types of students, staff, and community members.

Experimentation

I have an idea. How do I build it?

Experimentation Phase

The experimentation phase is the fourth stage in the design thinking process where ideas begin to come to life. In this phase, "you can receive a direct response and learn how to further improve and refine an idea" (Riverdale Country School, 2012).

Prototypes

During this phase, I created outdoor STEM bins for children to begin experimenting with engineering in the elementary school setting. This allowed us to see if this was something our students would be interested in as well as allowing teachers to begin using them in the school to see the benefits. Further, we found writing prompts that can accompany these activities to allow for further application of this station into the academic programming of our classrooms.

I also introduced the tipi teachings to my classroom and began using the tipi in my classroom as a quiet meeting place for students to read together and work on small partner activities. This allowed me to see if students would use the tipi appropriately or would be able to focus in the privacy of a tipi.

Prototypes

Finally, our grade ⅘ teacher began working with grade 4 and 5 students to develop a green team and started working on our school garden. She planted flowers with her students in the treated wood planter boxes and in the boxes suitable for vegetables she planted a three sisters garden including corn, beans, and squash. This type of garden teaches students about co-dependence and the interactions of all living things in an environment. This is also an excellent opportunity to speak to the wisdom of aboriginal traditional knowledge as this technique is part of many of the traditional first nations agricultural practices (Kids Gardening, 2016).
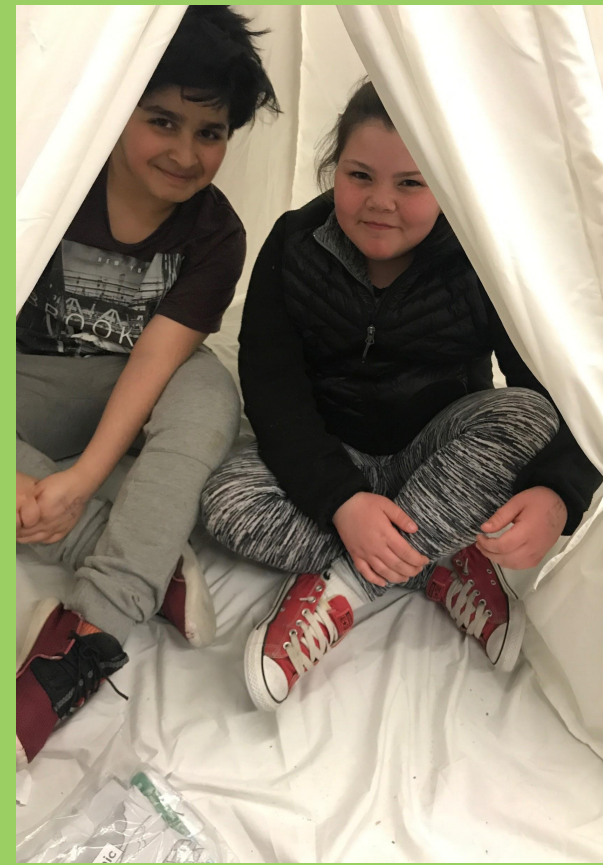
Our grade ⅘ green team working in the courtyard garden.

Grade ⅔ students testing out our outdoor STEM bins.

Grade ⅚ students trying out the tipi as a meeting spot.

Gathering Feedback

After the students had used some of the prototypes I asked them how they enjoyed the various activities. All of the students were excited about the STEM bins and they became a class favourite very quickly. Students also enjoyed using the tipi for their partner activities and began learning what some of the tipi teachings were. Staff members were also excited to borrow the STEM bins and began using the courtyard more readily which was a great indicator of the impact the project was happening.

Evolution

I tried something new. How do I evolve it?

Evolution Phase

The evolution phase is the fifth stage in the design thinking process where ideas change over time. This stage is where you plan for the next steps and share ideas with others. In this phase change happens over time as an indicator of the progress.

