

INTRODUCTION

According to Long (1994), climbing walls have been used as a “controlled environment in which outdoor climbers could hone their craft”, since the 1960’s (as cited in Kurten & Zimmerman, 2009, p.1). Climbing walls are also a perfect way to introduce newcomers to the sport (Rapelje, 2004). According to the *Sports Participation Topline Report* (2004), climbing wall participation increased by 20% between 1987 and 2003 (as cited in National and State Recreational Participation Trends Report, n.d.). Today “climbers are a notable portion of the 69.2% of the American population that participates in outdoor recreation” (Rapelje, 2004, p. 1). Of these climbers, many who use artificial climbing walls fall into the age range of traditional-age college students (Rapelje, 2004). The opportunities for this age group to utilize indoor climbing gyms continue to grow as colleges and universities provide on-campus climbing facilities (A. Miller, personal communication, February 18, 2010).

This study was conducted at a popular indoor climbing facility at a mid-sized public institution in the Southeastern United States. The climbing wall is managed by the outdoor program, a branch of the university’s recreation department within the student development office. The outdoor program uses human-powered outdoor adventure pursuits, experiential education and the natural environment to meet the developmental needs of the university community.

Until the spring of 2006, the outdoor program provided developmental opportunities primarily through its outdoor adventure trips and clinics. However, in 2006 when the outdoor program added a 50’ high, 4,000 square foot artificial climbing wall facility, indoor climbing became the most popular program provided. (A. Miller, personal communication, February 18, 2010). According to Andrew Miller, the outdoor program’s Land Based Coordinator, “the

climbing wall will reach a record 100,000 participations in the Spring of 2011 since its opening in 2006”, based on the number of users signing in at the front desk to use the facility (personal communication, March 1, 2010).

To accommodate the high demand of this new program and to support the outdoor program’s mission, staff developed four primary goals which present a holistic approach to developing climbing wall participants. The purpose of the climbing wall is...

1. To aid in the development of specific climbing skills of students, faculty and staff
2. To provide students, faculty and staff with an opportunity for healthy, informal recreation and fitness
3. To provide opportunities for physical and mental challenges that promote personal growth and development
4. To encourage communication in an active social setting (Dickerson & Haas, 2010, p. 1).

STATEMENT OF PURPOSE

The purpose of conducting this study was to answer the following question: How do the physical and social environments at a university climbing wall impact user satisfaction?

Physical factors studied included: architectural design, climbing apparatus, waiting lists, front desk and lobby, signage, wall gradient, square footage, acoustics and sound, temperature, lighting, etc. Social factors included: verbal and non-verbal interactions between users and staff, “relaxation and comfort, commitment to the activity, and rationale for climbing” (Wolfe, 2007, p. 35).

Despite the outdoor program’s commitment to participant growth and development, climbers routinely reported dissatisfaction with the physical and social environments at the climbing wall facility (A. Miller, personal communication, February 18, 2010). As a result, the outdoor program became interested in conducting research related to user satisfaction and these

environments (A. Miller, personal communication, February 18, 2010). Satisfaction with the climbing wall environment is not just important for the indoor climbing program. Indoor climbing was identified as a “gateway activity” which may draw participants into other program areas such as day and extended trips and the Instructor Development Program (IDP) (*Outdoor Recreation Participation Report*, 2009; A. Miller, personal communication, February 18, 2010).

SIGNIFICANCE OF STUDY

Since the climbing wall is the first and many times the only point of contact students have with the outdoor program, it is important for the staff to be especially sensitive to the impressions participants take away from their experiences at the climbing wall. Outdoor programs professionals may find it helpful to use this research to inform their practice and develop a strategic plan to improve policies, staff training and programs. In addition, other indoor climbing facilities located on college and university campuses may find the information gleaned from this study to be interesting. They may choose to apply this information to their respective programs and create new research from questions generated by this study.

REVIEW OF LITERATURE

The following review of literature synthesizes important concepts and articles related to indoor climbing facilities, adventure recreation, perspectives and characteristics of climbers, and constraints to participation.

