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A Comparison of Course Quality Surveiy Results from Students on Gender Balanced and Gender Imbalanced Field Courses at NOLS

Alexandra M. Alway
University of Montana

A COMPARISON OF COURSE QUALITY SURVEY RESULTS FROM STUDENTS ON GENDER BALANCED AND GENDER IMBALANCED FIELD COURSES AT NOLS

By
ALEXANDRA MARIE ALWAY
Bachelor of Arts with Honors, Acadia University, Wolfville, Nova Scotia, Canada, 2012

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Approved by:

Scott Whittenburg, Dean of The Graduate School
Graduate School

Fletcher Brown, Chair
Environmental Studies / Curriculum and Instruction

Dan Spencer
Environmental Studies

Amy Ratto-Parks
English

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Abstract

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Chairperson: Fletcher Brown

There is an extensive database of literature about diversity in outdoor Environmental Education and any of the studies focus on NOLS specifically. Several studies have investigated the impact of course composition in terms of gender as well as socioeconomic diversity; however, the research studies about course composition and gender were limited to differences between single gender and coed groups. The role of gender ratios on coed groups has not been widely researched. This study was designed to fill this gap in the research literature. Using course quality survey data, results showed that the student responses were significantly different between gender balanced and imbalanced courses. Students on gender-balanced courses responded more positively to questions about social interactions, their sense inclusion and group effectiveness. This is only a preliminary study however, and is unable to answer questions about why these differences exist. Outcomes from this study do raise additional questions about the nuanced social dynamics on NOLS field courses. Based on these results, I compiled a series of suggestions for NOLS, including future research questions.

Introduction

The subject of this this study is the National Outdoor Leadership School (NOLS), the self-proclaimed "leader in wilderness education" (National Outdoor Leadership School). In 1965, notable mountaineer and environmentalist Paul Petzoldt recognized a need for highly trained outdoor leaders and founded the school to address this need. The first courses in 1965 comprised approximately 100 male students on three expeditions in the Wind River Range in Wyoming. The first female students joined courses the following summer in 1966. Since its founding, NOLS has produced over 200,000 graduates from its courses all over the world (Wood, n.d.). Community is one of the NOLS core values, along with Wilderness, Education, Leadership, Safety and Excellence. This commitment to building strong course cultures and inclusive communities means that NOLS "value(s) diversity, integrity and personal responsibility while recognizing that our strength lies in teamwork and commitment to our mission and each other" (National Outdoor Leadership School).

Because diversity and inclusion are central components of the NOLS mission and values, the school supports research and curriculum development efforts about these topics, and has a manager who oversees these efforts. Both the NOLS diversity and inclusion manager and the research coordinator identified the need for further research about gender on field courses and helped to develop this project in order to complement their current projects, goals and needs. This project focuses on one aspect of diversity within the NOLS community, gender. Different than biological sex, gender refers to culturally established traits and norms typically associated with an individual's biological sex.

Historically, women have not been a large part of outdoor Environmental Education; therefore, as their participation grows the literature and research have followed suit. However,

there are gaps in this body of research that need to be filled in order to create a complete portrait of the diverse student experiences on wilderness courses. The existing literature is mixed on the experience of female students in these types of outdoor experiential education programs. Some studies show that gender does impact how and what students learn in these programs while other studies do not show statistically significant differences between male and female participants in terms of their participation and outcomes. More research is needed to clarify these existing contradictory results. While most research looks at the impact of single gender and coed groups, there is very little research examining the impact of student gender ratios in coed field programs. The goal of this project is to fill a gap in the research by answering the question: is there a difference in how students on gender balanced and imbalanced NOLS field courses respond on a post-course survey during the 2014 and 2015 field seasons? A "gender balanced" course is one in which there are 40-60% male students and a "gender imbalanced" course is one in which there are more than 60% male students. During the 2014 and 2015 field seasons, there were only two courses in which there were more than 60% female students; therefore, this group was not large enough to be included in this research.

This research question is significant in the field of outdoor experiential education because it relates to the larger issue of diversity and inclusion. Historically, outdoor education programs, including NOLS, have been the domain of middle and upper class, white, able-bodied young men. Recent decades have seen dramatic diversification of these programs, and as a result the organizations need to reassess how their programs can best serve more diverse student communities. Currently, NOLS is focusing on providing cultural competency training for many of its field instructors and measuring the effectiveness of these programs over time. Gender is one of the most common forms of difference that students experience on a course, and is

therefore an important facet of diversity to explore in outdoor education, especially because it has not been thoroughly addressed in the literature (Neill 1996).

Literature Review

The existing diversity related research can be divided into four different groups based on each article's topic, approach and findings. These groups are organized based on specificity and are presented from most specific to most general. The most specific group of articles focuses primarily on the impact of NOLS courses. If considered individually, these papers would fit within other groups; however, because this project is focused on NOLS courses in particular, it is appropriate to consider these studies separately. Another group of studies explores single gender groups in the context of outdoor education. The third category of sources includes research that looks at outdoor environmental education in general and includes gender as part of the analysis. The studies in the most broad group examine the larger issue of diversity in outdoor programs.

Group 1: NOLS Research

Even though it covers a variety of different topics, the research conducted at NOLS is the most relevant to this study because it focuses on the same organization. Graduate students and university professors developed these studies in conjunction with the NOLS research and curriculum development departments. The topics under investigation range from the transfer of learning to students' daily lives to the effect of group composition on student experience. Much of the diversity research conducted at NOLS focuses on the experiences of students from low socioeconomic background who receive scholarships. These studies are important for understanding group dynamics on courses, but there is room to ask additional questions about

diverse student groups. My project is different from the other research that NOLS has conducted in the past, and therefore it will fill a need for the school.

Because gender ratios in outdoor education are not a widely studied topic, the most similar research involves studying group homogeneity in terms of diversity. Jeremy Jostad's 2013 analysis looked at "group heterogeneity" and its effects on group unity and dynamics (Jostad, 2013). To measure heterogeneity, he focused on socio-economic diversity and used need-based scholarship data to identify students from low-income backgrounds. Jostad used a quantitative scale administered throughout the course to measure group identity and development to see if it varied based on the number of scholarship students on the course. His research found that the more homogeneous groups displayed higher levels of group identity. This was true for the groups that were mostly scholarship students and for those that were mostly non-scholarship students. Jostad writes that there is a significant need in the literature for studies that examine the effects of heterogeneity on group outcomes. Both of our projects seek to fill this gap. His study looks at socio-economic diversity, and mine looks at gender diversity.