Changes

One of the changes that occurred during the project was the decision to move to mulch for our ground cover option as it is lower maintenance than grass. We also moved towards a single large tipi that fits a whole class rather than multiple small tipis.

After looking into creating a more accessible space for all we looked into a ramp and walkway for wheelchair accessibility and cubes that can be turned to create three separate heights for all students to have an appropriate height for their sharing circle stool.
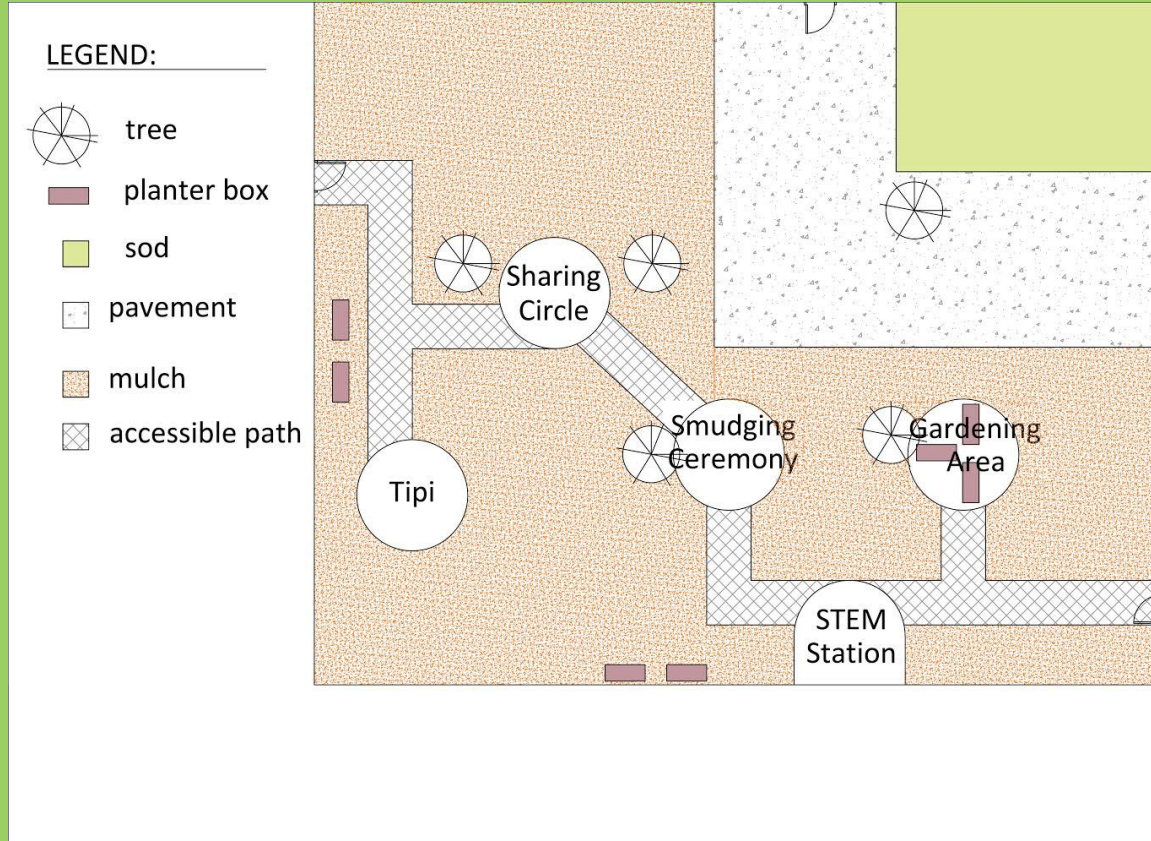
Final Design

Our Courtyard Before

Final Design

LEGEND:

