

EFFECTS OF MODIFIED PROGRAM SYSTEMS ON PARTICIPATION IN OUTDOOR
EDUCATION AND CROSS-COUNTRY SKIING

by

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ABSTRACT

Outdoor Education programs provide various benefits and opportunities for growth to students, however, there can be challenges and barriers associated with participation for some audiences. This study aims to assess how prioritized registration and a transparent scholarship system effected participation of Title 1 and non-eligible Title 1 schools in Crosscut Mountain Sports Center's Ski Education Program in Bozeman, Montana. Data was collected through Registration and Scholarship Questions, surveys, and interviews. The results suggested that modified registration systems increased the number of Title 1 student participation as well the amount of scholarship funds requested and granted. This research also includes data from students and educators about the effects of participation and other ways to increase accessibility to the Ski Education Program. Pre- and post-student surveys as well as teacher interviews and instructor observations showed that students experienced various personal benefits as a result of participation in this outdoor education program.

INTRODUCTION AND BACKGROUND

Context of Study

The Ski Education Program at Crosscut Mountain Sports Center (Crosscut) provides cross-country ski instruction paired with outdoor education to students in grades kindergarten through twelfth grades (K-12). Crosscut is located in Bozeman, Montana and predominantly serves students within Gallatin County and the surrounding areas. Bozeman is the fourth largest city in Montana and has experienced significant change and growth in recent years. As of July 2022, Bozeman's population was 54,579 people with the three largest ethnic groups being White (90.2%), two or more races (5.1%) and Hispanic or Latino (4.6%). The Bozeman Public School District is the largest district in Gallatin County and includes two high schools, two middle schools, and eight elementary schools. Bozeman also has several out of district private and charter schools that educate youth in the Gallatin Valley (U.S., 2022). Due to its geography, climate, and vast surrounding wilderness areas, outdoor recreation and winter sports are a significant part of this mountain town's culture.

Crosscut Mountain Sports Center is an outdoor recreation area seventeen miles north of downtown Bozeman. Crosscut's property includes close to 500 acres in the Bridger Mountains neighboring the Custer Gallatin National Forest and Bridger Bowl Ski Area. Crosscut offers outdoor recreation opportunities to its guests year-round that include cross-country skiing, biathlon, mountain biking, and outdoor education programs. During the winter months, Crosscut sees approximately 30,000 visits each season of which over 2,500 are students participating in the Ski Education Program (Crosscut, 2022). The Ski Education Program lies within Crosscut's Outdoor Education Division and works with children and adults to provide opportunities to learn

and appreciate the sport of Cross-country skiing while becoming more familiar with the ecology of the Bridger Mountain Range (Ski education). Crosscut works with over thirty-five schools, most of which lie in Bozeman and Gallatin County, while other students come from schools spread over three additional counties and up to sixty miles away. The majority of the Ski Education participants are elementary school students in first through fifth grades.

The largest program within Ski Education is the long-standing Adventures in Winter Ecology Program which has facilitated field trips for students of Bozeman and the surrounding areas for 21 years. Adventure in Winter Ecology offers six hours of instruction and education on Crosscut's trails and teaching arenas. The first portion of this program is spent familiarizing students with cross-country skis and teaching the basic skills necessary to navigate the trails. Students and instructors then spend the remainder of the day on skis while diving into a grade specific winter ecology exploration. Topics taught during the day include snow science, animal adaptations to winter, studying tracks and skeletons, becoming familiar with the "Crosscut Biome," and learning about Indigenous Peoples on the landscape.

Diversity, Equity, and Inclusion work is becoming increasingly emphasized as organizations and individuals endeavor to create more equitable spaces and cultures for their communities. Crosscut Mountain Sports Center, and the Ski Education Program in particular, share in this pursuit and strive to provide accessible opportunities for everyone to participate in winter sports, specifically cross-country skiing. The dominant culture seen participating in winter sports is often non-disabled, middle to upper class White people as illustrated by a 2020 study done by Snowsports Industries America that found that 72% of participants that skied regularly were White. There can be many barriers to entry when considering pursuing winter sports. These

barriers can include race and ethnicity, disability, financial status, transportation, lack of gear and knowledge of the sport, lack of exposure, and many other obstacles (Rivas-Triana, 2022).

Crosscut currently prioritizes keeping program costs low to maintain financial accessibility for all students and schools. In addition to current processes Crosscut continues to improve systems to increase accessibility and inclusivity for students who may face any combination of the above barriers. During the 2022-2023 Crosscut season, 84% of Ski Education students identified as White, with the remainder of students identifying as Asian or Asian American, Black, Hispanic or Latino or Indigenous American. In looking at previous ski experience, 15% of students had never been on any type of skis before, and an additional 23% of students had downhill or cross-country skied less than five times in their lives. Of those who filled out the demographic survey, .04% reported a household income of below \$50,000 per year, with 17% of participants preferring not to answer (Weikert, 2023).

For Crosscut's Ski Education Program, cross-country skiing is a means to accessing and learning about nature in the winter months. This program does not emphasize high proficiency or competitive aspects of the sport. The goals of the Ski Education Program are to provide students with an opportunity to engage in the activity of skiing, feel a sense of belonging within the ski community, and feel empowered to explore the outdoors in winter while fostering a sense of connection with nature.

Bozeman typically experiences at least five months a year of a cold, often snowy climate. Students not involved in extracurricular activities and winter recreation can become isolated and spend more time indoors. The Ski Education Program provides opportunities for students to engage in an activity that affords them time spent outside and results in reaping the proven

mental and physical health benefits that come with time in nature (Repke et al., 2018). Other studies show that students engaged in outdoor recreation and education are more likely to feel a connection with the natural world and are therefore more likely to make decisions that promote environmental health. Getting students on skis at Crosscut benefits their own mental and physical wellbeing as well as the wellbeing of our environment and natural spaces (Cumming & Nash, 2015). All students in Bozeman's community deserve the chance to experience cross-country skiing and outdoor education regardless of their race, ethnicity, disability, financial status, or cultural background.

In an effort to provide the opportunity for a demographically wider audience to engage in cross-country skiing and outdoor education, Crosscut's Ski Education Program implemented new program systems including prioritized registration and a more transparent scholarship system. These modifications targeted schools with students who were less likely to have similar opportunities and provided increased financial support to make participation feasible.

Focus Questions

My focus question was, Do modified program systems impact participation in the Ski Education Program?

My sub-question was:

What are the effects of participation in the Ski Education Program?

CONCEPTUAL FRAMEWORK

Defining Outdoor Education

Outdoor education is a broad term that can encompass many different activities, types of learning, and outdoor settings. The purpose of this non-traditional education style can vary in whether the focus is on stewardship, improving students' independent learning and problem solving, tapping into one's social-emotional awareness, and building resiliency through new experiences. In any case, outdoor education puts emphasis on relationships; relationships between people and how they interact in group settings, the relationship with oneself, the interactions and connectedness between organisms within an ecosystem, and the relationship between people and the environment (Priest, 1986).

Adventure and environmental education are other terms seen in this field that emphasize different objectives. Typically, adventure education possesses the goal of improving relationships with the inner self and other people. In adventure education, inter and intrapersonal progress is often achieved through overcoming unfamiliar and challenging circumstances in outdoor or wilderness settings. These experiences can increase one's confidence in their ability to persevere, raise one's feeling of self-worth by adding new skills to their repertoire, and can provide valuable lessons in trust and communication with others. In contrast, environmental education has traditionally focused more on the ecology of a place and people's relationship with the land. This model often promotes a student's connection to nature and motivation for stewardship as well as increasing their knowledge of the interconnectedness of ecosystems and people's role within this system (Priest, 1986).

It is suggested that the ideal model of outdoor education blends both adventure and environmental education to offer more holistic and meaningful experiences to participants. Many outdoor education programs may still have an emphasis on one branch or the other, but purely being outdoors with other people affords the realization of all four types of relationships. One study asserts that outdoor education can be viewed as a tree with adventure and environmental education as separate branches and the leaves and roots representing the other major tenets of this method of learning (Figure 1) (Priest, 1986).