In a similar study, Jostad et al. used social network analysis to analyze student interactions on NOLS wilderness courses. Like in the previous study, the authors used scholarships as a metric for student diversity. As in Jostad's other research on this topic, the authors found that homogeneous student groups report higher levels of group cohesion. In qualitative interviews, students reported that in homogeneous groups they had an easier time finding things to talk about with other students and that these casual conversations occurred easily and spontaneously. Social network analysis of student connections also supported this by revealing that the homogeneous groups were most cohesive. These findings were constant when student groups were primarily composed of student with scholarships and when they were

primarily composed of students without scholarships. (Jostad, Paisley, Sibthorp and Gookin, 2013)

A 2014 study of social networks in NOLS student groups mapped social connections between student groups with different numbers of scholarship students. All three groups had 12 total students, one had 2 scholarship students, one had 6 scholarship students and one had 12 scholarship students. The social network analysis and student interviews yielded sociograms for each course, mapping student connections to each other. On the course where only two students received scholarships, one was more socially included than the other but they were often referred to as "the scholarship students" by other students on the course who identified differences in upbringing and education. The sociogram for this group showed a distinct separation between the male student in the large, dominant social group and the female students in a smaller secondary group. In the group that had half of the students on scholarship, the sociogram revealed two major social groups. One group was the students receiving scholarships and the other group was the students not receiving scholarships. In their interviews, these students talked a lot about diversity in the group, but the students who received scholarships tended to talk about this more positively. This diversity led to significant conflict on the course, and students who did not receive scholarships were concerned about the amount of time the conflict resolution took away from other course activities. The sociogram for the group where all students received scholarships revealed the most interconnected social structure of any of the groups; however, the female students were still not part of the core group. In their interviews, students for this group talked a lot about the connection they felt with each other and how they were able to open up with each other. The results from this finding are significant because they open up important questions for further research. Paisley et al.'s work shows that diverse student groups play a role

in how student groups interact, and that this diversity might, in some cases, be interrupting NOLS course goals. Although it was not one of the research goals for this project, the sociograms suggest that male and female students occupy different places in the social fabric of a NOLS course. This kind of social network analysis would be an interesting tool to study gender ratios on courses (Paisley, Jostad, Sibthrop, Pohja, Gookin and Rajagopal-Durin, 2014).

Several studies focused on the impact of group identity and experiences on student outcomes during NOLS courses (Goldenberg and Soule, 2011; Jostad et al., 2013; Paisley et al., 2014). While gender was a component of these research studies, it was not the major variable in question. In 2006, research for a dissertation looked at gender dynamics in the context of instructor roles. Smithhammer studied the experiences and roles of female NOLS instructors. This study found that women were attracted to NOLS by the nature of the work, the community, the opportunity to learn and the chance develop their skills (Smithhammer, 2006). Research like this is significant because it provides insight into what drives and motivates women in the outdoors. NOLS has also studied the impact of instructor teams in general on the development of the course, and student success. Schumann et al.'s 2009 research found that the instructor role is complex and multi-dimensional. Their characteristics include empathy, knowledge and patience and their behaviors include managing risk, teaching, giving feedback and role modeling. This particular research focused on the impact of instructors on learning, but has applications for how instructor teams can also influence group dynamics (Schumann, Paisley, Sibthorp, and Gookin, 2009).

A series of studies were published about student experiences on both NOLS and Outward Bound courses using the same data sources. The students in these studies were interviewed after their course in 2006, and then again four years later. The first two studies using this data were

published in 2011. The first compared programmatic factors between NOLS and Outward Bound courses to determine whether the outcomes were different. While analyzing the student interviews with this lens, they determined that the NOLS and Outward Bound experiences were more similar than different and although the programs were run and administered differently, the group challenge and expedition allowed students to come away from both programs having learned similar lessons (Goldenberg, Russell, and Soule, 2011).

The other 2011 study focused exclusively on the subset of student interviews collected from NOLS students. The researchers found that experiences and learning from a NOLS course continued to significantly impact the participants, even years after their field experience. The students reported that the sense of community, teamwork and strong relationships helped students learn and transfer skills back to their lives after the course (Goldenberg and Soule, 2011). Although not specifically about gender, this research shows that strong social connections and community are important factors for post-course transference. Therefore, inclusive course communities are not just important for female students, but for all students to retain learning from their NOLS course.

A 2014 study used the same data set to study transfer of learning after a course in order to determine whether there were differences between information collected from students immediately after their course and information collected four years later (Goldenberg and Soule, 2014). Although this study was not specifically studying gender, they did find some small differences between how male and female students transferred learning from their NOLS and Outward Bound courses, but overall the two groups were more similar than different. Although not specifically about gender dynamics between students, this research provides an interesting look into the larger context of gender in the NOLS community.

In addition to gender, much research at NOLS focuses on Expedition Behavior, one of the primary leadership skills taught on courses. When students practice expedition behavior, they are team players who put group needs and goals before their own and work towards success for everyone in the group. Two studies looked at the effects of a new curriculum on students' lives after their NOLS course. NOLS is interested in designing a curriculum that will serve students well both in the field and when they return to their life at home. This characteristic, referred to as transfer of learning, is the subject of much research at NOLS. These studies found that a new curriculum, developed by the researchers, correlated with students displaying more pro-social behaviors after their course (Furman and Sibthorp, 2011; Furman and Sibthorp, 2014).

A 2011 study also sought to determine how students were able to continue using the learning from their NOLS course, even after they returned home. The researchers found that there were a number of factors that affect transfer of learning, and not all of them are related to the curriculum or the instructor team. They determined that there are many ways for instructors to teach transferrable lessons and that these lessons often occur naturally as part of the experience, and not the formal curriculum. Additionally, they found that field instructors play a critical role in how students learn on courses. (Sibthorp, Furman, Paisley, Gookin and Schumann, 2011).

When designing curricula, NOLS is interested in maximizing student learning and development so these topics are the subject of additional research at the school. A 2007 study looked at how participants on NOLS courses develop throughout the program. The results of their quantitative assessment found surprising results. In contrast to previous research, the researchers found that male students had larger gains over the course than the female students in terms of both leadership skills and social behavior. However, these male students had a lower

level of skills and behaviors before the course began. Because this was different than established research, it suggests that additional study is necessary in this area in order to determine the factors that created these differences for students (Sibthorp, Paisley and Gookin, 2007).

Replicating Sibthorp's study, researchers in 2010 extended the research by using a larger sample size and incorporating different methods to analyze the qualitative research. These results revealed that younger students on NOLS adventure courses learn differently than older students on other NOLS courses. These results are valuable because they can help instructors meet the needs of their specific students (Rose, Paisley, Sibthorp, Furman and Gookin, 2010). An important component of the NOLS student experience is the opportunity to travel in independent student expeditions without instructors. In 2008, research demonstrated that in terms of injury rates there is no difference between when students are traveling with instructors or independently. The researchers also quantified the benefits of student independence and autonomy (Sibthorp, Paisley, Gookin and Furman, 2008).

Group 2: Research about one gender (women or men) in outdoor education

In addition to studies looking at NOLS specifically, there are a number of research studies that involved other outdoor and environmental education programs. Some of the studies investigated the impact of gender on outdoor environmental education programs and are highly relevant for this project because they seek to answer questions about the role of gender in these types of environments. A central theme to a number of these studies focus on studying a single gender in the context of environmental education.

Three studies have examined female instructors in terms of their career paths and their impact on student groups. Wittmer's 2001 research finds that instructor gender roles are a complicated topic to study. Her results show that female instructors often receive negative

feedback when they lead using a leadership style that is not consistent with stereotypes about their gender. Her research also revealed that topics such as gender dynamics are not often discussed on wilderness field courses because they take a back seat to other curriculum topics. Her conclusion is that the outdoor industry needs to reassess its approach to leadership and gender roles and that both men and women need to be active about breaking down gender-role expectations (Wittmer, 2001).

Allin and Humberstone's 2006 research sought to understand the trajectory and development of career paths for female instructors in outdoor education. Their findings suggested that female instructors play a complex role in outdoor education that is not clearly defined and that their career paths are influenced by gender perceptions (Allin and Humberstone, 2006). While this research focused on instructors, the principles and topics under discussion could also apply for studying how gender affects the experiences of female students.