The rise of artificial climbing walls has seen a steady increase since their development in Europe in the 1960's (Kurten & Zimmerman, 2009; Rapelje, 2004). According to the Outdoor Recreation Coalition of America (2001) as stated by Rapelje (2004), the “first climbing gym in North America did not open until 1987” (p.16). In the United States, “the Climbing Gym

Association listed a total of 343 climbing gyms in 1997” (Rapelje, 2004). Since the boom of artificial climbing walls, institutions of all types have seen the development of this kind of facility. Some examples include community recreation spaces, commercial operations, military installations, camps, colleges/universities, and other learning institutions (Kurten & Zimmerman, 2009). For the purpose of this research study, the researchers focused on colleges and universities.

These facilities were primarily designed to help rock climbers stay in shape and train for climbing outside. This particular environment was not only an ideal way to get beginners introduced to the sport of climbing but also offered avenues by which participants could have control over their environment and not have to deal with the environmental hazards associated with climbing outside (Rapelje, 2004).

The primary purpose of this study was to go beyond simply assessing the physical and social environments of the climbing wall. The researchers conducted a study of participant satisfaction in an attempt to provide new data for the outdoor education field as a platform for continuing research which could improve climbing facilities and contribute to a positive climbing culture.

Rock Climbing Sub-Cultures

Identifying and understanding rock climbing sub-cultures is critical to providing a positive experience for a broad range of participants with varying needs and skills. Wolfe noted that two primary indoor climbing wall user groups exist. These were defined as "members and non-members" of the climbing wall culture (Wolfe, 2007, p. 30). He described members as a “highly skilled, close knit group of individuals who understood the symbols of the sport, spent time together climbing on the wall, and participated in climbing and non-climbing activities

outside the framework of the wall” (Wolfe, 2007, p. 47). Non-members were defined as users who did not fit the majority of the characteristics mentioned above and were likely beginners, infrequent users and novice climbers (Wolfe, 2007). In his thesis, Rapelje (2004) recognized that one of the main distinguishing factors in membership is experience level. Rapelje (2004), as cited in Hohenhorst, said that "determining the experience levels of climbers allows managers to infer frequency of participation, preferred social environmental settings, sensitivity to crowding and the likelihood of participation in other risk recreation activities" (p. 22). He posited that membership in a climbing sub-culture could also directly influence an individual's identity (Rapelje, 2004). This supported the idea that climbers at the wall may have strong feelings regarding the facility they use and the types of users with whom they share the space.

Serious Leisure

Many of the users at the climbing wall dedicated much of their time and money to climbing, and defined themselves by their relationship with the sport. This type of dedication and commitment to one's hobby led Robert A. Stebbins in 1982 to coin the term "serious leisure" (Stebbins, 2001). Serious leisure "is the steady pursuit of an amateur, hobbyist, or career volunteer activity that captivates its participants with its complexity and many challenges" (Stebbins, 2001, p. 54). Stebbins (2001) went on to say that serious leisure is "profound, long-lasting, and invariably based on substantial skill, knowledge, or experience" (p. 54). This concept may be transferable to the amateur indoor rock climber, who is deeply passionate about sport commitment, engaged in the social and physical environments, and dedicated to developing individual mental and physical well-being. Some significant social rewards experienced by those in serious leisure activities are "meeting people, making new friends, and taking part in the affairs of the group" (Stebbins, 2001, p. 54). On the other hand, some climbing wall participants

may feel alienated by people who participate in serious leisure. Marginalization could be a significant barrier to participation (A. Miller, personal communication, February 18, 2010). Many students lack the support to persist to acceptance from members of the climbing community and leave feeling incompetent and self-conscious (Wolfe, 2007).

Female and Novice Climbers

Donnelly and Young (2001) state that: “the manner in which one becomes initiated into a sport sub-culture requires opportunity, motivation and interest” which leads to acceptance; furthermore, acceptance appears to be “contingent upon skill and ability” and that “becoming a full member of a sub-culture requires accepting values and behaviors that are congruent with the subculture” (as cited in Appleby and Fischer, 2005, p.12).

Female participants may experience higher levels of adversity than men in three key areas: “(a) gaining access and acceptance into predominantly “masculine” sport subcultures, (b) identity formation in sport subcultures, and (c) body experiences” which mostly relate to body image (Appleby and Fischer, 2005, p.13).