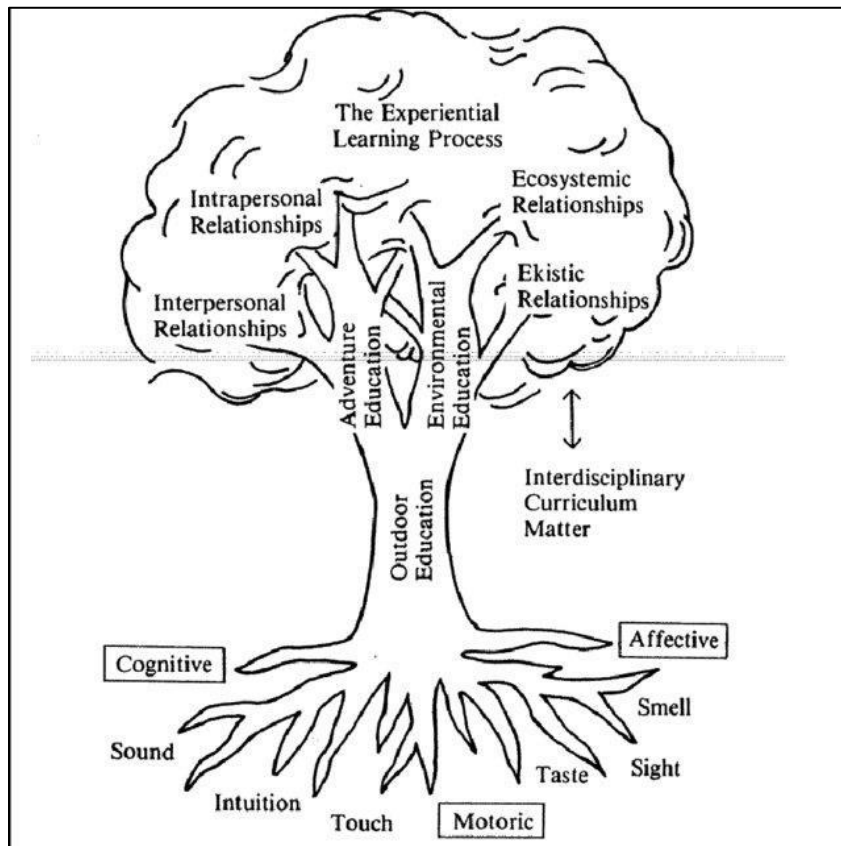


Figure 1. Priest's representation of the Outdoor Education Tree 1986.

Benefits of Time Spent Outdoors

There is an abundance of benefits to spending time outdoors including improvements to mental health, physical health, general wellbeing, and environmental conservation efforts. Research shows that people with more access and exposure to nature are predicted to experience less stress, anxiety, and depression. In addition to improving the wellbeing of humans, fostering a connection with nature has also shown an increase in desire to protect natural environments. Spending time outdoors not only benefits the physical and mental health of those partaking in the act, but also contributes to the health and longevity of nature (Repke et al., 2018).

There are many factors in today's society and modern lifestyle that decrease people's contact with nature. Living within highly urbanized settings, an increase in technology and access to screens, and the fear of the unknown all contribute to a growing unfamiliarity of nature (Bratman, et al., 2019). Sometimes referred to as nature deficit disorder, one study considers successful strategies to combat the increased time spent indoors by examining how children perceive their connection with nature. Through conversational focus groups children were found to be aware of the physical benefits of nature as well as able to describe psychological benefits. They used words like calming, relaxed, and feeling better, when discussing why they enjoy spending time outdoors. Children defined nature as the sum of many parts and described it as a connected system that did not include places like their schools, parks, and classrooms. It is important to continue to work toward understanding children's perception of nature to offer experiences in natural environments that align with their desires (Tillman et al., 2019).

Outdoor education can also impact one's sense of belonging and sense of place. For elementary school students, increasing both belonging and sense of place can have positive

impacts on their learning identity and support students' learning in general. One study collected data during several outdoor education days with elementary students and found that enthusiasm and engagement were higher during outdoor education sessions than during traditional learning. Students' sense of place and belonging also increased after having the opportunity to engage in learning outside of the classroom (Cumming & Nash, 2015).

Inclusion and Access in Outdoor Education

Outdoor education has roots as a predominantly White, male, privileged-class field which continues to inform how these programs are viewed and facilitated today. Communities marginalized by race, class, gender, sexuality, skin color, and disability have historically been excluded from participation and having a voice in this field. Outdoor education can exclude non-dominant cultures in many ways, including emphasizing individualism rather than catering to a community mindset that some cultures value. In order to promote more inclusive spaces in the field of outdoor education, teachers must confront their own biases and become aware of the histories and social issues associated with outdoor education. A wider view should be taken to include perspectives and cultures outside of the dominant system to create more welcoming and accessible outdoor spaces and programs (Warren & Breunig, 2019).

Research also shows that the dominant Westernized ways of teaching in outdoor education are not inclusive or conducive to feelings of belonging or sense of place for students marginalized by race, ethnicity, and/or class. Culturally responsive teaching practices take into account the backgrounds and cultures of the participants in order to teach in a way that aligns with their beliefs. For example, when teaching Indigenous students, it is important to recognize their culture's connection to and relationship with the land which differs greatly from many

Eurocentric viewpoints that may teach as though the land is a commodity that belongs to people (Middlemiss, 2018). One study collected data through interviews with predominantly African American participants who were part of an outdoor education course in the wilderness. This study recommends that for higher success rates and social justice within this field, outdoor education instructors need to learn teaching practices that are culturally responsive and inclusive to more individuals than just those of the dominant culture. Creating curriculum with diverse communities in mind and providing personal development programs to instructors and administrators of color are crucial in making progress toward a more equitable and inclusive future of outdoor education (Goodman, 2020).

Barriers of Access to Outdoor Education Field Trips

Not all schools are able to participate in outdoor education field trip experiences due to a variety of barriers. Within a district, there can be a wide range of school designations that reflect funding and may inform the school's ability to participate in different programs. Title 1 schools are designated by identifying a certain number of enrolled students in low-income families. These schools receive federal funding to help qualifying students reach the expected academic standards. Funds can be used for services like before and after-school support, summer learning programs, behavior support, and programs to increase parent involvement. In the same district, private schools may exist which often have high tuition rates, more resources, and tend to be less inclusive to marginalized groups (Story et al., 2023) (Montana Office of Public Instruction, n.d.).

A study in South Carolina shows that middle schools experience a variety of barriers to accessibility to outdoor and environmental education field trips. Affordability, access to transportation, and accommodation barriers were all prohibitive factors to participation.

Accommodation barriers are those associated with diversity, equity, and inclusion in schools and outdoor education centers and can include challenges like language barriers and perceived belonging. For example, students may not feel like they belong, or are invited into communities where their identity is not traditionally represented. The barriers that schools face are often intertwined and complex requiring consistent outreach and collaboration from program providers to work to reduce obstacles. Relationships between providers and school staff are also critical to identify barriers and establish solutions for each school's unique situation (Story et al., 2023).

The primary and secondary education systems that serve first through twelfth graders encompass a vast majority of youth in the United States and can be used to affect positive change to a large audience. School field trips to outdoor education programs can provide students with access to all of the aforementioned benefits associated with time in nature. These school facilitated trips offer real life experiences that result in increased science learning as well as growth in important skills such as communication, problem solving, and inquiry-based thinking. When these experiences are facilitated by elementary, middle, and high schools, it can help to ensure that students have access to these opportunities regardless of their lifestyle or family situation. Exposure to outdoor environments early in life not only offers health benefits but can increase a child's pro-environmental behaviors and opinions (Story, et al., 2023). Less opportunities for field trips mean that some students may miss out on the benefits of exploring different learning environments and having the ability to take part in memorable hands-on activities. Emphasizing the importance of outdoor education field trips in public schools can ensure that students will be introduced to an alternative way of learning that has shown to hold significant value in several realms of wellbeing (Hoover, 2021).