In 2011, Anthonissen's research looked at how gender and language were connected with the experiences of female instructors at a wilderness education facility in South Africa. This research finds that wilderness and the way outdoor education centers interact with wilderness is often gendered and considered a masculine realm and therefore is an environment that often reinforces gender stereotypes. However, Anthonissen suggests that because of this, wilderness can also be a powerful tool that instructors can use to break down gender barriers and perceptions (Anthonissen, 2011).

Additionally, work has been conducted with the goal of giving voice to women involved in outdoor education. Warren's 1996 book compiled stories of women's experiences from across the environmental education industry. The goal of this publication was to share the stories of women in the outdoors (Warren, 1996). This theme was continued in Little's 2002 paper where

she used interviews to determine how women constructed meaning in the outdoors. The interviews demonstrated that women were able to redefine wilderness and adventure to fit their needs. This project raised many questions about how to redefine and reframe adventure to be more inclusive and benefit more people (Little, 2002).

While these works focused in general on women in the outdoors, many of the studies focused on student experiences. Several studies have focused on how to get women and girls more involved in outdoor education by studying the factors that affect female student experiences and how to encourage female participation in outdoor education. Humberstone's 1990 study examines gender dynamics in the classroom and their implications for female students. As a preliminary study, this project shines a light on the need to examine the implications of gender, domination and inequality in the classroom (Humberstone, 1990). This study is significant because it highlights the need for additional research into the implications of gender in education.

Megyesi's 2011 master's thesis looked at motivations and deterrents for teenage girls in terms of participation in outdoor activities. The research and outcomes were aimed at outdoor educators and schools so that they could increase female adolescent participation in the outdoors. The factors that motivated or deterred female students are critical for programs to understand so that they can market their courses toward this population. Additionally, it is important for instructors to know this so that they can support their students and create a safe learning environment (Megyesi, 2011).

A number of studies assessed the experience of female students during their participation in outdoor education programs. Wang et al.'s 2006 study looked at the effects of a week long Outward Bound program on female students and found a number of positive impacts, including

social skills, leadership and improved self esteem. While the results are encouraging, this study had limitations because it was short term and entirely quantitative. Additionally, the general "post-group euphoria" may have accounted for some of the positive outcomes; therefore, further studies should follow up with a longitudinal analysis to determine whether these gains were permanent (Wang, Liu and Kahlid, 2006).

Sammet's 2010 research looked at how female students built relationships in the context of outdoor education. This research was significant because organizations and schools need to take into account the relational environment in which students are learning technical skills and this can be missed if the program focuses solely on technical skills. The results indicated that solutions like group discussions or all-girls courses are not enough and that programs and instructors need to be actively conscious of creating spaces that are emotionally safe. In order to do this, Sammet argued that instructors needed training on how to make this happen in order to implement these changes effectively (Sammet, 2010).

McDermott's 2004 research looks at the implication of participation in all female canoeing trips. Her conclusions indicate that this environment allowed women to take part in a traditionally male dominated activity in a more open way. The women involved in this experience recognized that if the group had been mixed gender, they might have had to step back and take a "back seat" to the male participants, like they had to do in other contexts (McDermott, 2004). However, the single gender environment allowed women to redefine their abilities as physically strong, competent women. She recognizes that while everyone has grown up in a gendered environment, this has not affected everyone in the same way. For women who have not been encouraged to develop a "physical identity," McDermott recommends that the all female environment would be the most empowering (McDermott, 2004).

Foland's 2009 dissertation reviewed how female students' perceptions of body image changed after their participation in an outdoor education program. After a two week outdoor experience, female students placed more value on the physical capabilities of their body, allowing them to view their bodies more positively in terms of function instead of just appearance (Foland, 2009). Similarly, Whittington and Mack studied an all girls outdoor program that emphasized courage. The goal of this experience was to give young girls an intentional, supportive environment in which to learn skills like courage and resiliency that will help them in their lives. Although the results were only analyzed in the short term, preliminary data suggests that intentional efforts to teach and emphasize courage paid off in student learning outcomes (Whittington and Mack 2010). While these studies cover a variety of topics, they are all unified in their examination of the female experience on outdoor education programs.

Group 3: Research that considers gender as a variable in outdoor education

A significant amount of outdoor education research has focused on student experiences in general. In some of the studies, gender was one of the variables considered during the data analysis. These studies came to a variety of conclusions about the impact of gender on the outcomes under examination. A number of studies looked at outdoor education programs in a variety of contexts, including schools and college orientation programs. These found that female participants showed stronger outcomes than the male participants, especially in the areas of social support, self-concept, resilience and other measurable categories (Gray, 1997; Bell, 2006; Leupp, 2007; Overholt and Ewert, 2015). While these studies showed significant positive gains for female participants, other studies contradicted these results by finding that male students did better than female students in outdoor education settings (Humberstone and Pedersen, 2001; Carrier, 2009). While some studies reported significant differences between male and female

students, other studies have found no differences or were unsure whether observable differences were due to gender or to other variables (McAvoy, Mitten, Stringer, Steckart, and Sproles, 1996; Neill, 1996; Hattie, Marsh, Neill, and Richards, 1997; Propst and Koesler, 1998; Neill and Dias, 2001; Eddington, 2007; Vlamis, Bell and Gass, 2011; Humberstone, 2015). Additionally, a number of studies found that gender role stereotypes play a role, especially in student interactions with instructors (Waddington, Malcom and Cobb, 1998; Kiewa, 2001; Newbery, 2003; Hobbs, 2009). Because the majority of research that considered gender as a variable was inconclusive, most of these studies recommend further research into the impact of gender in outdoor education.

Group 4: Research about diversity in outdoor education

Articles focused on diversity in general help to set the stage for important issues in the field of outdoor and environmental education. These studies often discussed gender along with other aspects of diversity, such as race or socio-economic status. The research falls into two categories. One set of research looks into diversity in the field of environmental education.

Floyd and Gramann's 1995 research focused on measurable discrimination between Mexican and Anglo Americans at an outdoor education facility. Their conclusion was that there were broad differences of opinion regarding discrimination within ethnic groups. They found that individuals of Mexican descent who had higher levels of education perceived less discrimination than those with lower education levels. They recommended that organizations address this in "diversity" training so that their employees would not assume that individuals of a certain ethnic or racial group act or think a certain way (Floyd and Gramann, 1995).

Similarly, Taylor's 1996 article in *Race, Poverty & the Environment* addressed the importance of redefining environmental education to make it a truly multicultural experience.

She argued that this should go beyond simply including students of diverse backgrounds, but that a truly diverse environmental education experience should include individuals of different backgrounds at all phases of curriculum development and implementation. She also suggested that the environmental education programming should happen in a location that is accessible and include classes and information that are relevant to the student population. Additionally, she argued for a broader discussion about diversity and multiculturalism in the field of outdoor education because "poverty, gender, and race act independently and have significant outcomes worthy of serious discussion" (Taylor, 1996, p. 5).