As mentioned earlier, participants' experiences are impacted significantly by the staff and facility (Cole, Osman and Vessel, 2006). This is important since managers often use customer “service quality and user satisfaction measurements to demonstrate accountability, effectiveness, and efficiency of programs, and overall success of campus recreation centers” (Cole, Osman and Vessel, 2006, p. 21). By complimenting a high-quality facility with high-quality customer service, managers can make climbing walls a more pleasant and meaningful place to spend time and a more viable income-generating opportunity.

Inclusion

Wolfe (2007) stated, "inclusion encourages understanding of differences rather than ignoring or masking them" (p.45). Many of these differences come from conflicting motivations and commitments of the member and non-member groups (Wolfe, 2007). A non-inclusive environment has the potential to create anxiety, which has been shown to affect performance in recreational activities (Pijpers, Oudejans and Bakker, 2004). Users should not feel that they are competing for resources or support.

Many novice and female climbers have expressed displeasure with poor staff attitudes and the intimidation caused by feeling inferior to more advanced climbers at the wall (A. Miller, personal communication, February 18, 2010). One participant described an encounter with two staff members who played "rock, paper, scissors" to choose who would have to belay him. There were also three participants who related their experience with an advanced climber who jumped in front of them to quickly climb an easy problem they had been struggling to complete. Unfortunately, novice and female users may not persist long enough to become accepted into the climbing culture if they feel marginalized and unwanted.

Leisure Constraints

Just as marginalization can significantly impact participation, there are a number of other factors which may inhibit participants from becoming dedicated to climbing or from trying climbing at all.

Rabinowitz, Frauman and Williams (2010) identified a number of constraints to participation at an artificial whitewater park, most of which are also transferrable to other adventure recreation disciplines. Among these were: lack of preparation, time and skills, disinterest in participating without a companion, personal disinterest, personal safety, expense,

risk, embarrassment and crowds (Rabinowitz, Frauman & Williams, 2010). All of these constraints may impact participant satisfaction at the climbing wall. Understanding what might stand in the way of participation may help staff at the outdoor program to create a more meaningful experience for multiple user groups with different needs.

High Risk Recreation

Users' perceptions of indoor rock climbing as a high risk activity may necessitate intentional frontloading of the experience. It is important to identify the positive benefits of risk and to make the distinction between perceived risk and actual risk so, that new climbers see risk as an opportunity for growth.

Participation rates in high risk recreational activities like climbing have been directly linked to high levels of self-efficacy. Promoting self-efficacy in climbing participants is likely to improve their skill and commitment levels (Asghar, Jones, Llewellyn and Sanchez, 2008). A positive feature of indoor climbing is that it takes place in a controlled environment in which climbers can experience similar benefits with less potential for negative consequences.

Benefits of Adventure Recreation by Gender

It is also worth noting that women and men may gain different benefits and experience different outcomes from adventure recreation. In a research study conducted by Goldenberg, Cummings and Pronsolino (2008), women were more impacted by social characteristics of a climbing experience, and men were more impacted by the opportunity for skill development. Furthermore, the female subjects connected climbing with personal challenge and perseverance, and the male subjects connected climbing with new experiences and trust (Goldenberg, Cummings and Pronsolino, 2008).

METHODOLOGY

As the research process was designed researchers were careful to keep in mind the original purpose: to determine how physical and social environments impact user satisfaction. The process was started by submitting a research proposal to the Institutional Review Board. After making some minor revisions, the proposal was approved by expedited review.

A mixed method approach was used in this research. This included an online survey and face-to-face interviews to collect data on users' perceptions of the climbing wall environment. The SurveyMonkey online survey software and questionnaire tool was used to create a survey, collect responses and analyze data. The questions were focused on: impacts of other users, climbing wall and front desk staff, characteristics of the facility, climbing styles and environments, feelings associated with the climbing wall experience and demographics. In order to validate the survey, researchers emailed a link to outdoor programs administrators, faculty and students from various institutions including: Montreat College, Lees McRae College, and University of Minnesota, Twin Cities. Changes were made based on the feedback that was received.

The survey was administered at the outdoor program's front desk area. The researchers' objective in using this venue was to be visible to all climbers as they checked in to climb. The researchers set up two laptops exclusively for participants to complete the survey. A link to the survey was posted on the outdoor program's homepage which made taking the survey uncomplicated and convenient.