METHODOLOGY

Treatment

My action research study aimed to assess the effects of modified program systems on participation in Crosscut Mountain Sports Center's Ski Education Program. This study also looked to determine potential benefits experienced by students and educators through participating in the program. The goals of this study were to determine whether modified systems made the Ski Education Program more accessible to lower income schools such as those with a Title 1 designation and to determine the importance of maintaining accessible programs using surveys and interviews with students and their teachers. After modifying registration and scholarship systems, the number of Title 1 designated classes registered was recorded and compared to pre-treatment years. This study then looked at a representative sample of fifth grade classes registered, including private, non-eligible Title 1, and Title 1 schools, to gauge the effects of program participation on students and educators. The research methodology for this project received an exemption by Montana State University's Institutional Review Board, and compliance for working with human subjects was maintained (Appendix A).

Historically, Crosscut's registration system consisted of one registration day in the fall each year where teachers could sign their classes up for a field trip to the Ski Education Program. This system relied on teachers to call Crosscut within a specified time block and those who got through first got the first choice of dates, times, and had room to register more students. As the Ski Education Program grew, teachers often had to wait on hold for extended periods of time and an increased number of classes were unable to register and were instead placed on a waitlist. To address the program growth and make the process more convenient for all parties, program

systems were analyzed and modified. First, the program audience was assessed more closely to identify groups that may experience more significant or novel benefits to their mental and physical health and sense of belonging due to participation. In looking at potential barriers to skiing and outdoor education, minimizing the financial barrier to our programs was identified as a priority. There are several Title 1 designated schools in the area that have a higher number of students from low-income households who may have fewer opportunities to participate in costly outdoor activities. Skiing, in particular, is commonly less accessible and inclusive to those outside of middle to upper class, White communities. Title 1 schools were selected as the priority group for the upcoming registration process. The goal with prioritizing this group was to reach a larger number of students who were beginner skiers and had less perceived opportunities to connect with nature in the winter.

In prioritizing the registration of Title 1 classes, it was expected that a higher number of participants would need financial assistance. To make Crosscut's scholarship opportunities more well known, a clear description of scholarship offerings was added to teacher communication and scholarship needs were asked about during registration calls. To implement a prioritized registration system, the school email list was split into three categories of Title-1 designation: school-wide assistance, target assistance, and non-eligible. Three separate registration dates were established with school-wide assistance classes registering on the earliest date while non-eligible classes registered on the last date. A corresponding Google Form was sent out to each teacher where they could sign up for a call time on their designated registration date. On the third registration day, there were more limited options for the non-eligible classes to choose from.

After the registration process was complete, the calendar was full, with a few classes on the waitlist.

After the registration and scholarship systems were implemented in September 2023, the rest of the study took place during the winter season of December 2023 through March 2024. Demographic information and ski experience information was collected prior to each field trip through mandatory student waiver forms. In January and February, select fifth grade classes were surveyed and interviewed to learn more about their experience with the program and whether any consistent benefits appeared to students and educators who participated.

Data Collection and Analysis Strategies

For Title-1 designation and scholarship data, I collected information verbally from teachers with the Teacher Registration and Scholarship Questions during short phone calls. Teachers were asked to provide the grade of the class they hoped to register, how many students they had, the Title 1 designation of their school, and whether they anticipated a need for financial assistance for their students. This information was recorded and referenced at other points in the season. Actual scholarships awarded was recorded after confirming with each teacher on the day of their field trip. At the end of the season, information from the Teacher Registration and Scholarship Questions collected during pre-season phone calls was sorted into three categories; school-wide assistance, target assistance, and non-eligible to see the distribution of classes registered and scholarships awarded for Ski Education in 2023/2024 (Appendix B).

The Student Demographic Questions answered by the parent or guardian of each student provided more information about the demographics and ski experience of the registered classes. Each parent was given a link to Crosscut's Ski Education Waiver that is required to be signed

prior to their student's field trip. These waivers included supplemental questions that gather information on the student's school, ethnicity, whether the family's annual income was below \$50,000, whether the student qualified for the free and reduced lunch program, and the student's experience with cross-country skiing. The school and ethnicity questions asked parents to select from a drop-down menu of options while the financial and free and reduced lunch questions were yes or no answers. The question about ski experience asked how often the student had cross-country skied with options of never, a few times, and frequently. Each question on the waiver had a "prefer not to answer" option. The questions on the waivers were analyzed to represent the demographics of the year's participants. The answers to these questions were also compared to the Teacher Registration and Scholarship Questions to look for any correlation between Title-1 designation and the way parents answered each question for their students (Appendix C).

To determine benefits of participation to students, five fifth grade classes, including 65 students total, were given the Effects of Participation Student Pre- and Post-Survey. This survey presented a series of nine statements to determine student perception of their relationship with themselves, their relationship with others, and their relationship with the natural world. Students were asked to rate their level of agreement with each statement by choosing either strongly disagree, disagree, agree, or strongly agree. The second portion of the survey asked students to rate their level of interest in six subjects pertaining to skiing and nature using a scale of not at all interested, slightly interested, moderately interested, and extremely interested. The end of the survey included two short answer questions asking students what they were excited and nervous about before the trip, and what they enjoyed and were surprised by after the trip.

The Effects of Participation Student Pre-Survey was emailed to participating teachers one week prior to their field trip. Teachers printed the surveys and administered them at school during normal class time. At the end of each class's field trip day, participating teachers were handed the blank printed post-surveys for students to complete at school during their normal class time. When all pre- and post-surveys had been returned, the Likert data from these surveys was analyzed using a paired t-test. All qualitative data in this study was assessed for themes and broken into common categories. Once categorized, the frequency of themes mentioned was counted and recorded. (Appendix D).

At the end of the field trip days, observational data was collected from the four-five instructors that worked with the focus groups. During the daily debrief meeting, instructors were asked to reflect on the program and students and collaborate to answer a series of questions in the Instructor Observations Survey. As a group, instructors rated, on average, the ski ability of the class from very low to above average and rated the class's previous ski opportunities from very few to many. Instructors then rated a series of statements on a scale from strongly disagree to strongly agree about the students' relationship with oneself and self-confidence, their teamwork and support of each other, and their relationship with nature. Instructors were also asked to share anything else that stood out about their day working with each specific class. Information about interactions with the teacher was added if there was anything to note. (Appendix E).

Individual Teacher Interviews were used to gather information about the effects of the modified registration and scholarship systems. The interviews were also conducted to learn more about the benefits of participation from an educator's perspective. Each interview involved a

series of six questions that asked teachers to discuss the impact of the modified program systems, the benefits of participation to students and educators, the barriers to skiing and outdoor education opportunities, and how Crosscut can make the Ski Education Program more accessible. The answers to each question were recorded and transcribed. The answers were then coded by identifying common themes and creating categories for the different responses. Graphs and charts were used to visualize the data and illustrate patterns and correlations from the pre- and post-surveys and the teacher interviews (Appendix F) (Table 1).

Table 1. Data Triangulation Matrix

Research Questions	Data Collection Instruments		
	Instrument 1	Instrument 2	Instrument 3
Do modified systems impact participation in the Ski Education Program?	Teacher Registration & Scholarship Questions	Individual Teacher Interviews	Student Demographic Questions
What are the effects of participation in the Ski Education Program?	Student Pre/Post Survey	Individual Teacher Interviews	Instructor Observations Survey

DATA ANALYSIS

Impact of Modified Program Systems

Data was collected in response to the focus question, “do modified program systems impact participation in the Ski Education Program?” Data collected before and after implementing modified registration and scholarship systems within Crosscut’s Ski Education Program showed that these systems resulted in more Title 1 schools and students participating in the program than in previous years. The changes also resulted in more scholarship requests during registration and more scholarship money awarded than in previous years. The Teacher Registration and Scholarship Questions showed that 17 different Title 1 schools and 1,533 Title 1 students registered to participate in the Ski Education Program in 2024. This is compared to 15 schools and 1,041 students in 2023 and 12 schools in 2022 (Figure 2). This data revealed a 13% increase in Title 1 school participation and 47% increase in Title 1 student participation. The Teacher Registration and Scholarship Questions showed that 18 teachers anticipated some or all of their students needing scholarships to participate in the program. By the end of the season, \$2,750 of scholarships were awarded to students in 2024 compared to \$1,860 in 2023 and \$540 in 2022 (Figure 3). This data indicated a 48% increase in scholarship money awarded after implementing modified registration and scholarship systems.