Warren has published widely in the field of outdoor environmental education and most of her research addresses topics of diversity. In her 1998 article, Warren advocated for increased sensitivity in outdoor education facilitation because "facilitators will need to become more conscious of how their methods can advance or impede social justice" (Warren, 1998, p. 21). To make this happen, she argued that organizations need to have better training, assessment and accreditation if they are serious about achieving these goals (Warren, 1998). Warren continued these arguments in her 2002 article. Here, she suggested that in order for outdoor education programs to be sensitive to race, gender and class differences that they need to establish partnerships between the field programs and the outside stakeholders so their goals align. Additionally, in order for the programs to be executed correctly, the organizations needed to incorporate social justice advocates in both the field setting and in instructor training. Finally, she concluded that more research was needed to ascertain the effectiveness of the programs and assess how well they integrated the social justice principles into their curriculum (Warren, 2002). In her 2005 research, Warren explains the rich potential that environmental education has to address issues of social justice. She sees environmental and outdoor education as an ideal forum

for addressing these topics because so many of the methodologies in place are designed to create safe and inclusive spaces where students feel comfortable and able to share their feelings. She argues that these characteristics are also ideal for discussion issues of inclusion and provide students a forum to talk about overcoming social oppression. While some organizations are already doing this, she proposes that all outdoor experiential education programs become involved in these discussions (Warren, 2005). Research by Warren and others in 2014 provides an overview of the current state of diversity and social justice as part of outdoor experiential education programs. They conclude that while many programs are advocating social justice approaches, many of these are still perpetuating inequity through their program availability and content, and that these topics are still not universally covered. However, they did find that research into these fields has already begun; however, more is needed especially in regard to the role or outdoor educators and programs in facilitating social injustice and continuing power imbalances (Warren, Roberts, Breunig, and Alvarez, 2014).

Like Warren's work, Marouli's 2002 article looked at the theoretical underpinnings as well as the actual practice of multicultural environmental education. Her research showed that these programs were incredibly diverse and were often site and group specific; however, despite the differences she was able to identify some trends. She found that often, multicultural environmental education programs were more limited in their practice of diversity than their missions promote. For example, they focused on a single population to the exclusion of other groups. Additionally, she found that many programs focused more on ethnic origin and racial background than they did on other dimensions of diversity, like social class, gender or religion. Her conclusion was that these programs had good intentions and were off to a good start;

however, there is more to be done in order to make multicultural environmental education the norm (Marouli, 2002).

While many other researchers looked at the programs specifically, Agyeman's 2003 article focused on research methods in the field of environmental education. This study concluded that there are already several major culturally sensitive research approaches in use . Although this kind of research has already begun, it needs to become more widespread so that it will become "inherent in all environmental education research" (Agyeman, 2003, p. 80). Additionally, In her 2003 article, James discussed the role of research design in making environmental education more diverse and inclusive. She examined how researchers can play a role in promoting and recognizing marginalized voices through the design and execution of their studies. However, she notes that while research has become more diverse and has begun to include more voices, there are still many places throughout the research process where this process can go wrong and she encourages researchers to be cognizant of this throughout their research process. In conclusion, she argues that research is one avenue through which the field of environmental education can become increasingly sensitive to historically unheard voices (James, 2003).

In her 2007 article, Cole examined the idea that the founding principles of environmental education were based in cultural priorities. She argued to expand the values of environmental education to include different cultural perspectives and dimensions by revisiting the founding principles and utilizing appropriate multicultural methodologies (Cole, 2007). Similarly, Nordstrom's 2008 article argued that environmental and multicultural education were similar in that their goals and purposes cannot be divided. She viewed these two educational fields as the basis for a more holistic approach in which children learn a more complete picture of the world.

She suggested that these similarities were important to recognize and embrace throughout the design and implementation of educational systems and programs (Nordstrom, 2008).

A collaborative study in 2009 confirmed that a diversity curriculum in an experiential education program was instrumental in changing the perspectives and attitudes of the participants. The researchers concluded that because of these changes in participant outlook and behavior, experiential education might provide an effective platform for teaching diversity curriculum especially outside of traditional formal settings (Seaman, Beightol, Shirilla, and Crawford, 2009).

Several studies examined the impact of diversity in the general education context. Research conducted by Gurin and others in 2002 demonstrated the positive results when students, especially college age students, interacted with diverse groups. Their research used data from college programs to show the importance of informal interactions between students from diverse racial and ethnic backgrounds. According to the researchers, this evidence suggested that programs should be more focused on facilitating diverse student experiences (Gurin, Dey, Hurtado, and Gurin, 2002).

Kato's 2002 article argued that for outdoor and environmental education programs to be truly multicultural that they needed to focus on incorporating local communities and environmental issues into their programs and curricula. This connection between local issues and programs would negate some of the stereotypes regarding certain ethnic and racial groups and their lack of interest in environmental issues because the topics covered would be relevant and significant. Additionally, Kato argued that these programs should broadly define "culture" so that it encompassed many aspects of diversity, not just race or ethnic background (Kato, 2002).

Finally, Kulik and Roberson's 2008 article provided an overview of the research regarding the evaluation and assessment of diversity education programs. They concluded that although research in this area has begun, significantly more would be needed in order to thoroughly assess the success of such programs. To do this, they suggested that programs first recognize diversity education as a goal and then facilitate cooperation between diversity researchers both internally and between programs (Kulik and Roberson, 2008).

Conclusion

In conclusion, there is a significant body of literature that deals with issues of diversity, specifically gender, in outdoor experiential education programs. However, there is still a need for additional research into this topic. First, the current research shows conflicting evidence about the relationship between gender and course outcomes for students. Second, there are existing questions about the female student experience that the existing research does not address. In their 2011 paper about NOLS courses, Goldenberg and Soule argued that it was important to understand how "group experiences impact participants' lives" because programs could use this information to design effective curricula (396). In his 2013 study about the impact of group homogeneity on NOLS courses, Jostad justified his project because of a lack of research in the literature about the impact of group composition. His study surveyed students on NOLS courses to see if there were differences based on the number of scholarship students. Therefore, future studies need to both clarify the existing research and fill in the gaps not covered by current studies. The current project looks at gender ratios because although other studies have looked at the impact of coed versus single gender student groups, there is very little research about the impact of the ratio of male to female students. This study will add complexity to the research that just looked at coed student groups in outdoor education.

Data Analysis

Methods

Following each field course at the NOLS Rocky Mountain branch, students use the computers to complete a Course Quality Survey (CQS). I conducted a quantitative statistical analysis of student responses to this survey from the 2014 and 2015 summer field seasons. I categorized survey responses based the student's stated gender and the gender ratio for their course. Additionally, I conducted a series of statistical T-tests to compare student responses. These calculations allowed me to determine whether differences were due to random chance or whether the differences were statistically significant.

Results

NOLS runs courses and programs around the world. These field courses range in length from one week to four months and include various outdoor activities including backpacking, backcountry skiing, climbing, mountaineering, and whitewater rafting. For comparison purposes, this study focuses on 30-day open enrollment backpacking courses that ran during the 2014 and 2015 summer seasons out of the Rocky Mountain Branch in Lander, WY. Open enrollment courses are open to the public and are different than the custom courses that NOLS facilitates for private clients. The 86 field courses studied included 915 students. Traditionally there are more male students on NOLS courses, and this trend is consistent with the sample that completed the survey. Overall, roughly 2/3 of the all the students on the courses surveyed were male. This trend was consistent on the majority of the NOLS courses, because the majority of courses studied had over 60% male students; in fact, only two of the courses had over 60% female students.