- ⊕ tree
- 🟪 planter box
- 🟨 sod
- ▦ pavement
- ▦ mulch
- ▨ accessible path

Sharing Circle

Smudging Ceremony

Gardening Area

Tipi

STEM Station

50

Design Elements and Rationale

The final design includes a few key areas that we want to see as a school. The final design includes: a tipi, a smudging ceremony site, a STEM station, a gardening area, and a dedicated space for our in school day care. With this design, the courtyard becomes a usable for all classrooms and respects the daycare's use of the space by giving them an area that respects their needs and use of the space. The design also recognizes, celebrates, and respects the aboriginal population at our school; while also creating space that helps promote outdoor education at Carpathia School. The goal was to create another area in the school where students can learn because research has found that "the ability for all areas to be used as potential learning spaces increase[s] flexibility and support[s] student-centred pedagogies" (Bisset, 2014). The creation of an outdoor classroom benefits all Carpathia students and staff.

Tipi

The tipi allows for the tipi teachings to become part of the classroom practice. The principal has also invited the school division elder to come for a tipi raising ceremony which is both

Design Elements and Rationale

great for the community connection of the school and raise the visibility of aboriginal culture in our school. Our aboriginal students have the opportunity through this experience with the tipi teachings and aboriginal education lessons. Research has shown "that personal and collective self-esteem have a considerable impact on school success for Aboriginal and minority children, and that this is connected to the presence of appropriate cultural and linguistic representation in the classroom" (Morcom, 2017). This is further supported by the designated smudging ceremony area.

Smudging Ceremony

The smudging ceremony is another opportunity for Aboriginal students to see appropriate cultural representation in the school and to allow for routines and practices that are done at home to be transfered

Design Elements and Rationale

into the school environment. We also had some families identify this as a key practice to help their children with anxiety and stress.

Gardening Area

The gardening area is another important feature for all students at Carpathia as "nature-based activities positively impact human health and wellbeing" (Palomino et al., 2016). By creating a space where students can be outdoors and experience hands on experiences in the garden they will begin to experience some of those positive health and wellbeing benefits described in the research.

STEM Station

The STEM station allows for students to be challenged with engineering tasks and some critical

Design Elements and Rationale

thinking activities. Students will be using natural materials to build structures that meet different challenge requirements. The use of natural materials will further support the benefits of engaging with nature that we see in the garden space while also supporting the critical thinking and problem solving skills of students as they build and create.

Accessibility Path and Seating Cubes

During the discussions with the designer it became clear that Universal Design had not been considered in the space. We had initially planned for the sharing circle to include log stools to create a natural aesthetic, however, with students from aged 3 to adults using the space we needed seating that could be adjusted for the wide range of heights. This led me to look into the

Design Elements and Rationale

heights recommended for students in each age group and design a cube that could be flipped to 3 different heights. The goal is for these to be made by parent volunteers and for material to be fundraised through our next popcorn sales initiative. "Comfortable furniture is a key consideration for both students and teachers, with both groups emphasising the negative impact of uncomfortable furniture more than the positive impact of comfortable furniture" (AC Nielsen, 2004). Students and teachers need to be comfortable in the space in order for them to use it effectively. Further, we looked at the ground cover and realized that if we had any students in wheelchairs or with mobility issues mulch was not an easy ground cover for them to navigate. As such, we designed pathways that connect the various learning areas and would allow for movement for all

Design Elements and Rationale

students regardless of ability.

   We have designed a space that meets the needs of all students at Carpathia and those students that will come in the future. We know that research has shown that outdoor spaces is "one of the four main predictors of student achievement in a mainstream setting" (Tanner, 2000) and thus by creating this design to move forward with we are planning for increased student achievement at Carpathia School. Some of the components and work orders are already under way but further fundraising is needed to complete the full vision of this project.

