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Female Perspectives on Mountain Biking

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Female Perspectives on Mountain Biking

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Education in Recreation and Sport Management

by

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Texas Tech University
Bachelor of Science in Agricultural and Applied Economics, 2017

May 2019
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This thesis is approved for recommendation to the Graduate Council.

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Committee Member
Abstract

This study strived to inquire about females’ perspectives of learning to mountain biking. Through an online survey, the present study explored the constraints (White, 2008) that keep women from trying the sport. Respondents (N=150) answered an online survey. Results of this study will be useful for outdoor education professionals, parks and recreation programming, cycling advocacy organizations, and any who make marketing materials for the outdoor industry. The study is designed to provide a description of the female perspectives regarding constraints and motivation towards learning to mountain bike.

*Keywords:* mountain biking, bicycling, female, women, recreation
Table of Contents

Chapter 1: Introduction .............................................................................................................1
Chapter 2: Literature Review ..................................................................................................6
Chapter 3: Methods .................................................................................................................14
Chapter 4: Results ..................................................................................................................17
Chapter 5: Discussion .............................................................................................................21
Chapter 6: Conclusion .............................................................................................................26
References ...............................................................................................................................27
Appendices ..............................................................................................................................30
Introduction

While equal representation between males and females continues to increase in outdoor recreation and in the cycling industry, it still appears that men are more apt to try and learn the sport of mountain biking than are women. The Outdoor Participant Report by the Outdoor Industry Association reported that of the participants in outdoor recreation last year, only 46 percent were female and 54 percent were male (2018). This gap is likely due to a variety of constraints (White, 2007) that would keep any person (male or female) from participating in the sport. There is currently very little research on women in outdoor sports participation and a very small amount of research that uses the basis of gender instead of sex to create a sample. The purpose of this study is to describe the female perspective of learning to mountain bike and identify barriers or constraints White (2007) that might be keeping them from trying the sport. It will also contribute to a small body of research that focuses on females in relation to the sport of mountain biking.

Mountain biking is historically a male dominated sport (Boniface, 2006; Green, 1998). However, mountain biking continues to grow in popularity. Participation in mountain biking increased 400% between 1987 and 2000 (Getz & McConnell, 2014; Koepke, 2005). Koepke (2005) noted an increase in female participation in the sport as well. The Corporate Research Associates Inc. (CRA, 2010) noted the demographics of active riders tended to be male, young, middle class, and with companions who shared an interest in cycling. According to the Outdoor Participation Report, (2018) 16% of Americans participate in road biking, mountain biking, and BMX, and 15% of American young adults participate in road, mountain, and BMX riding. This equates to about 4.4 million young adults (Outdoor Participation Report, 2018). Only 10% of outdoor recreation participants are between the ages of 13 and 17, twelve percent between the
ages of 18-24, and 65% of participants are 25-years old and older (Outdoor Participation Report, 2018).

Quantitative data on mountain biking participation separated by gender is difficult to find. In an attempt to provide the research support, the following organizations were contacted in the fall of 2018: International Mountain Biking Association (IMBA), USA Cycling, National Interscholastic Cycling Association (NICA), and PeopleForBikes, asking if they had data on mountain biking participation divided by gender. All responded that they did not have this information, which is why this information is even more needed.

The Outdoor Participant Report (2018) by the Outdoor Industry Association reported that of the participants in outdoor recreation activities last year, only 46% were female and 54% were male. Outdoor recreation includes many activities such as hiking, camping, rock climbing, whitewater kayaking, backpacking, mountain biking, and many more activities. Of the Americans who did not participate in outdoor recreation, 46 percent reported a desire to begin participating (Outdoor Participation Report, 2018). Of the people not participating in outdoor sports, almost half of them wish that they could. So what keeps them from participating? The top five reasons people reported that kept them from getting outside were: (1) “Too busy with family responsibilities” (2) “Outdoor recreation equipment is too expensive” (3) “Do not have anyone to participate with” (4) “Lack the skills or abilities” (5) “Have a physical disability” (p. 15). This study will determine if these constraints hold true when the sample is only females.

Mountain biking, like other late-modern outdoor sports, is technically advanced, involves high speed and human agility, requires that a person own or have access to a specialized bike and requires infrastructure. (St. meld. 39, 2000-2001, Skar, Odden, & Vistad, 2008). Mountain biking is practiced in a variety of ways and it takes place on soft-surface (unpaved) trails.
Beginner mountain biking can include a simple ride through the woods that requires very little training or skill acquisition. Intermediate mountain biking may require a rider to negotiate steep terrain, rocks and tree roots in the middle of the trail, narrow trails, and/or tight turns. Advanced riding can include the most technically advanced trails with large obstacles, drops, ledges, exposed edges, and/or features that allow a rider to perform tricks (such as riding on a wall). Intermediate to advanced riding also often includes riding in remote areas that are more than one hour from civilization, which has added benefits of spending time in nature.

Understanding how women learn and why they participate in mountain biking helps recreation professionals promote, structure, and execute mountain biking events (LaChausse, 2006). Why focus on female riders specifically? Multiple studies cited that gender has an effect on motivational factors for participating in outdoor and endurance sports (Koivula, 1999; LaChausse, 2006; Ogles & Masters, 2000; Pomfret & Bramwell, 2016). Additionally, demand from females for more technically advanced adventure tourism is rising and with it is the “supply of women-only adventure holidays” (Mintel, 2011; Pomfret & Bramwell, 2016, p. 1450).