The survey was 23 questions and no questions were open ended. Respondents took an average of 5 minutes to complete the survey. The nature of the survey questions did not pose

any risk to the respondents. The confidentiality of students was protected since no personal information was collected from the survey, and no personal information was shared.

The survey sample was composed of participants at the climbing wall regardless of gender, race, ethnic background or other demographic characteristics. Unfortunately, it was impossible to determine a specific sample size for the survey due to the lack of accurate statistics on the number of individual climbing wall users the outdoor program sees each semester. Instead the goal became to collect as many survey responses as possible by promoting encouraging participation in various ways.

A number of methods were employed to boost the rate of return. First, prize incentives, such as a harness and climbing shoes, were collected by the researchers. After completing the survey, students could fill out their name and email address and drop it in a prize drawing box located at the front desk. Announcements on Facebook, Twitter and the outdoor program's website, along with flyers were used to promote the survey to students that use the climbing wall. Additionally, a meeting was held with front desk and climbing wall staff to discuss ways to encourage climbers to participate in the survey, how to set up and store laptops and how to field general survey related questions.

In order to gain a more accurate understanding of the way climbers were impacted by their environments, 58 respondents were randomly selected from the prize drawing box to participate in a short face-to-face interview. Incentives, which included free food and an opportunity to win tickets to a screening of a popular mountain film festival held on the campus, were used to generate student interest. The interview questions were developed from themes which were extrapolated from survey results. The individual interviews were conducted in a private office at Outdoor Programs and took approximately thirty minutes to complete. The

interview process was concluded after ten interviews with 6 female and 4 male interviewees when common themes emerged from participant responses. This information also complimented the data collected from the survey. Interviews were tape recorded and transcribed verbatim by the researchers and member checks were employed to guarantee that the main points of interview conversations were accurately documented. Researchers independently reviewed all ten interview transcriptions for commonalities. The information from the survey and interviews was anonymous and aggregate data was used to formulate results. The data was deleted after the research process was completed. Files were erased, paper documents were shredded and sound files were destroyed.

RESULTS

Demographics of Participants

A total of 155 surveys were completed; however, 21 respondents encountered errors while completing the survey and one chose to discontinue the survey after the informed consent page. Of these, a total of 123 usable survey responses were analyzed. The gender breakdown of the respondents was as expected with 64% male and 36% female respondents. Most respondents were traditional aged college students with 88% selecting they were 18-23 years old. All respondents used the climbing wall to boulder as opposed to route climbing and most used the facility at least once a week.

Survey Findings

Researchers performed tests between gender, membership status and frequency of participation and the responses to questions related to social intimidation and satisfaction with the physical environment.

Researchers performed Chi-Square analyses on five variables and their relationship to gender including: *membership, frequency of participation, presence of social intimidation, level of social intimidation and the participants' desire for a beginners' night offering.*

Of the 78 respondents who replied to the question, '*Do you consider yourself a member of the climbing community?*', 64% of the total respondents identified as a member; 66.7% of male respondents identified as a member and 60.5% of female respondents identified as a member. When survey participants were asked how they identified a member of the climbing community, the top three answers they selected from the provided list were: frequency of participation (41.8%), environment – natural or artificial rock walls (30%) and skill/experience (25.4%). Also revealed by Chi-Square analysis, 70.1% of male respondents reported that they used the climbing wall frequently (one time a week or more) while only 29.9% of women responded that they used the wall frequently.

Roughly two-thirds (33.3%) of the 78 men who responded to the question, '*Have you ever felt intimidated by other climbers at the climbing wall?*', said no and roughly two-thirds (65.1%) of the 43 women who responded said yes. These opposing responses between gender and social intimidation represented the greatest correlation ($p < .001$) from the survey analysis.

Correlations are statistically significant if the Sig. (p-value) is less than or equal to .05. The lower the Sig. (p-value) the higher the correlation. Table 1 below describes this correlation between gender and intimidation by other climbers at the climbing wall which was found by conducting a Chi square analysis. No other analyses were significant.

Table 1					
Responses to Survey Question: <i>Have you ever felt intimidated by other climbers at the climbing wall?</i>					
Gender	Intimidated: Count	Intimidated: Percent	Not Intimidated: Count	Not Intimidated: Percent	Total
Male	26	33.3%	52	66.7%	78
Female	28	65.1%	15	34.9%	43
Total	54	100.0%	67	100.0%	121

In addition to answering the “yes/no” question, *Have you ever felt intimidated by other climbers at the climbing wall?*, 46 respondents elected to clarify their response with a written statement. This was the highest number of written responses of any question in the survey. The next most popular question for written responses generated only 8 written responses.