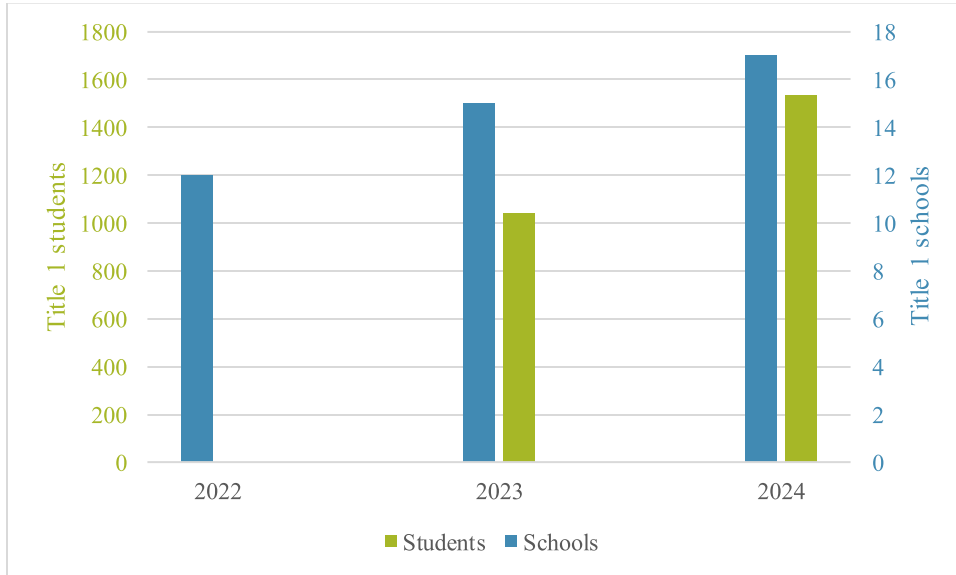


Figure 2. Changes in the number of Title 1 students and schools participating in the Ski Education Program between 2022 and 2024.

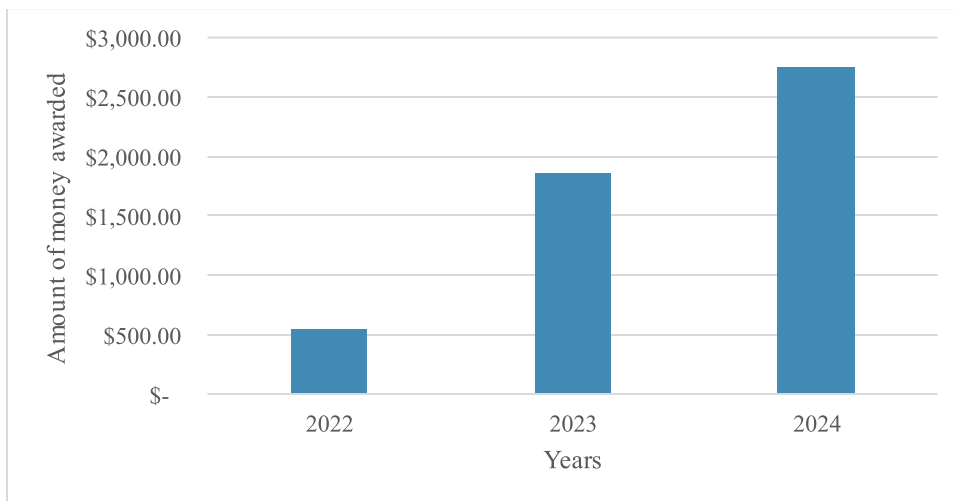


Figure 3. Changes in the amount of scholarship money awarded to participants in the Ski Education Program between 2022 and 2024.

The Individual Teacher Interviews also showed that the modified program systems impacted participation. Teachers expressed that the prioritized registration system guaranteed that Title 1 schools could get on the program calendar on a date that worked for teachers and administration. In previous years, Title 1 teachers and their classes may have ended up on the

waitlist if they weren't able to register in a timely manner. In response to whether Crosscut's prioritized registration and scholarship systems impacted participation, one teacher said, "It had a huge impact. Priority registration allowed us to choose dates that worked well for all of our teachers and students." In response to the same question, all teachers of Title 1 students that were interviewed mentioned that many of their students would not have been able to participate without Crosscut's scholarship opportunities. One teacher explained, "Scholarships made it possible for them to experience life in Bozeman in a way that would otherwise be out of reach." Another teacher said, "We are a Title I school with students who could not go if it wasn't for the scholarships." One of the teachers of a non- Title 1 private school stated that the prioritized registration and scholarship systems did not have an impact on their participation. This particular school was still able to participate with six separate classes despite registering later than lower-income schools.

Effects of Participation

Data collected from students, educators, and instructors showed that there were significant and observable benefits to participating in the Ski Education Program. The Pre and Post Student Surveys showed that there was an increase in the number of students that answered strongly agree or extremely interested in the post-survey for all but one self-reflection and learning interest questions (Figure 4). The question regarding students feeling like they belonged in the ski community had ratings of 44% strongly agree and 37% agree in the pre-survey and ratings of 43% strongly agree and 41% agree in the post-survey. Data from the pre- and post-surveys was compared using a paired t-test. In the self-reflection section, the first two questions on the survey regarding self-belief and confidence in trying new things showed a statistically

significant difference ($p < .05$). Other questions in the self-reflection section of the survey showed no significant difference.

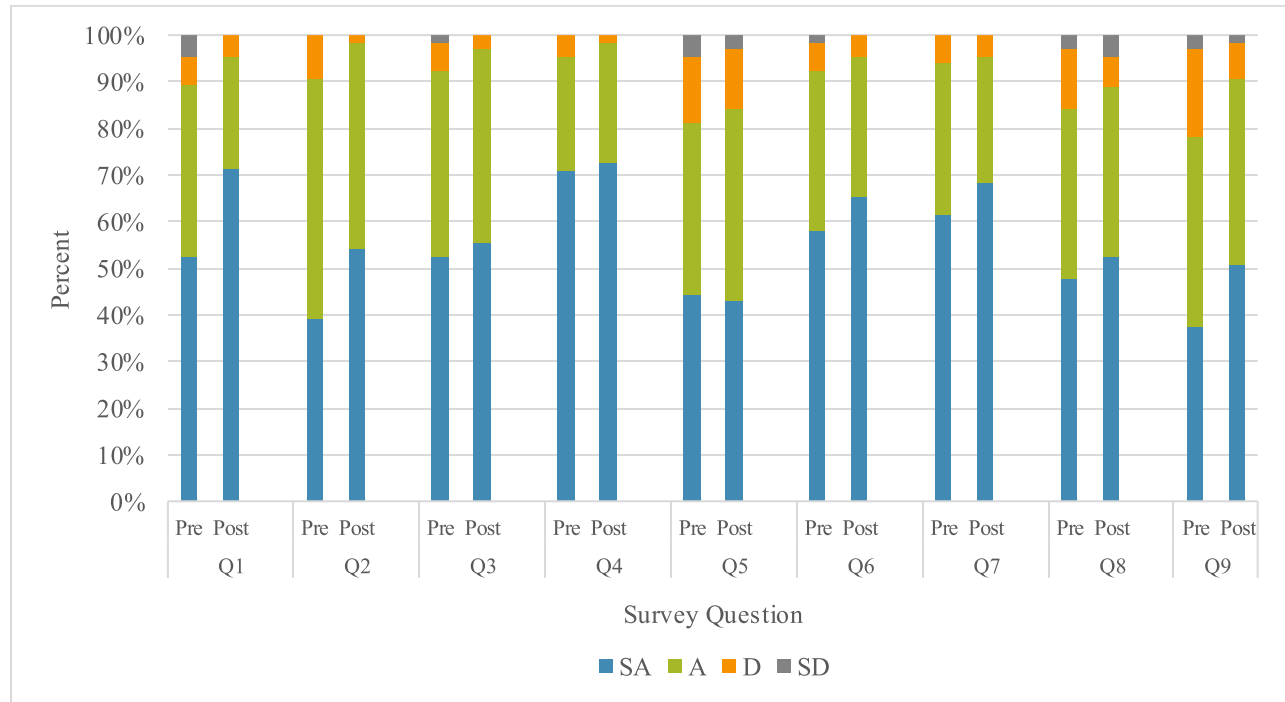


Figure 4. Changes in frequency of Likert scores for Self-Reflection related questions in the Pre and Post Student Surveys, ($N=65$). *Note.* Q1: I believe in myself, Q2: I feel confident trying new things, Q3: I believe I can do hard things, Q4: I think teamwork and cooperation with others is important, Q5: I feel like I belong in the ski community, Q6: I enjoy being outside in the winter, Q7: I want to participate in outdoor winter activities, Q8: I feel connected to nature, Q9: I feel knowledgeable about our local environment.