Projected Costs

Many outdoor classroom spaces can cost around $70,000 (Romain, 2015). This could include the labour for ripping up the concrete, removal of some of the trees, mulch ground cover, walkways, tipi, shade fixtures, stools, and additional furniture. Many of these costs could be offset by having teacher, parent, and student volunteers. Unfortunately, at Carpathia we have a very inactive parent council with only 2 members and few parental volunteers. We have some community members who are willing to come and help for the tipi ceremony but are not yet committed to any specific financial support amounts.

Approvals Required

During this process there were a number of different people I needed to get approval from in order to push the project forward. First and foremost was the approval of my principal. This approval is critical as they will become the main point of contact for many others. The next step is to have the principal set up a meeting with you and the superintendent to discuss the potential project. During this time you will also need to seek out the support of any consultants that can support the validity and credibility of your idea. Finally, bringing this idea to facilities often needs to be done by the principal so that you can get any construction approved. They will often require 3 separate quotes for projected costs even when they are going to use their own people that they have on contract.

Resources

There are several resources that helped me through this process below are the most helpful resources for outdoor classroom spaces:

- TD Bank's guide for successful fundraising: https://fef.td.com/wp-content/uploads/2013/03/TD-OutdoorClassroomGuide_ENG_FINAL.pdf
- Life Cycles' School Food Garden Implementation Manual: http://lifecyclesproject.ca/app/uploads/2015/08/Creating-an-Outdoor-Classroom-2013.pdf
- Boston Schoolyard Initiative's Outdoor Classroom Guide: http://www.schoolyards.org/pdf/OutdoorClassroomUsersGuide.pdf
- Design Thinking for Educators Toolkit: https://designthinkingforeducators.com/toolkit/
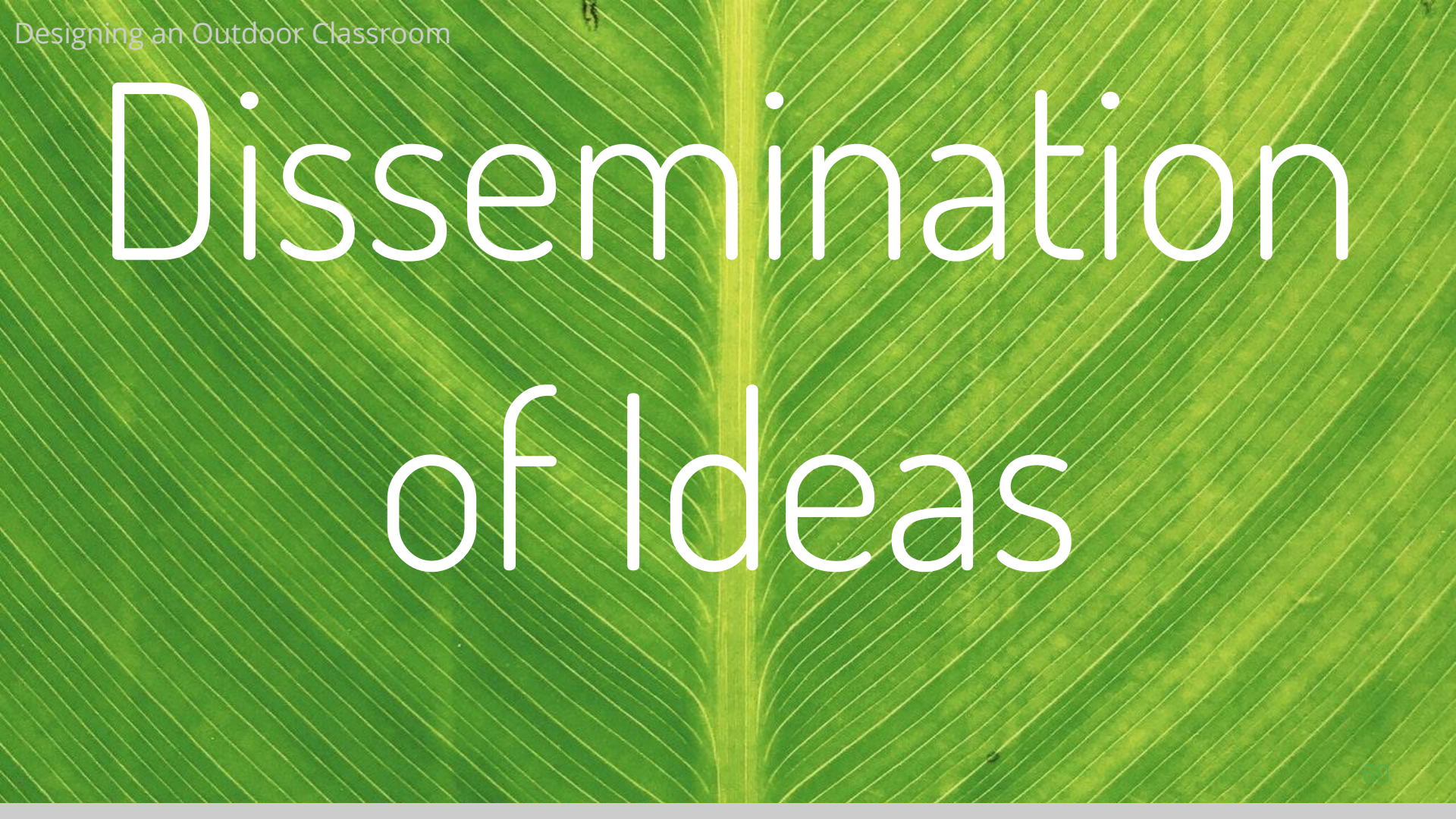
Dissemination of Ideas