Northwest Arkansas is a region that is a good example of how much demand exists for female cyclists. The region boasts mountain biking events and races for amateurs and professionals year round. In 2019 alone, the area will host multiple events and programs to include and not limited to:

1. Women Shred—in conjunction with the Bentonville Film Festival, women have the opportunity to go on rides with professionals. The group rides, which were free to anyone, sold out in one day.
2. Women of Oz—a program funded by a grant from the Walton Family Foundation hosted monthly skills clinics and group rides for female riders.
3. Liv Ladies AllRide—a skills camp for female riders that takes place over a 3-day weekend.
4. NICA GRIT—a program that recruits females in junior high and high school to join their school’s mountain biking teams.
5. Little Bellas—a program for girls ages 7 to 13-years old that promotes companionships, skill development, and having fun while riding bicycles.
6. OORC Women Give Back—a series of volunteer opportunities for females to give back to the mountain biking community through trail maintenance and building opportunities.

All of these are happening in Northwest Arkansas, which includes Bentonville, Rogers, Springdale, and Fayetteville in 2019. Gary Vernon, the director of cycling programs for the Walton Family Foundation was quoted saying, “2019 will be remembered as the year women’s mountain biking exploded in Arkansas” (Finding NWAR, 2019). The community of Northwest Arkansas has a lot more private funding and infrastructure for mountain biking than most areas in the United States. However, it is good to consider that the demand for female programming related to mountain biking is so high there, because it could be an indicator of what kind of demand exists in other parts of the country. If this kind of demand exists in one region of the country, is it possible that it exists in other regions of the country as well?

The research question for this study is what are females’ perceptions of learning to mountain bike? The data collected will be useful for collegiate outdoor recreation professionals, parks and recreation programmers, bike shop owners, and non-profit and private entities advocating to get more Americans on bicycles. The findings will allow organizations to program more inclusively and meet the specific needs of women when it comes to learning and participating in mountain biking. It will also help organizations create marketing materials that dismantle the stereotypes and misconceptions that females may have about the sport. If stereotypes about the sport exists, such as it’s dangerous, it should come up in the data, and the information can be used to help professionals create marketing materials that dismantle the idea that mountain biking is a dangerous sport. Data will help professionals in the field have a better understanding for how to create a supportive environment while facilitating skills clinics, out on
group rides, etc. Lastly, it will provide insight to are the biggest barriers of entry into the sport for females and give professionals a starting place as they attempt to bust down these barriers.
Literature Review

Single-sex Education

When teaching technical skills needed to participate in mountain biking, an instructor must set up a learning environment where the student is willing to take risks and potentially fail. Women in an “outdoor leadership career development study” found that “women were more willing to take risks in the type of supportive, nurturing environment offered by all-women groups” (Loeffler, 1997; Boniface, 2006). These all-women or all-girl learning situations positively affect the experience of women in outdoor education settings according to research (Hornibrook, et al., 1997; Mitten, 1996; Warren 1996; Warren & Loeffler, 2006; Whittington, Mack, Budbill, McKenzie, 2011).

Girls ages 10-17 years old were interviewed through focus groups during a study on all girls adventure programs and the benefits. Girls in the study completed programs in the sports of rock climbing, sea kayaking, mountaineering, backpacking, canyoneering, and mountain biking. Research concluded that benefits of all-girl programming allowed girls to feel safe, connect personally with other girls, and be free from the stereotypical pressures (Whittington, et al., 2011). Stereotypical pressures to perform a certain way on a mountain bike might motivate a female to go faster than she is comfortable going, make riskier decisions on the bike, make dangerous decisions in order to not appear scared. In a sport like mountain biking, these decisions made under pressure can have negative consequences. These consequences could include a negative experience on the bike and choosing not to return to the sport, or it could result in physical consequences such as injury or even death. However, with a better understanding of the female perspective of the sport, programmers can design programs to teach a linear progression through the sport and begin in a way that risks are managed and minimized.
This is how programmers can more effectively introduce the sport to females and increase the likelihood that they will return to the sport. “

Single-sex education is a way to mitigate risk because in co-ed environments, which are also inherently competitive, beginners are likely to develop a lower self-efficacy (Beveridge & Scruggs, 2000; Whittington, et al., 2011). Teaching technical skills in co-ed environments also results in slower skill acquisition for women (Beveridge & Scruggs, 2000; Whittington, et al., 2011). This could be for many reasons which will continue to be addressed in the following pages.

Two studies found that single-sex programs resulted in greater “skill acquisition” for females and participants reported the dominant behaviors that boys exude in technical learning situations cause females to silence themselves, withholding questions and opinions (Budbill, 2008; McKenney, 1996; Whittington, et al., 2011, p. 4). The male willingness to speak up and ask questions might also direct the progression of the teaching into a non-linear formate. For example, in a co-ed clinic, if men are the only ones asking questions, it may cause the instructor to begin jumping around from one skill to another instead of teaching a gradual progression of skills that build on previously learned skills.

With that being said, separating males and females beyond the foundational part of the learning curve could hurt a woman’s skill acquisitions. In the Boniface study, interviewee, Faye, reported in regards to choosing a climbing partner saying, “I don’t like climbing with females, I don’t like paddling with females, because it’s like ‘Oh do you think we should’, ‘Oh, I don’t know.’ I just hate that…I think it’s more of an individual thing if you climb with a man; I think that’s good. I find that women will say ‘Oh if it’s too hard come down,’ …whereas a man would never say that…” (Boniface, 2006, p. 20). Considering this, just offering female group rides
might not be an effective way to integrate women into the sport. Female-specific educational programming could however be super productive in teaching fundamental skills to progressing though the sport.