The questions related to learning interests in the pre and post surveys did not show statistical significance ($p > .05$). For each of the learning interest questions, there was a higher percentage of extremely interested and moderately interested answers in the post survey than in the pre survey (Figure 5). The highest percentage of students extremely interested occurred in questions two and three, “interest in learning about nature” and “interest in spending time in nature.” These results align with qualitative data collected from students that are detailed below.

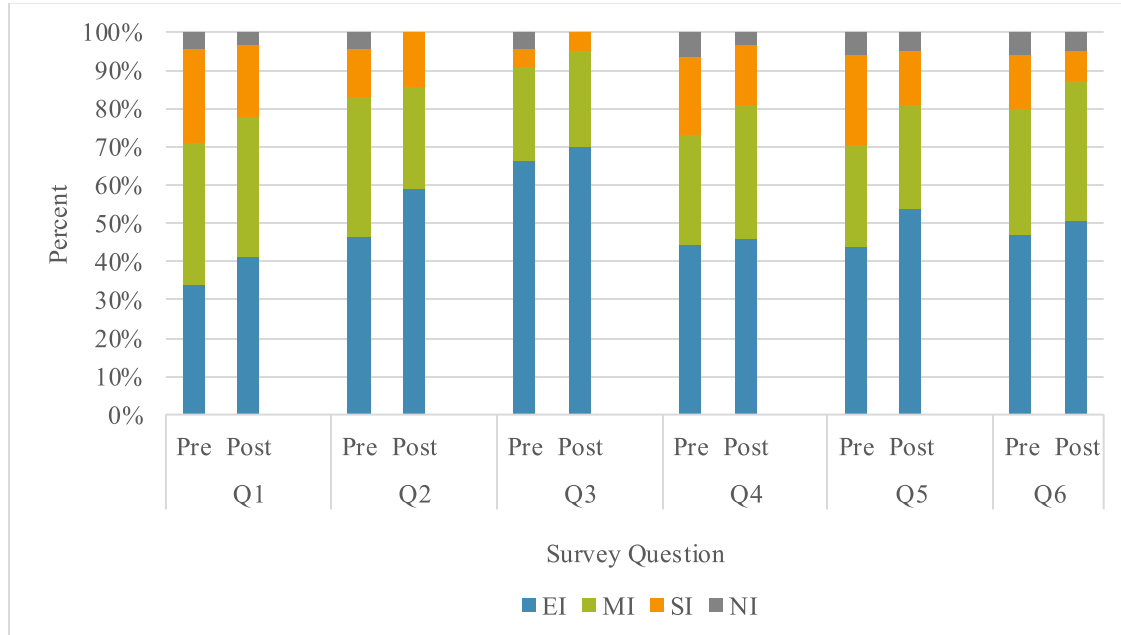


Figure 5. Changes in frequency of Likert scores for Learning Interest related questions in the Pre and Post Student Surveys, ($N=65$). *Note.* How interested are you in the following areas? Q1: Science, Q2: Learning about nature, Q3: Spending time in nature, Q4: Learning about the winter environment, Q5: Cross-country skiing, Q6: Exploring nature in winter on skis or snowshoes.

In the pre-survey, students were asked to explain what they were most looking forward to about their field trip to Crosscut and what they were most hesitant about. These survey questions were analyzed for themes and categorized accordingly. Most responses regarding what students were excited about fell into five categories: being outside and learning about nature, skiing, having fun with friends, trying new things, and physical activity. The responses about being outside mentioned the word “nature” often, and the desire to learn more about the environment. In the skiing category, students mentioned skiing in general and going down hills. Some students noted looking forward to having fun and being outside the classroom with their friends. Several students made the statement “trying something new” in response to the question “what are you looking forward to?” The physical activity responses were about students enjoying physical activity and looking forward to the trip because of that.

In response to what they were looking forward to, 29% of students mentioned looking forward to being outside and learning about nature, 24% of students were most excited about skiing and going down hills, and 13% of students were most looking forward to having fun and being with their friends (Table 2). One student said they were most looking forward to, “being outside an entire day, learning about the environment and spending time with my friends.” Another student in response to this question said, “Going down the hills are the most exciting for me. But I also like experiencing the woods.” These student responses further support the Likert data that shows the Ski Education Program increased students’ interest in learning about nature and spending time in nature.

Responses regarding what students were hesitant about fell into six categories. Many students reported being hesitant about nothing while others had some concerns. Some students anticipated having physical challenges like getting tired or sore, others were hesitant about not knowing what to expect in the unfamiliar situation. Some common specific worries included students feeling like they might get lost and not wanting to ski into a tree. The last category included responses that showed apprehension for skiing uphill. When explaining what they were hesitant about, 23% of students reported being hesitant about nothing, 22% of students reported being hesitant about experiencing physical challenges such as getting hurt or being sore, and 10% of students were hesitant about being in an unfamiliar situation (Table 2). One student said, “I’m kinda [*sic*] nervous about doing all of the stuff you have to do to get ready before we start skiing.” Another student said, “I am hesitant about skiing because I’ve never skied before.”

Table 2. Number of responses by theme from the student pre-survey short-answer questions.

What are you excited about? (n=63)		What are you hesitant about? (n=60)	
Theme name	How many times it was mentioned	Theme name	How many times it was mentioned
Being outside / learning about nature	18	Nothing	14
Skiing	15	Physical challenges	13
Having fun with friends	8	Unfamiliar situation	6
Trying new things	3	Getting lost	4
Physical activity	2	Hitting trees	4
		Going uphill	2

In the post-survey, students were asked to reflect on what they most enjoyed about their field trip and what surprised them about their experience. The responses regarding what they most enjoyed fell into seven categories. Many students mentioned that the best part of the day was getting to ski down all of the hills. Similar to what they were excited about in the pre-survey, students ended up most enjoying being outside and mentioned things they learned from the curriculum or aspects of nature they remembered. Some students most enjoyed spending the day with the Crosscut instructors, noting that their instructor was “amazing!” Other students mentioned enjoying being with their friends, that they most liked playing games on skis at the beginning of the day, that it was nice to get exercise, and some just enjoyed not being at school.

Twenty-nine percent of students most enjoyed skiing down the hills and 26% most enjoyed being outside and learning about nature (Table 3). Again, these themes are consistent with the Likert data relating to student learning interests. Student responses to what they most

enjoyed included, “I enjoyed the fun activities and all of the green fresh nature” and “going downhill was exhilarating!”

Seven categories were identified for responses about what students were surprised by. Some were surprised by aspects of nature, like the animal tracks they saw in the snow, or seeing a grouse while skiing. Students also commonly mentioned being better at skiing than they expected. Some students reported not being surprised by anything while others were surprised by the difficulty of cross-country skiing and that the trails and snow conditions were challenging at times. The remaining two categories included responses that mentioned students having more fun cross-country skiing than they expected, and responses about a surprising element of the games played during the ecology lessons.