Table 1: Sample Demographics

Field Season	# of Courses	Male Students	Female Students	Total Students
2014	43	70.4% (321)	29.6% (135)	456
2015	43	66.2% (304)	33.8% (155)	459
Total	86	68.3% (625)	31.7% (290)	915

Out of the 915 students completing courses, 837 (over 90%) completed the survey. The instructors asked their students to complete the survey during their gear de-issue process on the day that they come out of the field; however sometimes timing, confusion or technical problems prevent this from happening. Although it is impossible to know why those 78 students did not complete the survey, the response rate is high enough that it lends reliability to the results of the survey.

Table 2: Survey Response Rate

Field Season	Number of Students	Survey Responses	Response Rate
2014	456	437	95.8%
2015	459	400	87.1%
Total	915	837	91.5%

In order to compare the impact of gender ratios on student outcomes, the courses were placed into three categories based on the ratio of female to male students. The smallest group, only two courses, contained more than 60% female students. The next group included 30 courses and contained 40-60% female students. The largest group was comprised of 50 courses that contained less than 40% female students. Because there were so few courses with more than 60% female students, this category was removed from the analysis because the sample size was not large enough.

The course quality survey is mostly quantitative because it asks students to rank their agreement with different statements. There are also several open-ended questions that ask students to elaborate on their answers; however these responses are not required. In addition to the course paperwork, this survey provides feedback about: the student's on-course experiences, the pre-course services, the terrain, the rations, the equipment, the in-town food, the transportation, the instructor team and the take home lessons. Most of this information is helpful feedback for specific departments at the Rocky Mountain branch, like the kitchen, the rations manager, and the equipment staff. In contrast, this study focuses on the student experience during their time in the field; therefore, the analysis only examines questions related to the student's field experience.

The survey itself consisted of sixteen closed form questions. The students were asked to rate their agreement with a series of statements. While a few of the questions allowed for open responses where students could elaborate on their answers, these responses were not required. Because not all students chose to use the written response option, these answers were not analyzed as part of this study. The sixteen statements to which students responded are listed below in Table 3.

Table 3: Closed Form Questions from CQS

	Questions
1	Safety was a high priority on this course.
2	My point of view and life experiences were appreciated by others on my course.
3	The NOLS education model was engaging and not boring.
4	I had ample opportunities to reflect on what I was learning during this course.
5	I received a lot of useful feedback from my instructors during this course.
6	I received a lot of useful feedback from my fellow students on this course.
7	There were role models on my course who I respected and admired.
8	I contributed to my group's successes.

9	I had important responsibilities on this course.
10	I made important decisions on this course.
11	Our group worked well together even when instructors were absent.
12	I got along well with everyone on this course.
13	The course's terrain was suitably challenging and had good opportunities for course activity
14	At least one of my instructors showed a genuine interest in me as a person.
15	My instructors worked well as a team.
16	I think I will use lessons from my NOLS education in my life from here forward.

When answering these questions, students selected one response on a scale. The scale included seven responses. Three of the options indicate a series of negative responses, one indicates a neutral response and three of the options indicate a series of positive responses. In order to calculate these responses mathematically, each response was given a numerical equivalent. These mathematical equivalents are listed below in Table 4.

Table 4: Mathematical Equivalent for Each Answer Choice

Mathematical Equivalents:	**Answer Choices:**
1	Strongly Disagree
2	Disagree
3	Somewhat Disagree
4	Neutral
5	Somewhat Agree
6	Agree
7	Strongly Agree

Statistical Analysis

Statistical T tests were used to determine whether the responses from students on gender imbalanced courses were significantly different than responses on gender balanced courses. These tests were also used to determine whether there were statistically significant differences between male and female responses and between the female responses on gender balanced and

imbalanced courses. Five different statistical T-tests were performed to compare different student groups. First, I compared the average response to each question for students on gender-balanced and gender-imbalanced courses. Second, I compared the responses of male and female students on gender-imbalanced courses. Third, I compared the responses of male and female students on gender-balanced courses. Fourth, I compared the responses of female students on gender-balanced and gender-imbalanced courses. Fifth, I compared the responses of male students on gender-balanced and gender-imbalanced courses. Additionally, I calculated the percentage of negative responses for each question and compared these percentages for students on gender-balanced and gender-imbalanced courses.

Comparison 1

The first round of comparison seeks to determine whether there is a statistically significant difference between the responses of students on gender balanced courses and students on gender imbalanced courses. In this comparison, the responses of male and female students are considered together because the goal of this test was to see if there was an overall difference between the course types. A summary of the statistical calculations is included in Table 5 below.

Table 5: T Test Results for Gender Imbalanced vs Gender Balanced Courses

Question	<40% Female N=50			40-60% Female N=30			T Test
	Average.	Standard Deviation	Variance	Average	Standard Deviation	Variance	α=0.05 df = 78 T=1.990
1	6.60	0.31	0.1	6.58	0.30	0.09	-0.212
2	6.18	0.45	0.21	6.37	0.34	0.12	2.120
3	6.09	0.43	0.18	6.13	0.40	0.16	0.422
4	6.25	0.43	0.18	6.20	0.35	0.13	-0.502
5	6.36	0.40	0.16	6.35	0.32	0.10	-0.100
6	5.75	0.56	0.31	5.77	0.50	0.25	0.171
7	6.31	0.40	0.16	6.38	0.39	0.15	0.805
8	6.49	0.28	0.08	6.44	0.21	0.05	-0.888
9	6.47	0.29	0.09	6.48	0.24	0.06	0.158
10	6.40	0.35	0.12	6.44	0.21	0.04	0.551
11	6.32	0.59	0.35	6.55	0.29	0.09	2.362
12	5.80	0.66	0.44	6.03	0.48	0.23	1.783
13	6.11	0.48	0.23	6.28	0.30	0.09	1.942
14	6.70	0.31	0.09	6.72	0.25	0.06	0.311
15	6.68	0.35	0.12	6.77	0.21	0.04	1.527
16	6.54	0.30	0.09	6.64	0.27	0.07	1.554

The T test determines whether the difference between the two groups is statistically significant. For the sample size involved in this analysis, and an alpha value of 0.05, a T value greater than 1.990 indicates that the difference between the results is statistically significant. In this comparison, only two questions reveal a statistically significant difference between the responses from students on gender balanced courses and the students on gender imbalanced courses. The second question "my point of view and life experiences were appreciated by others on my course" and the eleventh question "our group worked well together even when instructors were absent" indicated responses that were significantly different between the two groups. The responses of students on courses that had between 40% and 60% female were significantly more positive than the responses of students on courses that were less than 40% female.

Although the responses to questions 12 and 13 were not significantly different with an alpha value of 0.05, they are statistically significant with an alpha value of 0.1. This result indicates that the responses to these questions were statistically significant with 90% confidence. Therefore, the students on gender balanced courses responded higher to question twelve, "I got along well with everyone on this course" and question thirteen "the course's terrain was suitably challenging and had good opportunities for course activities."

Comparison 2

The second round of comparison seeks to determine whether there is a statistically significant difference between the responses of male and female students on gender imbalanced courses. In this comparison, the responses of male and female students were separated because the goal of this test was to see if there was a difference between their responses within the course type. A summary of the statistical calculations is included in Table 6 below.