In the Whittington et al. (2011) study, one participant stated, “It isn’t just any all-girls group that is a good experience. In fact, many other all-girl groups I avoid like the plague” (p. 7). It is important to know that the all-girls programs in the Whittington study followed curriculum centered around supportive community. The participant’s statement, nonetheless, reminds that all-girls programming can have an appropriate place in outdoor education.

**Spatial Ability**

Spatial ability is defined as a human’s ability to locate one’s body in space and time (Warren & Loeffler, 2006). Spatial ability is imperative for mountain bike riders because they need to be able to proficiently manipulate a bike over technical sections of trail in order to advance in mountain biking skills. In order to move into intermediate and advanced levels of the sport, riders must also grow more comfortable moving their body and bike over steep terrain and at increasingly faster speeds. Gender differences in spatial abilities favors men (Nordvik & Amponsah, 1998; Warren & Loeffler, 2006), because brain scans of males, spatial ability showed up as a specific neurological function and appeared consistently in at least four specific spots in the right hemisphere (Pease & Pease, 2000). Women, however have no specific locations for spatial ability and therefore scored lower when it comes to spatial tasks (Pease & Pease, 2000, Warren and Loeffler, 2006). This is theoretically one reason females display more difficulty than males at gaining technical ability in mountain biking.

But while women have a more difficult time developing technical skills, females are generally more willing to practice drills (DeBoer, 2004; Warren & Loeffler, 2006) and be open
to multiple lessons that gradually increase in technical difficulties (Warren & Loeffler, 2006). This implies that beginner drills and session-ing (riding a small section of trail over and over until the rider displays confidence riding the section) on rides could help women feel supported and not alienated when the men appear to breeze through a difficult section and the women struggle. An example of a direct application is offering a Beginner Skills Clinic for riders who want to learn to mountain bike but are hesitant about hitting the trails with no prior knowledge of what skills are needed to successfully ride a mountain bike.

**Confidence**

It has been noted in research that females lack confidence during the learning process and even after they have acquired a technical skill set they may continue to perceive themselves as lacking competence (Loeffler, 2006). Despite being highly skilled and trained, women will continue to view themselves as incompetent (Loeffler, 1997 in Warren & Loeffler, 2006). Appling (1989) observed the behavior of female participants on National Outdoor Leadership School courses and she describes females as “avoiding leadership, being fearful of physical challenge, avoiding assertiveness, manifesting feelings of intimidation or inadequate self-esteem” (p. 11). This study will address fear, physical challenge, and assertiveness in regards to learning to mountain biking, intimidation, and low self-esteem as constraints that prevent women from learning to mountain bike.

**Male-dominated Sport**

Qualitative data suggests that this perception of outdoor sports being male-dominated exists among women (Wright & Gray, 2013; Warren & Loeffler, 2006; Green, 1998; Boniface, 2006). Current instruction provided in the sport of mountain biking might appeal to masculine traits, and therefore be found unattractive to female learners. This is especially true if the
instruction is provided by a man who is unaware of the learning differences between males and females—he might unknowingly provide instruction that is unappealing or even a turn off to female learners. Instruction for outdoor sports has a long history of praising technical skills and physical abilities (Wright and Gray, 2013). The outdoor education history also has a long history of creating gender stereotypes around its leaders, consistently implying that men are better at technical skills (also known as “hard” skills) and women are better at interpersonal skills (also known as “soft” skills” (Wright & Gray, 2013). This gendered approach effects how women perceive their experiences on a bike (Wright & Gray, 2013).

Wright and Gray (2013) study also suggests that females who enter the industry as a profession face stereotypes:

We are necessarily masculine or overly ‘butch’ – or that we must unflinchingly face any challenge, with fearless determination and a cup of ‘toughen-up’…This conundrum is the double bind of prejudice: on the one hand, treated as inadequate or even odd for wanting to be in the field, but also subjected to unrelenting scrutiny and judgment, and held to a higher standard (p. 1).

The context of the Wright and Gray (2013) article puts these stereotypes up against women working in outdoor education, but the concept is transferable to people who are outdoor recreation participants. Females who desire to take the sport of mountain biking into advanced levels of performance might be subject to these same stereotypes. This can become a constraint for retaining females in the sport and is important for instructors and programmers to understand so they can dismantle this stereotype and keep providing positive experiences for women in the sport.

While praising technical skill ability and physical ability has a positive effect on male participation in outdoor sports, the opposite is true for females (Warren & Loeffler, 2006). However, when it comes to outdoor sports, being able to advance in the sport and feel confident requires a participant to gain technical skill. It is necessary for females to find positive gain in
their technical skills (ability to maneuver a bike over a rocky section of trail) and physical abilities (ability to climb increasingly steep terrain) to advance as riders. There is an expectation in mountain biking that one should be able to ride the entire trail without stopping. This might require a rider to lift the bike over obstacles, ride over exposed tree roots, riding over rocks, descending over uneven terrain, or climbing for miles to the top of a mountain or hill. This type of skills advancement usually requires a lot of failure that might include falling off the bike, crashing the bike, having to put one’s feet down, or having to get off the bike and walk. To the new riders, crashing or having to walk feels like a failure, but it is true that all riders consistently fail as long as they are trying to improve their physical abilities. If programmers can create environments where women do not feel like failures in these instances, and supportive coaching is provided to diffuse emotions and feelings of defeat, it is likely that the industry will begin to capture many more female riders.