Students reported various surprising elements about their fieldtrip, 15% of students were surprised by wildlife and nature observations, 12% ($n=7$) were surprised by being better at skiing than they expected, and 10% ($n=6$) of students were surprised by nothing, that skiing was challenging, and the type of terrain they experienced (Table 3). One student said that they were most surprised by “how easy it was for my first time (skiing) in a while.” Students experiencing success and being better than they anticipated can lead to an increase of confidence and self-belief.

Table 3. Number of responses by theme from the student post-survey short-answer questions.

What did you enjoy most? (n=62)		What surprised you? (n=59)	
Theme name	How many times it was mentioned	Theme name	How many times it was mentioned
Going down hills	18	Wildlife and nature	9
Being outside / learning about nature	16	Individual ski ability	7
Instructors	5	Nothing	6
Being with friends	4	Skiing was hard	6
Playing games	3	Terrain / conditions	6
Physical activity	2	More fun than expected	5
Being out of school	2	An aspect of the games	2

Data from Instructor Observations and Individual Teacher Interviews shared some of the same themes as above. In a series of questions asking instructors to reflect on the benefits experienced by students in each of the classes, instructors most strongly agreed with two of the eight questions. The statements, “the class seemed excited to try something new (or excited to try something again if the experience was familiar)”, and “the class seemed to enjoy being outdoors,” both had an 80% rating for strongly agree across the five Instructor Observation forms completed (Figure 6). One instructor said, “All students were especially excited about being in nature and were observing their surroundings throughout the day.” Another instructor described their day with the class saying, “During a quiet listening circle in the woods, students seemed calmer and more observant. Kids were excited to see and point out animal tracks, they were very engaged watching a grouse in the morning and brought up that experience throughout the day.” These instructor observations align with comments from students about looking

forward to and most enjoying being outside and learning about nature. The next most positive observations from instructors were that students experienced and overcame challenges, and students seemed interested in trying cross-country skiing in the future. Both of these statements received a 60% rating of strongly agree and 40% of agree across all five observations. The statements that instructors agreed with the least often were, “students seemed connected with nature” and, “students were engaged and interested in learning about nature.” In discussion about these questions, instructors noted that it was hard to judge whether students were connected with nature, explaining that this connection could look different across various individuals. The statement, “students gained self-confidence” was rated 40% strongly agree and 60% agree while the statement, “students were supportive of one another” was rated 20% strongly agree and 80% agree across the observations completed for all five classes (Figure 6).

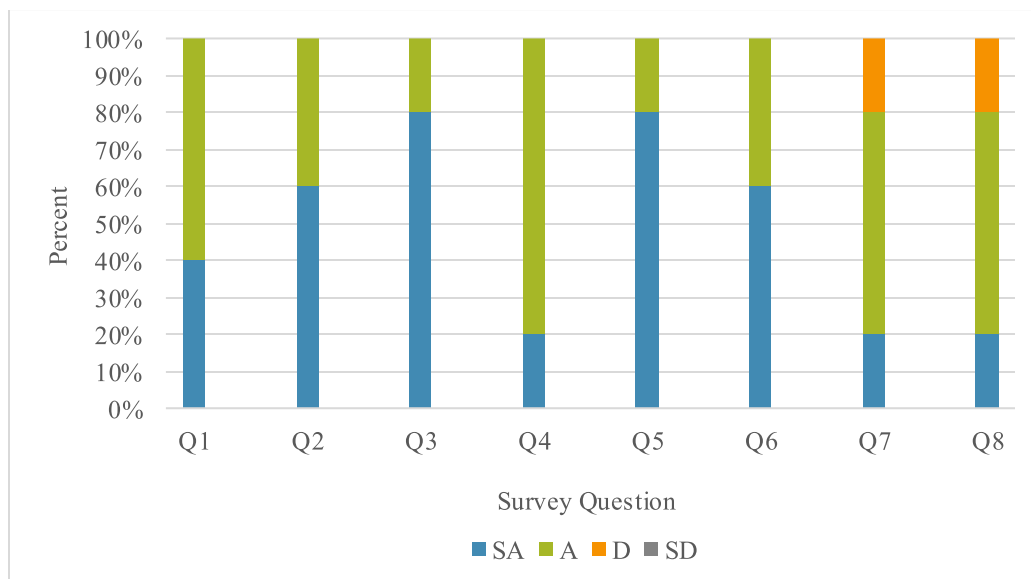


Figure 6. Instructor Observations of perceived benefits to students due to participating in Ski Education, (N=5). *Note.* Q1: Individuals gained self-confidence throughout the day, Q2: The class experienced and overcame challenges, Q3: Students were excited to try something new, Q4: Students were supportive of one another, Q5: The class seemed to enjoy being outdoors, Q6: Students seemed interested in cross-country skiing in the future, Q7: Students seemed connected with nature, Q8: The class was engaged and interested in learning about nature.

On a scale of few to many, instructors reported three classes having many students that had skied before and two classes having some students that had skied before. In all of these cases, instructors noted that the vast majority of students had only skied at Crosscut through the Ski Education Program in a younger grade. Most students didn't have opportunities to experience cross-country skiing in other settings.

In their individual interview questions, teachers were asked what they perceive to be the importance of participation in the Ski Education Program to their students as well as what benefits the program provides to students and educators. Common themes from these questions included the benefit of giving students the opportunity to experience and connect with outdoor spaces. All teachers of Title 1 schools stated that many of their students had never spent time in the mountains or forests. Teachers said things like, "We have students who have never had the opportunity to experience the natural world outside of a visit to a park in the city," and, "I have students who have never been out in the woods like they do when we are at Crosscut. I think it's important for students to see what it's like being out in the woods doing physical activity," and "While we live in this recreation mecca, many students – mostly low-income students - have not been exposed to what the mountains and parks have to offer."

Another benefit mentioned by teachers was the program's ability to offer opportunity for student growth in connection and confidence. One teacher explained, "The sense of connection, self-confidence, and inner strength students come away with often transfers to their view of themselves in the classroom." This sentiment from the teacher interviews aligns with the Likert scores from the student surveys showing an increase in self-belief and confidence in trying new things after participation. In response to the open-ended question about benefits of participation

to educators, three out of five teachers mentioned that Crosscut's curriculum aligns with state science standards which makes the program a useful, supplemental educational experience. One teacher also said, "Teachers get to enjoy the day as much as the students because Crosscut is so well organized and well-staffed." The data collected through student surveys, instructor observations, and teacher interviews, shows that students have the potential to be affected in a variety of positive ways when afforded the opportunity to participate in Ski Education.

CLAIMS, EVIDENCE, REASONING

Claims from the Study

Gathering data from students, classroom teachers, and outdoor education instructors throughout the 2024 winter season has provided information to help answer this study's focus questions which asked, "what are the impacts of modified program systems on participation in the Ski Education Program?" and "what are the effects of participation?" Additionally, this study helped more clearly define how the Ski Education Program relates to the larger field of outdoor education.

After completing this research, it is more evident that Crosscut Mountain Sports Center's Ski Education Program accurately falls under the classification of Outdoor education as defined earlier in this paper. Outdoor education is centered around relationships and often combines aspects of adventure and environmental education for a unique participant experience. This study's data shows that students experienced and valued both the ability to participate in the activity of skiing as well as spend time outdoors. This distinctive program provides the opportunity for students to experience something "exhilarating" and challenging while also engaging with and learning about nature. In this way, the program combines the facets of adventure education and environmental education that offer the myriad of benefits seen with outdoor education programs including mental and physical health benefits as well as the opportunity to build relationships and advocate for wild places.



Figure 7. Photos of students sorting track cards and skiing on Crosscut's trails.