In response to the survey, 55 of 123 participants (44.7%) reported that they did feel intimidated by other users at the climbing wall. Of the participants who reported feeling intimidated, 23.1% said they felt very or extremely intimidated. Further analysis revealed that twice as many women (8) than men (4) responded that they felt very or extremely intimidated by the social environment at the wall. Of the respondents, 83.6% chose to clarify their answer with a written comment.

Of the participants who indicated they would like for Outdoor Programs to offer a beginners night, 22 were women and 24 were men. While not statistically significant, it is interesting to note that the 22 women represent just over half of the total number of female respondents, while the 24 men represent just less than a third of all male survey participants. Additionally, 31 of 43 female respondents said they would benefit from a women's night.

Of the 122 respondents to, '*Have you ever felt intimidated by the physical environment at the climbing wall?*', only 25 respondents (20.5%) indicated that they did feel intimidated by the physical environment. None clarified their answer with a written response. Of the 25 women that responded to the question, almost one-third (27.9%) said yes and of the 97 male respondents, 16.7% said yes.

Participants were asked to identify which changes to the physical environment at the climbing wall were the most important. The top four results were: installing an outdoor artificial boulder garden, expanding the current climbing facility, installing hand washing stations and adding more bouldering space to the existing facility.

Interview Demographics

As part of a mixed-methods approach the researchers conducted a series of interviews to gain a deeper understanding of the way the physical and social environments affect climbing wall participants, paying special attention to female and novice climbers. Participants ranged in class rank from first-year students through graduate students. They self-reported climbing at a variety of skill levels—beginner to advanced.

Interview Findings

Researchers identified four primary themes from the interviews conducted. The themes pertained to social interactions at the climbing wall and participant satisfaction.

Beginner and female users experience dissatisfaction with the climbing environment when climbing with more advanced users. Many beginner and female climbers report feeling they are not good enough to be climbing at the wall. Interviewees said they feel inadequate when watching strong climbers and the advanced climbers can “dominate the wall” and make the environment unwelcoming. Participants reported hearing more advanced climbers saying, “Beginners don’t belong here”. They expressed sensing an unfriendly attitude and irritation from advanced climbers at times and, they describe the advanced climbers as intense, passionate and territorial. However, a few of the interview participants communicated they did not feel the advanced climbers were being intentionally intimidating. They said in some cases it was their own personal ego and inability to excel immediately which affected perception of others’ behaviors towards them.

Staff attitudes radically affect participant satisfaction. Interview respondents consistently reported feeling climbing wall staff were “standoffish”, did not want to be bothered and were not particularly helpful. One participant reported being told by a staff person it was not part of their job to belay participants. Another participant mentioned a time when she asked for a staff member to spot her while she was climbing. She remembers falling from the top of the bouldering problem and seeing her spotter talking to the other staff person. His lack of attention resulted in a sprained ankle. She said, “It was the most frustrating experience I have ever had at the climbing wall.”

Beginners and female users need social support from other climbing wall users in order to persist. These users regularly reported they would not have come on their own initially. They mentioned they first came and continued to come because they had friends who climbed, they joined the climbing team or were encouraged by other participants or staff with friendly, encouraging attitudes. One female interviewee described her experience with joining the climbing team and the comfortable environment it created for her. Her experience contrasts with others who may not have that supportive social group as beginners. Many novice climbers expressed they felt intimidated by more advanced climbers; however, one said, “I’m a big fan of...watching others try problems, especially people who are better than me. That particularly sticks out in my mind...seeing the opportunities there are.”

Social interaction is a primary motivation for most climbing wall participants.

Participants enjoy using the wall because it gives them an opportunity to be with friends, meet new people and get tips from other users. Socialization with climbers at the wall also provides a gateway to the climbing community and involvement in the outdoor climbing community. One individual mentioned an experience meeting an encouraging climber at the wall who befriended him, took him climbing outside and inspired him to continue climbing.