Table 6: T Test Results for Gender Imbalanced Courses (<40% Female)

Question	Female Responses N=97			Male Responses N=358			T Test
	Average.	Standard Deviation	Variance	Average	Standard Deviation	Variance	α=0.05 df = 453 T=1.97
1	6.72	0.54	0.29	6.61	0.83	0.69	1.62
2	6.33	0.75	0.56	6.18	0.98	0.95	1.62
3	6.23	0.85	0.72	6.09	1.02	1.04	1.38
4	6.19	1.16	1.34	6.29	0.96	0.91	-0.82
5	6.37	1.05	1.11	6.38	0.92	0.84	-0.10
6	5.95	0.97	0.95	5.76	1.19	1.42	1.64
7	6.51	0.71	0.50	6.29	1.00	1.01	2.40
8	6.42	0.63	0.39	6.50	0.86	0.74	-1.03
9	6.47	0.61	0.38	6.47	0.88	0.77	0.10
10	6.36	0.77	0.59	6.42	0.93	0.86	-0.63
11	6.46	0.97	0.94	6.36	1.05	1.09	0.97
12	6.00	1.19	1.42	5.79	1.36	1.85	1.51
13	6.38	0.80	0.63	6.10	1.14	1.30	2.78
14	6.73	0.70	0.49	6.70	0.76	0.57	0.34
15	6.67	0.80	0.64	6.70	0.67	0.44	-0.35
16	6.65	0.58	0.33	6.54	0.72	0.52	1.64

This comparison also reveals two questions that show a statistical significance between the male and female answers on courses that are less than 40% female. With 453 degrees of freedom, the T value for this sample was 1.97, given an alpha value of 0.05 and a confidence interval of 95%. Question seven indicates that females were more likely to respond positively to the statement "there were role models on my course who I respected and admired." Question 13 indicates that females were more likely to respond positively to the statement "the course's terrain was suitably challenging and had good opportunities for course activities."

Comparison 3

The third round of comparison seeks to determine whether there is a statistically significant difference between the responses of male and female students on gender balanced courses. In this comparison, the responses of male and female students were separated because

the goal of this test was to see if there was a difference between their responses within the course type. A summary of the statistical calculations is included in Table 7 below.

Table 7: T Test Results for Gender Balanced Courses (40-60% Female)

Question	Female Responses N=108			Male Responses N=235			T Test
	Average.	Standard Deviation	Variance	Average	Standard Deviation	Variance	α=0.05 df = 341 T=1.960
1	6.69	0.60	0.36	6.59	0.80	0.64	1.32
2	6.34	0.74	0.55	6.27	0.87	0.75	0.82
3	5.99	0.86	0.74	6.08	1.08	1.17	-0.79
4	6.05	1.13	1.28	6.24	0.96	0.92	-1.56
5	6.19	1.13	1.28	6.39	0.89	0.79	-1.56
6	5.69	1.00	0.10	5.70	1.19	1.42	-0.06
7	6.36	0.94	0.89	6.32	0.99	0.99	0.42
8	6.41	0.64	0.41	6.52	0.74	0.55	-1.37
9	6.53	0.60	0.36	6.46	0.82	0.67	0.81
10	6.37	0.74	0.55	6.45	0.85	0.73	-0.89
11	6.44	0.100	0.10	6.63	1.01	1.02	0.71
12	5.98	1.05	1.10	5.72	1.40	1.96	1.96
13	6.44	0.78	0.60	6.20	1.11	1.22	2.39
14	6.67	0.74	0.54	6.76	0.57	0.33	-1.17
15	6.66	0.79	0.62	6.68	0.60	0.37	-0.26
16	6.67	0.60	0.36	6.57	0.65	0.43	1.32

Based on this comparison, the answers to questions twelve and thirteen were significantly different between males and females on gender balanced courses. With an alpha value of 0.05, a confidence interval of 95% and 341 degrees of freedom, the T value for this test is 1.960. For both questions, females responded more positively than the male students. In both gender balanced and imbalanced courses, women responded more positively to question 13 (“The course’s terrain was suitably challenging and had good opportunities for course activities”) than their male counterparts.

Comparison 4

This comparison seeks to determine whether there is a statistically significant difference between the way that female students answered the survey questions based on whether their course was gender balanced or imbalanced. The goal of this comparison is to see whether female students respond to the questions differently based on their course makeup. The first comparison was to see whether there were statistically significant differences between responses from the two course types. This test is more specific to see if there are differences within the female population. A summary of the statistical calculations is included in Table 8 below.

Table 8: T Test Results for Female Students on Gender Balanced vs Imbalanced Courses

Question	Females (gender balanced) N=108			Females (gender imbalanced) N=97			T Test
	Average.	Standard Deviation	Variance	Average	Standard Deviation	Variance	α=0.05 df = 203 T=1.97
1	6.69	0.60	0.36	6.72	0.54	0.29	-0.34
2	6.34	0.74	0.55	6.33	0.75	0.56	0.12
3	5.99	0.86	0.74	6.23	0.85	0.72	-1.98
4	6.05	1.13	1.28	6.19	1.16	1.34	-0.87
5	6.19	1.13	1.28	6.37	1.05	1.11	-1.16
6	5.69	1.00	0.10	5.95	0.97	0.95	-1.84
7	6.36	0.94	0.89	6.51	0.71	0.50	-1.25
8	6.41	0.64	0.41	6.42	0.63	0.39	-0.17
9	6.53	0.60	0.36	6.47	0.61	0.38	0.63
10	6.37	0.74	0.55	6.36	0.77	0.59	0.09
11	6.44	0.10	0.10	6.46	0.97	0.94	-0.14
12	5.98	1.05	1.10	6.00	1.19	1.42	-0.12
13	6.44	0.78	0.60	6.38	0.80	0.63	0.57
14	6.67	0.74	0.54	6.73	0.70	0.49	-0.65
15	6.66	0.79	0.62	6.67	0.80	0.64	-0.11
16	6.67	0.60	0.36	6.65	0.58	0.33	0.21

Based on this comparison, the answers to question three were significantly different between females on gender balanced and imbalanced courses. With an alpha value of 0.05, a

confidence interval of 95% and 203 degrees of freedom, the T value for this test is 1.97. For this question, females on the gender imbalanced courses answered more positively than the females on gender-balanced courses. While most of the other questions showed no significant differences in how the female students responded, responses to question six are very close to being statistically significant. This question also shows a more positive response for females on the gender imbalanced courses.

Comparison 5

The purpose of this comparison is to determine whether there is a statistically significant differences between the ways that male students responded to the survey questions based on whether their course was gender balanced or imbalanced. The goal of this comparison is to see whether the male students respond to the questions differently based on their course makeup. The first comparison was to see whether there were statistically significant differences between responses from the two course types. This test is more specific to see if there are differences within the male population so that these results can be compared to the results from the female population and from the group as a whole. A summary of the statistical calculations is included in Table 9 below.