**Participant Motivation**

There is a lot of research regarding why people choose to participate in outdoor recreation, outdoor tourism, endurance sports, competitive and non-competitive sports. Women who participated in recreational forms of exercise reported motivational factors of weight loss, fitness, and socialization (Bond, 2005; Frederick & Ryan, 1993; Gill & Overdorf, 1994; Krouse, Ransdell, Lucas, & Pritchard, 2011). Outdoor recreation helps some participants experience a sense of authenticity (Skar, et. al., 2008; Williams, 2002). “Nature and place” ranked third among motivation factors for mountain biking participants in Norway, after physical exercise and contemplation (Skar, et. al., 2008).

In a survey of female ultrarunners (athletes running a distance greater than a marathon) the runners reported physical health and psychological motives as the highest ranking among
categories of motivation for participating in ultrarunning. The highest ranking among the subcategories was “personal achievement” but the lowest subcategory was “recognition” (Krouse, et al., 2011, p. 2838). “Affiliation,” categorized under “social motives” was a statistically significant motive in the survey findings.

In a study of motives of competitive and non-competitive cyclists, LaChausse (2006) found that women were significantly more likely than men to report motives regarding weight, affiliation, and self-esteem as reasons for riding. A limitation of this study is that out of 1,239 cyclists only 256 were females and of those only 35 identified as mountain bike riders (LaChausse, 2006). Competitive female athletes reported motivation factors of “achievement, personal accomplishment, and empowerment” (Hodge, Allen, & Smellie, 2008; Krouse, et al., 2011, p. 2835; Levy, 2002;). The only significant difference between road cyclists and mountain bikers was that mountain bikers were more likely to report motives related to life meaning while road cyclists reported motives related to goal achievement (LaChausse, 2006). This was however, twelve years ago and this study will explore if motives have changed considering recent spikes in the popularity of competitive mountain biking.

The research study will address all of these issues and more—single-sex education, spatial ability, confidence, the idea that mountain biking is a historically male-dominated sport, and participant motivation. Each of these directly effects how women perceive learning to mountain bike and whether or not females are retained as life-time participants of the sport. How females perceive all-female educational settings will let programmers know if this is an attractive method to bring people into the sport. How a female perceives her own athletic ability will allow professionals to see if there is a disconnect between what level of fitness non-riders might believe they need to have in order to participate in the sport. Confidence or lack of confidence in
social, athletic, or outdoor settings might could impact a female’s perspectives of learning a new outdoor sport. If females still perceive mountain biking as a male-dominated sport, that is useful information for people who market the sport to know in order to begin dismantling that idea, or the data will show that this perception no longer exists. If the parts of the study addressing participant motivation are statistically significant, then it might signal to professionals in the industry that there is a demand from females to break down the barriers of entry and help them learn the sport of mountain biking.
Methods

The instrument created for this study is comprised of 33 statements and respondents will use a 5-point “strongly disagree” “strongly agree” scale to rate their answers (see Appendix A). Some of the statements are adapted from White’s (2008) study, “A Structural Model of Leisure Constraints Negotiation in Outdoor Recreation” while others were crafted based on themes which were found in the literature review. So, the statements in the survey address barriers of entry into the sport of mountain biking and motivation for participating in mountain biking. Demographics include age, gender, whether or not the person has children living at home, and whether or not the participant currently participates in mountain biking. Those who reply “yes” will be prompted to provide the number of years that they have been riding. Reported means and standard deviations will be used to describe females’ perceptions of learning to mountain bike.

Snowball sampling was used to generate a sample. The survey was administered to females through social media platforms and email. The survey was live for ten days and the goal is to get 100 responses. Examples of emails and social media posts may be found in Appendix B. Each respondent has the opportunity to identify their gender as “female,” “prefer not to respond,” or “prefer to self-describe.” All answers will be included in the study, because this study does not want to eliminate the barriers that transgender females, gender-fluid, and non-binary riders experience.

One potential limitation is the survey will likely capture many respondents from Northwest Arkansas which could create a sampling bias. Bentonville, Arkansas, located in the northwest corner of the state, is one of the premier mountain biking destinations in North America. The Outdoor Recreation Economy (2017) reported, “Bentonville, Arkansas, Northwest Arkansas’s top three bike riding locations hosts nearly as many cyclists per capita as San
Francisco’s top three, thanks to more 130 miles of connected multi-use and natural service trails largely funded by the Walton Family Foundation” (p.13). The region is home to many mountain biking resources and opportunities to learn (ex: group rides and clinics) and responses may not be indicative of populations in other parts of the country where cycling infrastructure and support does not exist. New article titled, “The Outer Line: The emergence of a new American cycling destination” suggests that the area now has nearly 400 miles of mountain biking trails in the state (Maxwell, 2019). Compared to the majority of the country, it is relatively easy in Northwest Arkansas to find all-female rides and clinics. Women’s-specific programming in the area is open to women of all ages.

Theoretical Framework

While current and accurate data about the constraints to outdoor recreation participation exists, not a lot of theoretical development has occurred around the issue (Walker and Virden, 2005). The instrument is based partly on Crawford and Godbey’s (1987) theory where they categorized leisure constraints in three groups.

[They] argued that constraints affect not only participation but also acquisition of leisure preferences. They organized constraints into three categories: intrapersonal constraints defined as individual psychological qualities that affect the development of leisure preferences (e.g., shyness), interpersonal constraints defined as social factors that affect development of leisure preferences (e.g., lack of companions), and structural constraints comprised of factors that intervene between development of leisure preferences and participation (e.g., financial resources) (White, 2008, p. 344).