DISCUSSION

The purpose for conducting this research was to determine the ways the social and physical environments at the climbing wall impact user satisfaction. The results of this study identified beginner and female rock climbers as the two groups experiencing the highest levels of marginalization and intimidation. Although understanding the needs and motivations of all user

groups is important, the results of this study directed the researchers' focus to the specific needs and motivations of female and novice climbers.

In Rapelje's 2004 study, he discussed the requirements to be labeled a "member" of the climbing community. In his study, experience level was identified as the most important determining factor. Similarly, Wolfe (2007) identified skill level as the most important factor in categorizing a participant as a "member" of the climbing community. The findings from both of these studies supported the results found in this study. Experience level and skill level were identified as being highly important. However, in this study experience/skill level, which was offered as a single choice, only ranked the third most important trait of a member following frequency of participation and the type of environment, whether it was a natural or artificial rock wall.

After analyzing the interview transcriptions, the researchers were able to identify three complimentary but different membership traits including: regular participation, passion and knowing other climbers. Although passion and knowing other climbers were not offered as choices on the survey instrument, the interviewees made it clear they played an important role in membership.

Donnelly and Young (2001) stated: "the manner in which one becomes initiated into a sport sub-culture requires opportunity, motivation and interest," which leads to acceptance (as cited in Appleby and Fischer, 2005, p.12). In Donnelly and Young's (2001) study, they recognized that acceptance into a sport sub-culture is "contingent upon skill and ability" and that "becoming a full member of a sub-culture requires accepting values and behaviors that are congruent with the sub-culture" (as cited in Appleby and Fischer, 2005, p.12). Researchers in

this study posit that primary values and behaviors may vary between facilities. However, acceptance into the sub-culture, or member group, requires accepting those values and behaviors relative to the particular culture. At the climbing wall, knowing other climbers, regular participation, passion and the environments that they participate in may outrank skill and ability as the primary values and behaviors at that facility.

Therefore, novice and female participants may find it difficult to be accepted as members of the climbing community at a facility where membership is contingent upon these types of values and behaviors. While discussing membership, many interview participants reported that when they participated at the climbing wall they did not want to be in the way. They also mentioned that they were uncomfortable participating alone, adding that they would enjoy an opportunity to meet and climb with other females and beginners. Information gathered from the interviews conducted suggested that while participants generally came to the wall with a high level of interest, they may have little motivation and opportunity to persist to membership. One of the key contributing factors to limited motivation and opportunity had to do with participants' perceptions of and interactions with staff and more advanced climbers. In fact, the majority of interviewees (9 of 10) described off-putting personal experiences with staff and other more advanced climbers at the climbing wall. One interviewee described his experience as a new student coming to the wall for the first time. He said:

I had just come to [college] and didn't know many people. I was interested because I had not been climbing before. I asked for a belay and, I didn't even know what that meant, that was how inexperienced I was. I asked for help with the harness and the supervisor grudgingly got off the floor. He tied me in and once I started climbing I noticed the supervisor was not paying attention. Once I looked down and he was talking to another

supervisor and had tons of slack out. He had no mindset that I was climbing. He was getting paid to do this and, it bothered me.

The interview and survey responses from this study produced some telling information regarding beginner and female climbers' perceptions of the climbing wall community's attitudes and behaviors. Participants responded with comments such as: "The supervisors in there could do a little more interacting and be friendly. They enjoy talking to the regular climbers a lot but spare us little of their time"; "As a beginner it's easy to feel intimidated by people who are much more experienced"; "Skilled climbers [have] an unwillingness to remember they were once beginners"; and finally, "Some of the more experienced climbers have a poor attitude toward new...climbers, especially when it causes them to have to wait to climb". Interview participants also said they would benefit from orientation workshops, personal training or simply a mentoring relationship. Researchers recognized that understanding the social environment at the climbing wall is extremely important for creating an inclusive facility, yet they found that the physical environment was not nearly as significant.

Recommendations

The researchers offer the following recommendations which were produced from the results of the study. The majority of these recommendations are focused on reducing feelings of marginalization and intimidation among the beginner and female climber populations; however, recommendations for further study on the needs and motivations of moderate to advanced climbers also follow.