Though the data showed positive changes in almost all areas of self-reflection and learning interests, students experienced the most significant shift in self-belief and confidence to try new things. This is evidenced in data from the Pre/Post Student Survey, Individual Teacher Interviews, as well as the Instructor Observations Survey. Because students were exposed to challenging situations and had the opportunity to overcome them, many were able to increase their feelings of self-confidence. The Ski Education Program sets students up for success in a safe learning environment that allows them to feel more comfortable in an outdoor, winter setting as well as on skis. In the Instructor Observations Survey one instructor said, "Students' ski ability and confidence grew throughout the day," while another mentioned that, "Many students were comfortable in this space due to previous participation which allowed them to challenge themselves more on harder trails, they were nervous for some trails but gained confidence throughout the day." Whether it was a brand-new experience, or something familiar, all students were afforded the opportunity for growth and gaining confidence. Experiencing this among peers also allows students to bond over a shared experience and bring positive learnings

back to the classroom. As stated in one of the teacher interviews, “Our yearly trip to Crosscut is an incredible shared experience that helps our students connect in ways they can't or don't in a classroom setting. They often see strengths in their peers that are hidden in a crowded school.”

While this study provides evidence that students experience positive growth in self-reflection and learning interests, students in lower-income, Title 1 designated schools are less likely to have the opportunity to experience activities like cross-country skiing and outdoor education. This is evidenced in literature regarding barriers of access to outdoor education as well as statements from teachers in this study (Story, et al., 2023). Data collected from Teacher Registration and Scholarship Questions and accounts from Title 1 Teacher Interviews also show that the prioritized registration system and more clearly defined scholarship system did impact participation and increase accessibility to Title 1 schools. Although scholarships were offered in the past, the addition of scholarship information in marketing communications as well as asking each teacher about their class's need during registration made the opportunity for assistance more obvious and the program more approachable.

Systems like these that successfully increase participation of lower income schools are important to ensure that more children are exposed to the benefits of outdoor education, not only those with the knowledge and resources to do so on their own. This is further supported by the teacher at a private school reporting no known barriers to accessing outdoor education and skiing opportunities to their students while all of the teachers at Title 1 schools identified several barriers. These students experienced barriers relating to unfamiliarity with the activity as well as economic access, one teacher stated, “While cross-country skiing is one of the most accessible winter sports for people, those who haven't done it and have economic barriers seem less likely

to get into it and to expose their children to it.” It is also encouraging to note that while these systems increased participation of Title 1 schools, the private school teacher in this study reported no impact on their ability to participate and did not identify negative outcomes of giving the Title 1 schools priority registration.

This study shows that Crosscut’s Ski Education Program is a valuable outdoor education program that provides personal growth opportunities and educational benefits to students and classroom teachers. With data to support the benefits of participation it is important that program leaders assess their audience and consider who may be excluded from exposure to meaningful benefits that impact one’s mental and physical health as well as their feelings of belonging within the community. Modifying registration and scholarship systems can be a successful way to increase accessibility and inclusion in these types of programs.

Value of the Study and Consideration for Future Research

This study affirms the importance of prioritizing access to skiing and outdoor education to those who might not otherwise have the opportunity to experience the benefits of these activities. Although various benefits of participation were anticipated, the data collected from students, teachers, and instructors provides a clearer picture of a student's experience in the Ski Education Program. The data from this study can be used to justify further assessing Crosscut’s programs for accessibility and implementing new ideas to continue to create a more diverse, equitable, and inclusive space in the outdoors. These findings can also be used to help other similar organizations modify their own systems to increase access to lower income schools.

When asked about what else Crosscut could do to increase accessibility to our Ski Education Program, all of the teachers believed that the current model provides sufficient

accessibility. Further research will include continued assessment of accessibility by tracking which schools and classes are participating in the program, how much scholarship support is awarded each year, and being open to other opportunities for improvement. Currently all of the scholarship opportunities for students are awarded with funding directly from Crosscut Mountain Sports Center. As we continue to uphold these more accessible systems and the amount of scholarships increase, it will be important to find outside funding to continue to ensure that scholarships can be awarded to any student in need. One teacher in this study suggested applying similar systems to Crosscut's other year-round programs to maintain the same level of accessibility throughout all seasons. Using the learnings from this study can help Crosscut staff identify and implement systems in other areas of the organization to further close any gaps in opportunity for our community.

Suggestions for repeating a similar study with Crosscut's Ski Education Program in the future include gathering data from more non-Title 1 teachers and students. Originally, there was one additional group of students from a Montessori school in Bozeman set up to participate, but their ski day was cancelled at the last minute due to the unusually low snowpack that southwest Montana experienced this winter. Having more data from schools that don't receive financial assistance would have provided a more well-rounded view of the effects of participation and impacts of modified systems over a more diverse range of participants. Through this study, it was also discovered that a majority of 5th graders that come to Crosscut have previously participated in the program with their school in an earlier grade. It would be interesting to repeat the study with a younger age group that may capture the experience of more first-time students.

Impact of Action Research on the Author

The action research process and this project in particular had important implications for myself and the Ski Education Program at Crosscut Mountain Sports Center. The results and findings from this research will influence future decisions within the program, especially when considering improving additional systems. The data from students and teachers will also help our team understand how to better serve our participants and can also be used as evidence for the importance of the Ski Education Program to our community.

This process allowed me to evaluate and identify areas for improvement within the programs that I lead at Crosscut. I feel confident in my ability to apply this experience to my work in the future which will allow for continued growth as an educator and meaningful changes in the programs that I oversee. The positive outcomes of this research will also encourage me to continue learning more about the barriers that are present in outdoor education and what organizations can do to acknowledge and address them. I realize that economic access is only one of many prohibitive factors in the fields of skiing and outdoor education and hope to continually increase my understanding of how to facilitate and support more diverse and inclusive spaces outdoors. The Ski Education Program is a magical environment for participants and instructors alike. This study has given me tangible evidence to support that feeling and has provided inspiration and excitement to continue improving our programs and advocating for accessibility in skiing and outdoor education.

REFERENCES CITED

- Bratman, Gregory N., et al (2019). Nature and mental health: An ecosystem service perspective. *Sci. Adv.* 5. DOI:[10.1126/sciadv.aax0903](https://doi.org/10.1126/sciadv.aax0903)
- Crosscut (2022). Annual user impact report. Unpublished report. *Crosscut Mountain Sports Center, Bozeman, Montana.*
- Cumming, F., & Nash, M. (2015). An Australian perspective of a forest school: Shaping a sense of place to support learning. *Journal of Adventure Education and Outdoor Learning*, 15(4), 296-309.
- Goodman, C.H. (2020). Landscapes of belonging: Systematically marginalized students and sense of place and belonging in outdoor experiential education. *Journal of Outdoor Recreation, Education, and Leadership*, 12(2), 261-263.
- Hoover, Katherine S. (2021). Evaluating impacts of a wetland field trip: A case study with urban middle school students. *Applied Environmental Education & Communication*, 20:3, 203-220, DOI: [10.1080/1533015X.2020.1754967](https://doi.org/10.1080/1533015X.2020.1754967)
- Middlemiss, A. (2018). *Decolonizing Education Through Outdoor Learning: The Learning Story of an Indigenous Kindergarten Teacher.*
- Montana Office of Public Instruction. (n.d.). Title I, Part A - Montana Office of Public Instruction. Retrieved November 26, 2023, from <https://opi.mt.gov/Leadership/Academic-Success/Federal-Programs/Title-IA#10873212564-additional-resources>
- Peipert, Thomas (2014). Skiing trending toward the wealthy, new study says. *Milwaukee Journal Sentinel*. Retrieved from <https://archive.jsonline.com/business/skiing-trending-toward-the-wealthy-new-study-says-b99396969z1-283770931.html/>
- Priest, Simon (1986). Redefining outdoor education: A matter of many relationships. *Journal of Environmental Education*, 17:3, 13-15, DOI: [10.1080/00958964.1986.9941413](https://doi.org/10.1080/00958964.1986.9941413)
- Repke, M. A., Berry, M. S., III Conway, L. G., Metcalf, A., Hensen, R. M., & Phelan, C. (2018). How does nature exposure make people healthier?: Evidence for the role of impulsivity and expanded space perception. *PLoS ONE*, 13(8), 1–20.
- Rivas-Triana, Ashley (2022). “White as snow: An examination of race within skiing.” *History of Skiing Snowsports*. Retrieved from <https://scholarblogs.emory.edu/historyofskiing/2022/05/03/white-as-snow-an-examination-of-race-within-skiing/>.
- Ski education at crosscut.* Crosscut Mountain Sports Center. (n.d.). <https://www.crosscutmt.org/ski-education-at-crosscut>