Later, Crawford, Jackson, and Godbey (1991) shifted their ideas of these categories so that intrapersonal and interpersonal constraints affect which sports participants prefer and structural constraints intercede between one’s preferences and participation. For example, a woman might already participate in rock climbing and might desire to learn to mountain bike. However, if she does not have access to a mountain bike, because of financial constraints or she
does not know where to rent a bike, she might be delayed in her participation in the sport. White (2008) also suggests however that the woman’s desire to have a specific recreational experience might have a positive impact on recreation participation, however this hypothesis was weakly supported in prior research (White, 2008).
Results

The survey was created on Google Forms, because the information being solicited was not considered sensitive or private information. It was distributed through Facebook posts, Instagram posts, and email. The survey was open for 10 days and received 150 responses. Due to the snowball sampling method used, the response rate cannot be reported. It is assumed that responses are true and accurately represent the respondents’ perceptions. Table 1 shows the mean score of each statement and the standard deviation among responses.

The average age of participants was 30.5 years old. Participant ages ranged from 19-years old to 70-years old. All participants identified their gender as female. Seventeen percent of respondents reported they have children (newborn to 12\textsuperscript{th} grade) living at home, and 83 percent do not have children or do not have children that live at home. Thirty-four percent of respondents already participate in mountain biking. Of those, 24 percent have been mountain biking for one year or less, 26 percent have been mountain biking for 2-3 years, and the remaining 50 percent have mountain biked for 3.5 to 25 years.

For the constraint \textit{mountain biking is a male-dominated sport}, there was a reported mean of 3.88 (4 = agree) with a standard deviation of 0.92. \textit{The gear is too expensive} had a reported mean of 3.87 and a standard deviation of 0.96. All other constraints had a standard deviation great than 1 implying that the whole sample had varying responses. \textit{When I think of mountain biking, I picture men} had a reported mean of 3.35 and a standard deviation of 1.02. \textit{People who ride mountain bikes are super athletic} had a reported mean of 3.57 and a standard deviation of 1.04. \textit{If I wanted to learn to mountain bike, I would make it happen} had a reported mean of 3.91 and a standard deviation of 1.06. These five constraints had the most statistically significant
results. *I will never consider learning to mountain bike* had the same standard deviation with a reported mean of 1.79, which is not a constraint but speaks to participant motivation.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Non-Experienced</th>
<th>Experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td><strong>Intrapersonal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I think of mountain biking, I picture men.</td>
<td>3.35</td>
<td>1.02</td>
<td>3.46</td>
</tr>
<tr>
<td>Mountain biking is a male-dominated sport.</td>
<td>3.88</td>
<td>0.92</td>
<td>3.89</td>
</tr>
<tr>
<td>I’m scared that I would not be welcomed if I tried to learn to mountain bike.</td>
<td>2.29</td>
<td>1.08</td>
<td>2.34</td>
</tr>
<tr>
<td>People who ride mountain bikes are super athletic.</td>
<td>3.57</td>
<td>1.04</td>
<td>3.76</td>
</tr>
<tr>
<td>I do not have the coordination to ride a mountain bike.</td>
<td>2.54</td>
<td>1.38</td>
<td>2.76</td>
</tr>
<tr>
<td>I lack confidence in my ability to learn a new skill.</td>
<td>2.28</td>
<td>1.17</td>
<td>2.26</td>
</tr>
<tr>
<td>I lack confidence in my athleticism to try a sport like mountain biking.</td>
<td>2.50</td>
<td>1.37</td>
<td>2.72</td>
</tr>
<tr>
<td>I am too shy to seek out opportunities to learn how to mountain bike.</td>
<td>2.63</td>
<td>1.32</td>
<td>2.80</td>
</tr>
<tr>
<td>Mountain biking looks scary.</td>
<td>3.31</td>
<td>1.30</td>
<td>3.51</td>
</tr>
<tr>
<td>I am intimidated by mountain biking.</td>
<td>3.22</td>
<td>1.27</td>
<td>3.47</td>
</tr>
<tr>
<td>If I wanted to learn to mountain bike, I would make it happen.</td>
<td>3.91</td>
<td>1.06</td>
<td>3.67</td>
</tr>
<tr>
<td>I will never consider learning to mountain bike.</td>
<td>1.79</td>
<td>1.06</td>
<td>2.10</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Overall</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>I don't know any women who ride mountain bikes.</td>
<td>2.25</td>
<td>1.51</td>
<td>2.55</td>
</tr>
<tr>
<td>I don't know anyone who mountain bikes.</td>
<td>1.70</td>
<td>1.16</td>
<td>1.99</td>
</tr>
<tr>
<td>I only know men who mountain bike.</td>
<td>2.15</td>
<td>1.32</td>
<td>2.24</td>
</tr>
<tr>
<td>I do not have access to someone to teach me to mountain bike.</td>
<td>2.33</td>
<td>1.38</td>
<td>2.69</td>
</tr>
<tr>
<td>I don't have friends interested in mountain biking.</td>
<td>2.79</td>
<td>1.51</td>
<td>3.23</td>
</tr>
<tr>
<td>My friends prefer to do other things.</td>
<td>3.58</td>
<td>1.23</td>
<td>3.92</td>
</tr>
<tr>
<td>I lack enough information to consider learning to mountain bike.</td>
<td>2.47</td>
<td>1.30</td>
<td>2.80</td>
</tr>
<tr>
<td>I would like to learn to mountain bike in an all-female environment. (Ex: Women's Beginner Skills Clinic)</td>
<td>3.63</td>
<td>1.13</td>
<td>3.62</td>
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<td>I would prefer to learn how to mountain bike from a female instructor.</td>
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<td>3.77</td>
</tr>
<tr>
<td>Structural</td>
<td>Overall</td>
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<td>Experienced</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>The gear is too expensive.</td>
<td>3.87</td>
<td>3.93</td>
<td>3.76</td>
</tr>
<tr>
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<tr>
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<td>1.80</td>
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<tr>
<td>I don't know what kind of bike to ride.</td>
<td>3.17</td>
<td>3.67</td>
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<tr>
<td>I cannot afford to buy a mountain bike.</td>
<td>3.43</td>
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<tr>
<td>I do not have a means of getting to a trail to ride.</td>
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<tr>
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**Discussion**