It is recommended that climbing gyms at colleges and universities should consider sponsoring women's and beginners' nights to foster motivation to continue climbing at the wall

and to provide adequate opportunities to use the wall without pressure from more advanced users. This could also help beginners and female climbers to gain friends at the gym so they have other users to participate with in the future, which according to the survey and interview results, is a key factor in persisting at the climbing wall. This type of interaction among beginners and females may create a more accessible process for becoming a member where participants choose to be involved with the community instead of competing to be chosen by the community. By being aware of potential negative dynamics between user groups, Outdoor Programs can tailor their services to accommodate different needs and interests and prevent newcomers, women and other minority groups from feeling marginalized. It is important to add that most female interview participants mentioned they would be equally happy to participate in a beginners' night as they would be to participate in a women's only night. This is important since some institutions may have trouble offering women's' nights depending on the way their equity offices interpret Title IX of the Education Amendments of 1972.

As previously stated, the social environment at climbing facilities may play a primary role in participant satisfaction. Further research is recommended to understand what factors foster a sense of community at climbing gyms, if that sense of community is apparent at commercial gyms and if it is unique to gyms at colleges and universities.

Researchers recommend changing the way space and activity time at the climbing wall are managed. It is clear from previous research that overcrowding promotes intimidation and dissatisfaction and can contribute to low return rates among users (Rabinowitz, Frauman & Williams, 2010). Expansion of the facility, including adding an outdoor boulder garden, may have an immediate positive effect on overcrowding and the dissatisfaction with wait times. Researchers believe that it is important to emphasize that three of the top four desired changes to

the facility, proposed by survey participants, related to expansion. Researchers also propose that climbing wall managers provide more space for personal gear storage, more social space and that they effectively manage temperature and humidity at the facility with proper ventilation.

The researchers also recognize that it is fundamentally important for climbing wall managers at colleges and universities to educate students, and particularly student employees, on understanding the unique needs of individual participants. They should be intentional about serving user groups that experience heightened levels of intimidation and marginalization.

Additionally, it is recommended that all college and university climbing facilities utilize software for tracking facility use. The lack of an efficient method for tracking this information at the climbing wall posed a significant challenge when attempting to find information on usage by gender, frequency of participation and participation over a specific period of time.

Researchers also acknowledge the importance of adding outdoor programs to the Recreational Sports Programs functional area in the Council for the Advancement of Standards (CAS) handbook or adding outdoor programs as a separate functional area. This would provide basic industry standards to guide the practice of all college and university outdoor programs professionals.

The conclusive results of this study make it clear that further qualitative research should be conducted with female and novice climbers at college and university climbing walls to increase the trustworthiness and credibility of the study's findings. Further research would also expand practitioners' understanding of these marginalized groups.

Other recommendations for further research include conducting a study of the motivations and needs of the moderate to advanced climber population, especially those who

participate in “serious leisure” (Stebbins, 2001). The information gathered from such a study, combined with the information gathered from this study, may help managers to educate participants and staff on the needs of all user populations rather than masking them to create a more inclusive environment (Wolfe, 2007). The information collected from these two studies may also help climbing wall managers at other colleges and universities to better understand and serve participants’ diverse needs.

Additional implications for practice

Outdoor programs professionals should be intentional when training climbing wall staff. They should consider providing modules on inclusion, intercultural competence, conflict resolution, experiential education theory, teaching skills and interpersonal skills. Professionals should make their expectations for professionalism and service clear when advertising jobs and throughout the hiring process. While they should continue to conduct frequent assessments of staff’s technical skills; they should also place equal importance on conducting frequent assessments of each staff member’s customer service skills.

Outdoor programs professionals should tailor their marketing to reach female and novice climbers. Marketing materials should include pictures of climbers socializing at the wall which may appeal to female and novice climbers who are highly interested in using the wall to socialize with others. Professionals might consider offering incentives for marginalized users. They should also be aware of the language they use, making sure that it is inclusive but not unintentionally demeaning. Users may be more likely to participate in, “Bring a Friend Night” or “Climbing 101” but not “Novice Climbers Night”.

Clear and visible signage may also help to diminish confusion and familiarize climbers with policies and basic climbing information. Policy related signs may inform climbers about rules regarding: food and drink in the facility, who may belay, climbing passes, bouldering space, personal equipment, etiquette, etc. Signs outlining basic climbing information may include: proper belay technique, belay commands, proper fit and adjustment of harnesses and shoes, etc.