Table 9: T Test Results for Male Students on Gender Balanced vs Imbalanced Courses

Question	Males (gender imbalanced) N=358			Males (gender balanced) N=235			T Test
	Average.	Standard Deviation	Variance	Average	Standard Deviation	Variance	α=0.05 df = 591 T=1.97
1	6.61	0.83	0.69	6.59	0.80	0.64	-0.26
2	6.18	0.98	0.95	6.27	0.87	0.75	1.13
3	6.09	1.02	1.04	6.08	1.08	1.17	-0.11
4	6.29	0.96	0.91	6.24	0.96	0.92	-0.60
5	6.38	0.92	0.84	6.39	0.89	0.79	0.06
6	5.76	1.19	1.42	5.70	1.19	1.42	-0.55
7	6.29	1.00	1.01	6.32	0.99	0.99	0.29
8	6.50	0.86	0.74	6.52	0.74	0.55	0.18
9	6.47	0.88	0.77	6.46	0.82	0.67	-0.04
10	6.42	0.93	0.86	6.45	0.85	0.73	0.43
11	6.36	1.05	1.09	6.63	1.01	1.02	0.08
12	5.79	1.36	1.85	5.72	1.40	1.96	-0.63
13	6.10	1.14	1.30	6.20	1.11	1.22	1.01
14	6.70	0.76	0.57	6.76	0.57	0.33	1.03
15	6.70	0.66	0.44	6.68	0.60	0.37	-0.42
16	6.54	0.72	0.52	6.57	0.65	0.43	0.66

With an alpha value of 0.05, a confidence interval of 95% and 591 degrees of freedom, the T value for this test is 1.97. This comparison reveals that there is no statistically significant difference between how the male students responded to survey questions based on the gender ratios on their course.

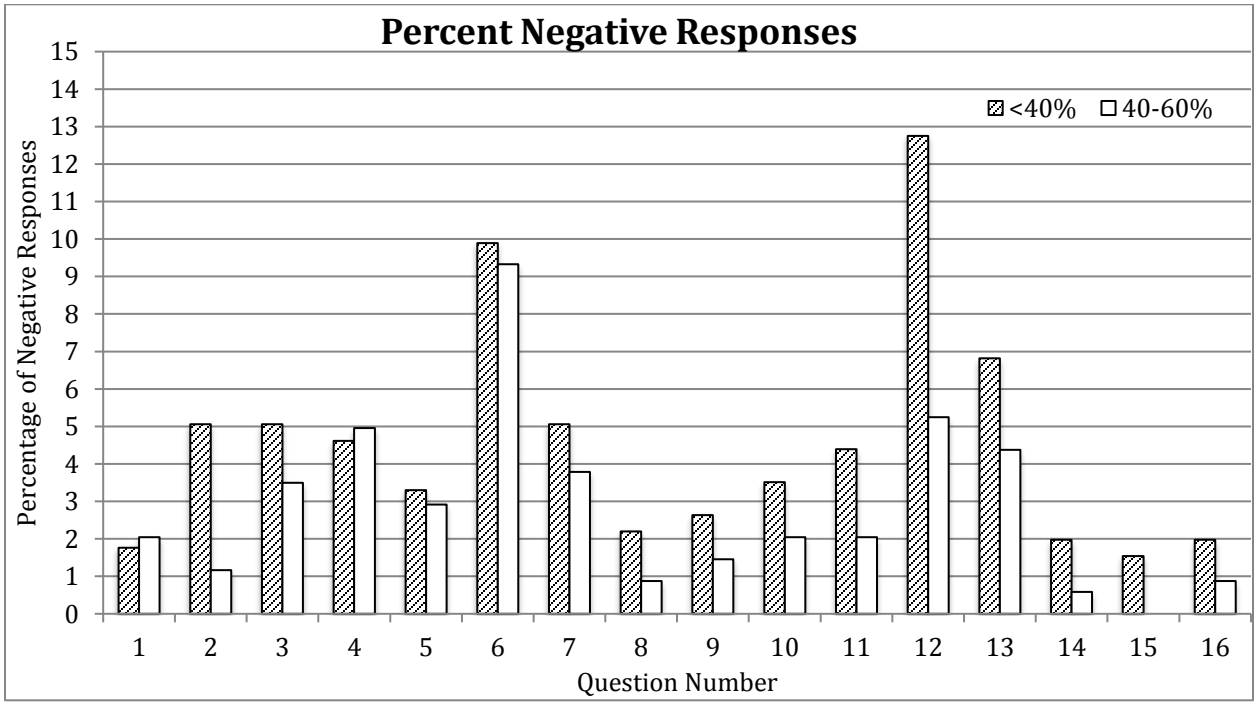
Comparison 6

Although the average response rates were overwhelmingly positive, the percentage of negative responses for each question gives a sense of which questions students answered more negatively. Table 10 compares the percentage of negative responses for each question for gender balanced and imbalanced courses. These percentages were calculated by determining the ratio between the number of negative responses and the number of neutral or positive responses. Figure 1 is a graphical depiction of these percentages.

Table 10: Comparison of percentage of negative responses

Question	Gender Imbalanced	Gender Balanced
1	1.76%	2.04%
2	5.05%	1.17%
3	5.05%	3.50%
4	4.62%	4.96%
5	3.30%	2.92%
6	9.89%	9.33%
7	5.05%	3.79%
8	2.20%	0.87%
9	2.64%	1.46%
10	3.52%	2.04%
11	4.40%	2.04%
12	12.75%	5.25%
13	6.81%	4.37%
14	1.98%	0.58%
15	1.54%	0.00%
16	1.98%	0.87%

Figure 1: Percentages of Negative Reponses To Each Question



These results reveal a higher percentage of negative responses for the courses with less than 40% female students. Only questions 1 and 4 are higher in courses that are between 40% and 60% female. The largest difference between responses is for question twelve. For this question, there was a higher percentage of negative responses from the students on courses with less than 40% female students.

Discussion

The first comparison shows that students on gender-balanced courses responded more positively to questions two and eleven. Question two is about students feeling like their point of view was appreciated by the group. Question eleven is about group interactions without the supervision of the instructor team. Both of these questions reveal that something is happening on gender balanced courses to make all students feel like their views and perspectives are appreciated. It is possible that the gender diversity on courses plays a role in students feeling like the group appreciates their perspective. The independent travel period on NOLS courses is essentially a test of group dynamics because students do not need to do things just because the instructors might be watching. Students on gender-balanced courses responded more positively to the question about their group functioning well even without the instructors. This result indicates that a more balanced gender ratio might be affecting the group interactions in such a way so as to make students work together more cohesively, even without instructor oversight.

The second comparison shows that women on gender imbalanced courses responded more positively to questions 7 and 13. Analysis of question seven indicates that female students had higher scores when asked about whether they had role models on their course. When there are few female students, they seem to be more likely to connect with role models than their male

counterparts. Although we have no way of knowing exactly what caused these response differences, it is possible that because women were in the minority, the female students on the courses made a closer connection with the instructors and were more likely to connect with role models than their male counterparts.

Comparison three reveals that women on gender balanced courses responded more positively to questions 12 and 13. Question 12 asks students how well they got along with everyone on their courses. Female students responded more positively to this question than their male counterparts. This difference means that it is possible that women are more interested in and focused on social relationships and interactions.

It is interesting that women on both gender balanced and imbalanced courses responded more positively to question 13 than their male counterparts. Question 13 asked about the appropriate challenge level of the terrain. Regardless of the gender ratio of the course, the female students were more likely to feel as though the terrain and course activities were appropriately challenging. It is unclear from the wording of this question whether the students who disagreed with the question thought that the terrain was to easy or too challenging. However, it is clear that female students were more satisfied with the challenge level provided by the course overall.