- Story, T., Powell, R.B., Baldwin, E., Baldwin, R. F., & Dertien, J. S. (2023) Assessing barriers to participation in environmental education field trips in the Congaree Biosphere Reserve, *Environmental Education Research*, DOI: [10.1080/13504622.2023.2246697](https://doi.org/10.1080/13504622.2023.2246697)
- Tillmann, S., Button, B., Coen, S. E., & Gilliland, J. A. (2019). “Nature makes people happy, that’s what it sort of means:” children’s definitions and perceptions of nature in rural Northwestern Ontario. *Children’s Geographies*, 17(6), 705–718.
- U.S. Census Bureau QuickFacts (2022). *Population estimates of Bozeman City, Montana*. U.S. Department of Commerce. Retrieved April 14, 2023, from <https://www.census.gov/quickfacts/bozemancitymontana>
- Warren, K., & Breunig, M. (2019). Inclusion and social justice in outdoor education. *Encyclopedia of teacher education*, 1-7.
- Weikert, A. (2023). Ski education demographic survey. Unpublished survey. *Crosscut Mountain Sports Center, Bozeman, Montana*.

APPENDICES

APPENDIX A

IRB EXEMPTION

Hello Bowen, Chandler,

Your protocol was reviewed by the IRB and has been approved.

PI: Bowen, Chandler

Approval Date: 4/10/2024

Title: EFFECTS OF MODIFIED PROGRAM SYSTEMS ON PARTICIPATION IN
OUTDOOR EDUCATION AND NORDIC SKIING

Protocol #: 2024-1278-EXEMPT

Review Type: Amendment

Expiration Date: 1/30/2029

APPENDIX B

TEACHER REGISTRATION AND SCHOLARSHIP QUESTIONS

1. Please provide me with the following information:

- School name
- Teacher name
- Class grade
- Anticipated program date
- Arrival time
- Title 1 status

2. Do you anticipate that any of your students will need scholarships from Crosscut to attend? If so, how many?

APPENDIX C

STUDENT DEMOGRAPHIC QUESTIONS

1. What ethnicity does your child identify as?
2. Does your child qualify for the Free and Reduced Lunch Program?
3. Is your family's household income below \$50,000?
4. How often has your child cross-country skied?

APPENDIX D

EFFECTS OF PARTICIPATION STUDENT PRE AND POST SURVEYS

Student Pre-Survey

First name _____

Teacher's name _____

Date _____

This survey is part of a research study about the effects of participating in Crosscut's Ski Education field trip. Your answers to this survey will help evaluate and improve our program for future students. This survey is voluntary and there are no right or wrong answers! Your participation in this survey will not effect your grade or standing in class.

Circle the number that best represents how you feel about each statement.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4
1. I believe in myself.			1 2 3 4
2. I feel confident in trying new things.			1 2 3 4
3. I believe I can do hard things.			1 2 3 4
4. I think teamwork and cooperation with others Is important.			1 2 3 4
5. I feel like I belong in the ski community.			1 2 3 4
6. I enjoy being outside in the winter.			1 2 3 4
7. I want to participate in outdoor winter activities.			1 2 3 4
8. I feel connected with nature.			1 2 3 4
9. I feel knowledgeable about our local environment.			1 2 3 4

How interested are you in the following areas?

Circle a number for each.

Not at all interested	Slightly Interested	Moderately Interested	Extremely Interested
1	2	3	4

- | | | | | |
|---|---|---|---|---|
| 1. Science. | 1 | 2 | 3 | 4 |
| 2. Learning about nature. | 1 | 2 | 3 | 4 |
| 3. Spending time in nature. | 1 | 2 | 3 | 4 |
| 4. Learning about the winter environment. | 1 | 2 | 3 | 4 |
| 5. Cross-country skiing. | 1 | 2 | 3 | 4 |
| 6. Exploring nature in winter on skis or snowshoes. | 1 | 2 | 3 | 4 |

In a sentence or two, please answer the following questions. Please explain your answer and avoid one-word responses.

What are you most looking forward to about your skiing field trip at Crosscut? Please explain.

What are you most hesitant about for your skiing field trip at Crosscut? Please explain.

Student Post-Survey

First name _____

Teacher's name _____

Date _____

This survey is part of a research study about the effects of participating in Crosscut's Ski Education field trip. Your answers to this survey will help evaluate and improve our program for future students. This survey is voluntary and there are no right or wrong answers! Your participation in this survey will not effect your grade or standing in class.

Circle the number that best represents how you feel about each statement after participating in Crosscut's Ski Education field trip.

Strongly Disagree

1

Disagree

2

Agree

3

Strongly Agree

4

- | | | | | |
|--|---|---|---|---|
| 1. I believe in myself. | 1 | 2 | 3 | 4 |
| 2. I feel confident in trying new things. | 1 | 2 | 3 | 4 |
| 3. I believe I can do hard things. | 1 | 2 | 3 | 4 |
| 4. I think teamwork and cooperation with others
Is important. | 1 | 2 | 3 | 4 |
| 5. I feel like I belong in the ski community. | 1 | 2 | 3 | 4 |
| 6. I enjoy being outside in the winter. | 1 | 2 | 3 | 4 |
| 7. I want to participate in outdoor winter activities. | 1 | 2 | 3 | 4 |
| 8. I feel connected with nature. | 1 | 2 | 3 | 4 |
| 9. I feel knowledgeable about our local
environment. | 1 | 2 | 3 | 4 |

How interested are you in the following areas after participating in Crosscut's Ski Education field trip?

Circle a number for each.

Not at all interested	Slightly Interested	Moderately Interested	Extremely Interested
1	2	3	4
1. Science.		1 2 3 4	
2. Learning about nature.		1 2 3 4	
3. Spending time in nature.		1 2 3 4	
4. Learning about the winter environment.		1 2 3 4	
5. Cross-country skiing.		1 2 3 4	
6. Exploring nature in winter on skis or snowshoes.		1 2 3 4	

In a sentence or two, please answer the following questions. Please explain your answer and avoid one-word responses.

What did you enjoy most about your field trip to Crosscut? Please explain.

What was something that surprised you about participating in the field trip to Crosscut? Please explain.

APPENDIX E

INSTRUCTOR OBSERVATIONS SURVEY

Please complete this as an instructor group after students have left for the day.

Rate this class's ski ability:

Very Low Low Average Above average

How many students in this class have had the opportunity to cross country ski previously?

Very Few Few Some Many

Rate the class overall on a 1-4 scale for the following statements.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

- | | | | | |
|--|---|---|---|---|
| 1. Individuals gained self-confidence throughout the day. | 1 | 2 | 3 | 4 |
| 2. The class experienced and overcame challenges. | 1 | 2 | 3 | 4 |
| 3. The students were excited to try something new. | 1 | 2 | 3 | 4 |
| 4. Students were supportive of one another. | 1 | 2 | 3 | 4 |
| 5. The class seemed to enjoy being outdoors. | 1 | 2 | 3 | 4 |
| 6. Students seemed interested in cross-country skiing in the future. | 1 | 2 | 3 | 4 |
| 7. Students seemed connected with nature. | 1 | 2 | 3 | 4 |
| 8. The class was engaged and interested in learning about nature. | 1 | 2 | 3 | 4 |

Did anything stand out about this class's experience with Ski Education?

APPENDIX F

INDIVIDUAL TEACHER INTERVIEWS

1. Did Crosscut's prioritized registration and scholarship systems effect your participation in the Ski Education Program?
2. What do you perceive is the importance of participation in Crosscut's Ski Education Program for you students?
3. What benefits does the Ski Education Program provide to students and educators?
4. Are there barriers to accessing outdoor education and/or skiing opportunities for your students? If so, what are they?
5. How can Crosscut decrease barriers to outdoor education and skiing opportunities so that our programs are accessible to a wider range of students?
6. Is there anything else you would like me to know about your experience with the Ski Education Program?