The top five descriptors of females’ perceptions of learning to mountain bike from this study are:

1. Mountain biking is a male-dominated sport.
2. The gear is too expensive.
3. When I think of mountain biking, I picture men.
4. People who ride mountain bikes are super athletic.
5. If I wanted to learn to mountain bike, I would make it happen.

Respondents agreed that mountain biking is a male dominated sport. This could be considered an intrapersonal constraint because potentially females are less willing to try a sport that is full of male participants. A direct application from this finding is that there is still work for professionals to do to communicate to the world that females do have access to this sport. It is also important for programmers to consider how they can capture long-term female ridership and begin to change the mountain biking landscape so that it is no longer male-dominated.

Respondents agreed too that mountain biking gear is *too expensive* which is not surprising considering that entry into the sport requires at least a mountain bike, pedals, and a helmet. Advancing in the sport typically requires specific shoes, gloves, glasses, technical clothing, spare bikes tubes, tools, water bottle or hydration pack and possibly even a GPS. This is a structural constraint and according to Crawford, Jackson, and Godbey’s (1991) recreational constraint model, a woman might report no interpersonal or intrapersonal constraints to the sport of mountain biking. However, if she cannot afford the gear, the structural constraint intercedes and ultimately keeps her from trying the sport.

The current mountain biking media is exclusive to people who cannot afford the gear because it is constantly praising expensive bikes and expensive gear. This perpetuates an idea that you have to have a lot of money in order to do this sport or in order fit in with the serious
riders. Professionals can use their platforms to dismantle this idea so that females have a better understanding of what financial investments are necessary in order to try this sport. For example, instead of needing technical clothing, professionals and instructors should communicate that females should wear synthetic clothes that they are comfortable wearing while being active. They can also encourage women to rent bikes before buying them. While this is still expensive (running $50+ a day in most places) it allows females an opportunity to get an idea of how far they want to take the sport and then make an educated decision on what type of bike they might like to invest in in the future. Professionals can help ease the financial burden of learning to mountain bike by communicating that any type of gloves that someone already has in her house will work for learning to mountain bike. When she feels like she’s ready to financially invest in the sport and that she is riding at a level that top notch gear would make a difference in her performance, then she will be financially prepared to make that investment.

The non-profit group, Women of Oz, in Northwest Arkansas made efforts to deconstruct the idea that females need fancy shoes and fancy clothes to participate in mountain biking. They did so by organizing a photo shoot where female riders came dressed in all styles of clothing. Some wore leggings and sweatshirts. Some wore running clothes and tennis shoes. Some wore road cycling apparel, and all of the women rode mountain bikes together while a photographer documented. The Women of Oz have used the photos in their social media marketing so that while it is not explicitly stated that you can wear anything you are comfortable in to ride, at least viewers are seeing photos of females wearing all different styles of active wear as mountain bike riders. Even this subliminal messaging contributes to the deconstruction of this structural constraint that the gear needed to mountain bike is too expensive.
Another way professionals can deconstruct this barrier is by partnering with bike shops to offer one-time discounts to female riders. A good way to execute this is in conjunction with events. For example, if a Parks and Recreation department is programming a female group ride, they could partner with a local bike shop to give all attendees an opportunity to make a one-time purchase of 15% off. It might not be much to a female who already has a lot of gear, but it might be enough to get a beginner rider through the door to purchase the pair of bike shorts or gloves that she’s been eyeing.

Participants in the survey agreed that when they thought of mountain biking, they pictured men in their thoughts. This can be an intrapersonal constraint in the same sense that they agreed the sport was male-dominated. Female representation is not apparent and the sport has historically struggled to capture and retain female riders. The lack of female representation could be perpetuating an idea that this is a male-sport and that women do not have a place within the sport.

Survey participants agreed that they perceive people who ride mountain bikes as super athletic. This intrapersonal constraint alludes to the idea that some people may not view themselves as “athletic enough” to participate in the sport. They might also believe that they need to obtain a high level of fitness before they can build a foundation of skills. One way programmers can deconstruct this constraint is to specifically outline the physical expectations of rides, clinics, and skills camps. A physically unfit person with little technical skill would probably have a hard time at a mountain biking camp that was 2-3 days of intense riding and session-ing. However, just about any female who lives an active lifestyle can come to a beginner skills clinic. That’s obvious to people who rides mountains bike but considering it’s a barrier of entry here, it’s clear that it is not that obvious to people who do not ride. An example of
effectively communicating expectations could read like the following: We have a beginner mountain biking skills clinic coming up for females interested in learning the fundamental skills of riding! We will begin with a one hour skills clinic which will take place on the lawn across from the downtown courthouse. After we learn the fundamentals, we will take them to the trails where we will ride beginner friendly trails at a pace that is comfortable for everyone. We hope you’ll join us, and if you have questions about expectations, fitness, what to wear, or what bike to ride, please feel free to reach out to us on social media!