Limitations

Throughout the data collection and analysis period, the researchers served two roles: employees of the outdoor program and graduate student researchers. One of the researchers also served as the climbing wall manager during the year prior to the data collection period. Due to the unique relationship with the staff and participants at the climbing wall, the researchers used continuous review by university faculty members. These faculty members reviewed survey results, interview transcriptions and research findings.

Another element which could have potentially created skewed data was that students may have been on the waiting list while taking the survey. This may have affected their answers to survey questions, especially those regarding the waiting list. It would have been prudent to ask each participant if they were on the wait list at the time of completing the survey.

In order to guarantee that the main points of interview conversations were accurately documented, member checks were used after each interview. However, it is still possible that interview responses were skewed due to the relationship between the researchers and interview participants. For future studies, researchers should consider using a third-party to administer interviews.

References

- Appalachian State University Outdoor Programs. (2009). *Outdoor Programs mission statement*. Retrieved from <http://op.appstate.edu/>
- Appleby, K. M., & Fisher, L. A. (2005). Female energy at the rock: A feminist exploration of female rock climbers. *Women in Sport and Physical Activity Journal*, 14(2), 10-23.
- Dickerson, K., & Haas, J. (2010). *Climbing wall staff manual*. Unpublished program manual, Boone, North Carolina: Outdoor Programs, Appalachian State University.
- Goldenberg, M., Cummings, J., & Pronsolino, D. (2008). A means-end study of outcome differences of females and males associated with outward bound and national outdoor leadership school. *Research in Outdoor Recreation*, 9, 10-26.
- Jeon, J. H., & Ridinger, L. L. (2009). An examination of sport commitment of windsurfers. *Journal of Sport Behavior*. (32)3, 325-338.
- Long, J. (1994). *Gym climb!*. Evergreen, CO: Chockstone Press.
- Kurten, J., & Zimmerman, B. (2009). *The future of indoor rock climbing: A white paper*. Retrieved from Association of Outdoor Recreation and Education, AORE News website: http://www.aore.org/uploads/pdfs/news/The_Future_of_Indoor_Rock_Climbing_Final_100909.pdf
- Llewellyn, D., Sanchez, X., Asghar, A., & Jones, G. (2008). Self-efficacy, risk taking and performance in rock climbing. *Personality and Individual Differences*, 45(1), 75-81. doi:[10.1016/j.paid.2008.03.001](https://doi.org/10.1016/j.paid.2008.03.001).
- National and state recreational participation trends (n.d.). Retrieved from http://www.plancheyenne.com/pdf/final/3/Snapshot_Sec12.pdf
- Osman, R., Cole, S., & Vessell, C. (2006). Examining the role of perceived service quality in predicting user satisfaction and behavioral intentions in a campus recreation setting. *Recreational Sports Journal*, 30(1), 20-29. Retrieved from SPORTDiscus with Full Text database.
- Pijpers, J., Oudejans, R., & Bakker, F. (2005). Anxiety-induced changes in movement behavior during the execution of a complex whole-body task. *The Quarterly Journal of Experimental Psychology: A Human Experimental Psychology*, 58A(3), 421-445. doi:[10.1080/02724980343000945](https://doi.org/10.1080/02724980343000945).
- Rabinowitz, E., Frauman, E., Williams, W. (2010). Constraints to rafting at an artificial whitewater park. *Journal of Tourism Insights: Applied research in the commercial recreation, event and travel industries*, 1(1), 1-7.
- Rapelje, B. W. (2004). *Rock climbing sub-worlds: A segmentation study*. Retrieved from Texas A&M Electronic Theses and Dissertations Collection.

- Schrader, M. P., & Wann, D. L. (1999). High risk recreation: The relationship between participant characteristics and degree of involvement. *Journal of Sport Behavior*, 22(3), 426-441.
- Stebbins, R. A. (2001). Serious leisure. *Society*, 38(4), 53-57.
- The Outdoor Foundation. (2009). Outdoor recreation participation report 2009. Retrieved from <http://www.outdoorfoundation.org/research.participation.2009.topline.html>
- Wolfe, B. (2007). Is there a hold for me? Reflections and experiences surrounding the sport of rock climbing. *Applied Research in Coaching & Athletics Annual*, 23-49. Retrieved from SPORTDiscus with Full Text database.