Except for question 13, the questions that revealed differences were about social connections and interactions between students in the form of respect, group interaction, and role models. Other research, like Humberstone's 1990 piece, indicates that there are differences in how male and female students respond to the social and educational environment of outdoor programs. Her research found social relationships affect the way female students respond in

outdoor education. This finding is mirrored in this project, which finds differences in how female students respond to questions about social interaction on their NOLS course.

The analysis of the literature reveals that the role of gender in outdoor education programs is complex and not well understood. Very little research has been done on the impact of gender ratios on student experiences. The results of this study suggest that there are different social dynamics happening on gender balanced and imbalanced courses. However, this study cannot determine what is causing these differences. A follow up study would be interesting to dig deeper into some of the factors that contribute to different social dynamics on gender balanced and imbalanced courses. The following are suggestions for actions that NOLS could take to learn more about gender dynamics on their field courses.

Comparison 4 revealed that female students on gender-imbalanced courses responded more positively to question three than female students on gender-balanced courses. This question asks students to evaluate the NOLS education model. Based on these survey results, female students on gender-imbalanced courses found the classes and learning opportunities on their courses to be more interesting and engaging.

Comparison 5 yielded no statistically significant differences between the responses of male students on gender-balanced and gender-imbalanced courses.

Conclusion: Recommendations for NOLS

Goals of additional gender related research

The literature suggests that there is a need for more research about diversity in outdoor education. The next phase of gender related research at NOLS is an opportunity to expand on existing research while filling gaps in the literature. First, additional work could be done to look

more deeply at the possibility that gender ratios play a role in student sense of inclusion and community on courses. Social network analysis could be a useful tool to study the experience of female students on wilderness courses and to help researchers and instructors better understand social dynamics on NOLS field courses. Because this study is only preliminary, additional research could ask more specific questions to determine why there are differences between student responses after gender balanced and imbalanced courses. Finally, research can serve as a foundation for training materials and curriculum resources. These materials can be used to train instructors to be better able to create welcoming and inclusive courses.

Changes to Course Quality Survey

The results of the Course Quality Survey suggest that there are some differences between men and women on NOLS courses as well as between gender balanced and imbalanced courses. In order to better understand these differences, NOLS researchers could work to gain a better understanding of the factors that affect female students, especially in the area of inclusion. Additional research can shed light on the factors that affect students' sense of inclusion in the group community. While the Course Quality Survey alone does not provide significant insight into what is causing the differences in the experiences of students on gender balanced and imbalanced courses, a more comprehensive follow up study would be able to help to determine how gender ratios play a role in the gender dynamics on field courses. As part of the study, the Course Quality Survey would serve as a method for asking quantitative and qualitative questions of a relatively large sample of NOLS students. This is a convenient means of quantitative data collection because the results are digitized and easy to analyze.

Because it is relatively easy to administer and analyze, the Course Quality Survey provides an opportune vehicle for asking questions about student experiences on courses.

Although the current questions do not yield much significant statistical information, the form is still useful and adaptable. A short section of questions could be added to a future Course Quality Survey and administered to students. These questions would be crafted to measure the occurrence of gender related incidents on the course, as well as the student's sense of inclusion within the group as a whole. The challenge with these questions would be standardization and defining the terms involved so that the results can be compared between students. Many have different definitions of "inclusion" and "conflict" and so these terms will need to be clearly defined, perhaps using examples, so that the student's responses can be clearly interpreted.

An In-Depth Study of Gender Dynamics

Because research has not conclusively explored the topic of gender dynamics in outdoor education programs, a comprehensive study of the factors that impact these gender dynamics on courses would add depth and clarity to this issue. This study could take several summer courses as case studies for in depth analysis. By comparing gender balanced and imbalanced courses, future researchers would have a better understanding of how this variable affects the gender dynamics on NOLS courses. Studies like this are largely absent from the literature, and this would provide a starting point for future research. Additionally, an in depth study would allow researchers to pinpoint factors, other than gender ratios, that affect gender dynamics on courses.

These case studies would examine Course Quality Survey data and supporting material, including evaluations of students, evaluations of instructors, program evaluations, notes from course debriefs, etc. Student evaluations will provide context for the student's feedback and provide information about their success and performance on the course. Instructor evaluations will provide information about how gender dynamics play a role in student perceptions of instructors. Additionally, information for course debriefs with students and instructors will

provide an additional perspective. This study employs triangulation using both qualitative and quantitative methods to provide a complete picture of the complex social dynamics on NOLS courses.

A study examining broader definitions of gender

The current study looks at the impact of gender ratios on the experiences of female students. One of the limitations of this study is that it narrowly defines gender as a binary between male and female. NOLS students come from a society that is becoming increasingly aware of and more accepting of a complex gender spectrum. Anecdotal evidence from conversations with other NOLS instructors reveals experiences with students whose gender falls outside of strictly "male" and "female" categories. Therefore, it is important to conduct additional research about the impact of and expanded definition of gender. This research might take a variety of forms. It could involve tracking students who identify their gender as "other" before and after their course using surveys to measure changes and experiences during the program. In another study, a qualitative researcher could conduct follow up interviews with these students following their course to ask about their experience, and to hear from these students how they think that gender interactions might be improved on courses. All of these data points would be helpful for revising and building training and teaching resources for instructors

Qualitative analysis of field instructors

In addition to gathering information from students, field instructors are an invaluable source of information about what happens on courses. Because of the longitudinal knowledge of experienced instructors, their perspectives provide invaluable information regarding trends, themes and outliers. A qualitative study to assess instructor knowledge would provide a fantastic base of information from which to build an effective assessment system. A qualitative study

would be a useful technique because it would allow instructors to tell stories and elaborate on their experiences. Interview probing would allow the researchers to ask instructors to clarify their observations and ideas. This deeper level information would allow future researchers to more completely understand the complexities of gender dynamics. These nuances would be easily lost in a purely quantitative analysis.

Utilization of new data collection tool

NOLS has recently developed a preliminary tool for measuring and documenting "inclusion incidents" on courses. Based on information gained from interviewing instructors as part of a qualitative research project, NOLS could continue to develop its tool for measuring inclusion incidents. Also, the language that instructors use during the qualitative interview study will help NOLS clarify and define "inclusion incidents" for their instructors. By gathering data from the instructors using the new inclusion incident collection tool, researchers will be able to compare their observations and documentation to information collected from students and program supervisors in a more comprehensive study. In development, the most important qualities of this tool are that it is clear, concise, and easy to fill out because instructors have a significant amount of course paperwork to fill out in the field, and it is important for them to feel like their time is being used well.

Applications of future gender related research

This research and additional studies in the field of gender dynamics have a number of applications for NOLS and other outdoor education programs. First, it can be used as a measure of the effectiveness of diversity training programs by tracking progress over time. Second, utilizing the results of this research can help to improve the experiences of marginalized students. Third, the information can be used by the admissions department to assist in their job

of placing students onto courses. For example, if it is ultimately found that gender ratios affect student experiences, then this may affect how admissions officers place students on courses. Finally, it will help to inform the development of new training opportunities for instructors to help them facilitate gender conflicts and navigate gender dynamics.

Another student sub-population of interest to the Diversity and Inclusion department includes scholarship students and those from underserved communities. The data from the Course Quality Survey can be easily sorted to compare responses from different populations. In addition to studying gender dynamics, general questions about sense of inclusion and belonging will be useful for measuring the integration of scholarship students into course communities. As more and more diversity training programs are implemented, it will be important for NOLS to be able to measure their effectiveness over time.

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