The fifth most noticeable result of the survey speaks more to participant motivation rather than constraints. Respondents agreed that if they wanted to learn to mountain bike, they would make it happen. This is encouraging to professionals that if in fact respondents meant what they said, professionals might be successfully capturing women who desire to learn to mountain bike. Females who desire to learn to mountain bike might only be faced with the challenge of busting through structural barriers. This supports White’s (2008) hypothesis that motivation to participate in outdoor sports diminishes the constraints to participation.

Limitations

Limitations of this survey include that 34% of respondents already participate in mountain biking. Considering the research question addressed females’ perceptions of learning to mountain bike, a stronger sample would have been only females’ who do not currently participate in the sport. Another limitation could be a sample bias due to snowball sampling. Another limitation is that that responses from participants were so varied that there was not a lot of statistically significant data to analyze. While it’s hard from an industry standpoint to justify singling out an age group or a region, it might lead to more significant findings.
An additional limitation that should be noted is the researcher’s positionality. The researcher is an active mountain biker and consumer of outdoor recreation for five years. The researcher currently leads beginner mountain biking rides and skills clinics.

**Future Research**

A follow-up to this study would be to run an exploratory factor analysis to determine if any of the constraints are related. Additional research on women who currently participate in mountain biking and how they negotiated the constraints to participate in mountain biking would further progress the understanding of capturing and retaining female riders.

There was consistency in the data regarding respondents’ interest in participating in all-female learning settings and being taught by female instructors. Follow up research could explore how all-female learning environments effect female riders. Does it have a positive effect on capturing them as lifelong participants of the sport? Does it have a positive or negative effect as they try to progress in their technical skills?

A study that focuses on the interpersonal constraints would also be an option for future research. Does the social aspect of the sport have a positive effect on females’ motivation to learn the sport? Is it a significant reason that females’ choose to participate? Do females enjoy or prefer to ride alone?

Lastly, future research that could potentially give the industry insight is research on media framing around mountain biking, particularly how it is framed as an athletic sport and how the gear is marketed as specialized, exclusive, expensive, etc. Does this promote or hinder female participation and buy-in to the sport. Would more females be willing to try the sport if they could rent or demo the gear prior to purchasing?
Conclusion

In conclusion, this study gives programmers, outdoor educators, instructors, curriculum writers, and marketing professionals insight into what perspectives exist for females when it comes to learning to mountain bike. The top five statements regarding participant constraints and motivation give professionals a starting point to start changing the female perspective to a more accurate perception of what it takes to learn this sport. This sport is very accessible for females of all ages, fitness levels, financial levels, and hopefully this study helps professionals better communicate that message to females. As described in the Participant Motivation section, there are many benefits that females experience on a personal level from participating in mountain biking. Three out of the five statements that appeared in the results were intrapersonal constraints, which thanks to social media, photography, and videography, might be fairly easy to begin deconstructing. The future landscape of mountain biking could be headed towards a more gender-neutral and gender-balanced space if professionals work consistently to make the sport more accessible to females.
References


Appendices

Appendix A

Females' Perspectives on Mountain Biking

This survey is for a study on women's perceptions of learning to mountain bike. Participation in this survey is 100% voluntary. Please answer the questions as honestly as possible.

NEXT

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Google Forms
Females' Perspectives on Mountain Biking

* Required

Consent

Are you 18 or older? *

- Yes
- No

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Females' Perspectives on Mountain Biking

*Required

Consent

You are invited to participate in a research study about women's perceptions of learning to mountain bike. Participation in this survey is 100% voluntary. If you choose to proceed, you will be asked to provide demographic information and and 33 statements about your perceptions of learning the sport of mountain biking. It is estimated the survey will take approximately 15 minutes. There are no benefits to participants for their contributions.

For questions about the research results, please contact:

Beckie Irvin
University of Arkansas
Graduate Assistant
rmirvin@uark.edu

If you would like to contact the faculty advisor:

Stephen Dittmore
Assistant Dean for Outreach and Innovation
College of Education and Health Professions
dittmore@uark.edu

You may also contact the University of Arkansas Research Compliance office listed below if you have questions about your rights as a participant, or to discuss any concerns about, or problems with the research.

Ro Windwalker, CIP
Institutional Review Board Coordinator
Research Compliance
University of Arkansas
109 MLK Building
Fayetteville, AR 72701-1201
479-575-2208
irb@uark.edu

I have read the above statement and have been able to ask questions and express concerns, which have been satisfactorily responded to be the investigator. I understand the purpose of the study as well as the potential benefits and risks that are involved. I understand that participation is voluntary. I understand that significant new findings developed during this research will be shared
with the participant. I understand that no rights have been waived by signing the consent form. I agree to participate in the study.

If you agree to participate in the study, please check "I agree." *

☐ I agree.

Page 3 of 8

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Females' Perspectives on Mountain Biking

* Required

Demographics

How old are you? *

Your answer

What is your gender? *

- Female
- Prefer not to say
- Prefer to self-describe

If you prefer to self-describe your gender, how do you identify?

Your answer

What is your zip code? *

Your answer
Do you have children (newborn to 12th grade) living at home? *

○ Yes
○ No

Do you currently participate in mountain biking *

○ Yes
○ No

If yes, please type the number of years you have been mountain biking.