Ways of Sharing

The reason for this project being completed in a google slideshow was for it to be easy to share with others and to make it a ready to go presentation that I can edit and use as needed for any future presentations on how to take steps towards creating outdoor classroom spaces. This project will be shared with my new administrator, divisional consultant, superintendent, and at any future professional development sessions at our school to share the work being done in our building.

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Administration, 38(4), 309 - 330.

Appendix

Assignments Submitted as Part of EDUC6800

- Define a Challenge Activity:
  - https://drive.google.com/file/d/1RxaUBGI4Ix9j7vDnzdE_OYYJSN1cMkQh/view?usp=sharing
- Understand a Challenge Activity:
  - https://drive.google.com/file/d/1KaJ4It0kLfU-5THkg5QgEO3O4URmAIPF/view?usp=sharing
- Design Challenge Brief:
  - https://docs.google.com/document/d/1uGxOCyQNLioZRrmkN6fZcaNpWCLE0rPdzTYDOKhiRQg/edit?usp=sharing
- TCPS Certification:
  - https://drive.google.com/file/d/1Fe6KJh2G1laB5tUe-WgaXY4KH_Ac0FV4/view?usp=sharing
- Draft Ethics and Proposal and Attachments:
  - https://docs.google.com/document/d/1ZsHjy21bXSy0eQeGIjAaoatlpim2KlDAsppXmRh6t1k/edit?usp=sharing
- Project Proposal:
  - https://drive.google.com/file/d/16ekBoviGIj3PswOqHFn-PlGpdUFEph86/view?usp=sharing
- Letter of Support:
  - https://drive.google.com/file/d/1VGAI_qc5g4qqytSEXFtpIcwpL5J7Kh33/view?usp=sharing
- Experimentation: Prototyping, Feedback, Refine, and Improve:
  - https://drive.google.com/file/d/1EMDzc1AGHPEXjGib6GChszSYB3tJP1Pp/view?usp=sharing
- Dissemination Strategy:
  - https://drive.google.com/file/d/1FsEFiX6LPPQfCxDQ-5C4geoFtOIW1CjF/view?usp=sharing
- Mid-Term Report:
  - https://drive.google.com/file/d/1z7T8QqBrtzQ4wRZzZqdpsQsx9bigN_2H/view?usp=sharing