Your answer
Females' Perspectives on Mountain Biking

* Required

Below are statements that describe constraints reported as reasons people choose not to participate in outdoor recreation sports like mountain biking. 1 means you strongly disagree with the statement. 5 means you strongly agree with the statement. If you currently participate in mountain biking, please think back to your experience when you started while you answer the following questions.

When I think of mountain biking, I picture men. *

1 2 3 4 5

Strongly Disagree ○ ○ ○ ○ ○ Strongly Agree

Mountain biking is a male-dominated sport. *

1 2 3 4 5

Strongly Disagree ○ ○ ○ ○ ○ Strongly Agree

I'm scared that I would not be welcomed if I tried to learn to mountain bike. *

1 2 3 4 5

Strongly Disagree ○ ○ ○ ○ ○ Strongly Agree
People who ride mountain bikes are super athletic. *

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<td>Strongly Agree</td>
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I do not have the coordination to ride a mountain bike. *

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I lack confidence in my ability to learn a new skill. *

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I lack confidence in my athleticism to try a sport like mountain biking. *

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<td>Strongly Agree</td>
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I am too shy to seek out opportunities to learn how to mountain bike. *

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<td>Strongly Agree</td>
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</table>
Mountain biking looks scary. *

1 2 3 4 5

Strongly Disagree Strongly Agree

I am intimidated by mountain biking. *

1 2 3 4 5

Strongly Disagree Strongly Agree

If I wanted to learn to mountain bike, I would make it happen. *

1 2 3 4 5

Strongly Disagree Strongly Agree

I will never consider learning to mountain bike. *

1 2 3 4 5

Strongly Disagree Strongly Agree

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Females' Perspectives on Mountain Biking

* Required

I don't know any women who ride mountain bikes. *

1 2 3 4 5

Strongly Disagree

I don't know anyone who mountain bikes. *

1 2 3 4 5

Strongly Disagree

I only know men who mountain bike. *

1 2 3 4 5

Strongly Disagree

I do not have access to someone to teach me to mountain bike. *

1 2 3 4 5

Strongly Disagree
I don’t have friends interested in mountain biking. *

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Strongly Disagree

My friends prefer to do other things. *

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Strongly Disagree

I lack enough information to consider learning to mountain bike. *

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Strongly Disagree

I would like to learn to mountain bike in an all-female environment. (Ex: Women’s Beginner Skills Clinic) *

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Strongly Disagree

I would prefer to learn how to mountain bike from a female instructor. *

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Strongly Disagree

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Females' Perspectives on Mountain Biking

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The gear is too expensive. *

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I do not have the time to learn to mountain bike. *

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I do not have a bike. *

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I don't know what kind of bike to ride. *

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I cannot afford to buy a mountain bike. *

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<td>Strongly Agree</td>
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I do not have a means of getting to a trail to ride. *

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<td>Strongly Agree</td>
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I would like to try the sport before I financially invest in the gear. *

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<td>Strongly Agree</td>
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I don't know where to ride. *

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I don't know what trails are safe. *

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I do not have the physical ability to ride a mountain bike. *

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</table>
Females' Perspectives on Mountain Biking

Thank you for your submission! Your response has been recorded, and we appreciate your participation.
Appendix B

Example social media post to Facebook.

Women! Please fill out this survey on your perceptions on learning to mountain bike. Recreation professionals need to know your thoughts. Estimated time to complete the survey is 15 minutes. Participation is 100% voluntary.

Link to Survey:
https://docs.google.com/forms/d/e/1FAIpQLSeaoEUzhpqKH_pb1LKBu5brTycYz0U9WHwy_PV1YIJ2nEsN9Q/viewform?usp=sf_link

Example social media post to Instagram.

Women! Please fill out this survey on your perceptions on learning to mountain bike. Recreation professionals need to know your thoughts. Estimated time to complete the survey is 15 minutes. Participation is 100% voluntary. Link in bio!

Example email to colleagues.

Hello friends,

For my graduate thesis, I am collecting data on the female perspective of learning to mountain bike. I am writing in hopes that you might be willing to help me distribute my survey (linked below). Any woman can take the survey. In fact, the wider the variety of backgrounds that our respondents have, the more generalizable our data will be.

Participation in the study is 100% voluntary! The estimated time that it takes to complete the survey is 15 minutes.

Here is the link to the survey:
https://docs.google.com/forms/d/e/1FAIpQLSeaoEUzhpqKH_pb1LKBu5brTycYz0U9WHwy_PV1YIJ2nEsN9Q/viewform?usp=sf_link

Thank you for your help!

Beckie
Example email to potential respondents.

Hello friend!

For my graduate thesis, I am collecting data on the female perspective of learning to mountain bike. I am writing in hopes that you might be willing to participate by filling out a survey (linked below). Participation in the study is 100% voluntary! The estimated time that it takes to complete the survey is 15 minutes.

If you know others who might like to participate, please feel free to share. Any woman can take the survey. In fact, the wider the variety of backgrounds that our respondents have, the more generalizable our data will be.

Here is the link to the survey:
https://docs.google.com/forms/d/e/1FAIpQLSeaoEUzhpqKH_pb1LKBu5brTycYz0U9WHwy_PV1YI2nEsN9Q/viewform?usp=sf_link

Thank you for your help!

Beckie
Appendix C

To: Rebecca M Irvin  
   BELL 4188
From: Douglas James Adams, Chair  
   IRB Committee
Date: 03/26/2019
Action: Exemption Granted
Action Date: 03/26/2019
Protocol #: 1903181983
Study Title: Female Perspectives on Mountain Biking

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Stephen W Ditmore, Investigator