



# Connecting Children and Family with Nature-Based Physical Activity

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## ABSTRACT

**Background:** As the obesity epidemic expands to include younger Americans, there is greater need to understand youth experiences and to identify innovative strategies to promote physical activity in children and adolescents. Connecting children and families with nature-based activities is an example of a strategy that may promote physical activity and other aspects of health and well-being in children and youth. **Purpose:** It is important to determine which aspects of activity in nature youth (and families) find most and least appealing, as well as characteristics of an ideal program. This study is intended to provide a needs assessment and recommended design for a community outreach program. **Methods:** Six focus groups were conducted with parents and youth in rural Michigan. Thirty-eight of the 42 participants were female. **Results:** Content analysis generated three major results: (1) Youth enjoy nature, but could be more active and engaged; (2) Adults appreciate restorative aspects of nature; youth prefer competitive and challenging experiences; and (3) Programs should promote, educate, train and create opportunities for youth to engage in healthy lifelong activities. **Discussion:** Participants showed interest in outdoor activity, but activities must be provided that are compelling and that address the barriers preventing populations from being more active. **Translation to Health Education Practice:** More effective programs must have clear objectives, build the confidence of participants, be challenging, and above all, fun. Ideal programs should offer both physical activity and ecologically meaningful nature experiences.

Flett MR, Moore RW, Pfeiffer KA, Belonga J, Navarre J. Connecting children and family with nature-based physical activity. *Am J Health Educ.* 2010;41(4):292-300. This paper was submitted to the Journal on October 25, 2009, revised and accepted for publication on February 3, 2010.

## BACKGROUND

The prevalence of obesity among adults is high—estimated to be 32%—and this “epidemic” of obesity now affects 17% of youth ages 2-19.<sup>1</sup> A sharp decline in physical activity (PA) occurs during adolescence.<sup>2</sup> Experts are now encouraging researchers to devise behavioral interventions addressing physical inactivity in children and adolescents in order to combat obesity.<sup>3</sup> Therefore, it is important for researchers to devise innovative intervention strategies to increase physical activity in children and adolescents. In order for interventions to be most effective, researchers and practitioners must understand how people perceive active experiences and

gain a better understanding of correlates of PA upon which to intervene.

Environmental characteristics, both physical and social, are currently receiving attention as important correlates of PA. For example, researchers have established

associations between the built environment and PA in adults and in children.<sup>4</sup> Further, Sallis and colleagues noted that an important determinant of PA in children is time spent outside.<sup>5</sup> It is not known if simply being outside or if some other char-

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acteristic related to being outside affects PA behavior. Regardless, examining why time spent outside is related to PA and providing more opportunities to be outside should be considered by interventionists.

It has been well established that there is a reciprocal relationship between PA and psychology: psychological factors such as motivation determine activity levels, and PA enhances mental wellbeing.<sup>6,7</sup> As such, to develop interventions that increase PA, psychological factors that compel a person to be more active should be considered. Ecopsychology is a scientific discipline that examines the effects of natural settings on psycho-spiritual growth and wellness. This science explores causal conditions between environments and personal wellness.<sup>8</sup> Rohde and Kendle have identified six benefits from contact with nature, including: reunion with and caring for nature; greater sense of identity and ownership of their country/land; feelings of integration versus isolation; stronger sense of possibility; empowerment and skill development; and restoration and relief from daily struggle.<sup>9</sup> Of all the potential benefits of outdoor spaces, none is greater than the effects on mental health. The relaxing “escape” opportunities offered by outdoor settings such as parks help individuals to rejuvenate by elevating mood, and reducing distress, blood pressure, heart rate, muscle tension and stress-related hormone levels.<sup>10</sup> Other research has also shown that exposure to natural settings enhances health-related factors.<sup>11</sup> Thus, while simply being in nature can improve health, being *physically active* in nature could provide even more health benefits. Integrating nature experiences with exercise can enhance wellbeing in two ways: a positive emotional setting that can motivate or “hook” people into healthy physical activity.

One of the few theories that explains how natural environments positively affect wellbeing is the Attention Restoration Theory.<sup>12,13</sup> Selective attention is a form of endogenous (top-down) processing, which is controlled by executive cognitive functioning and thus requires effort.<sup>14</sup> Because of the need for effortful control of attentional

processing mechanisms, focus and concentration are limited capacity processes that are susceptible to fatigue.<sup>12,14</sup> Kaplan argues that natural settings allow us to function in an involuntary attentional mode (i.e., a more exogenous system).<sup>12</sup> Within the Attention Restoration Theory, stress is the result of ineffective coping or of resource deficiency.<sup>15</sup> At the same time, stress can also *cause* a depletion of resources. Csikszentmihalyi explains that both emotional and spiritual wellbeing seek to bring harmony to the mind by improving congruence between our actual and desired states.<sup>16</sup> Natural settings and PA each have positive effects on emotional wellness. As such, by restoring mental resources and reducing stress, natural environments promote health and psychological wellbeing.

In addition to the restorative benefits of outdoor environments, PA in nature is highly conducive to flow-like, optimal experiences that motivate people to initiate and sustain participation in the activity. Flow is defined as a “state of consciousness where one becomes totally absorbed in what one is doing, to the exclusion of all other thoughts and emotions.”<sup>17</sup> Csikszentmihalyi and colleagues have identified nine dimensions, or characteristics, of flow. They include items such as challenge-skill balance, clear goals, action-awareness merging, concentration on the task at hand, sense of control, and loss of self-consciousness.<sup>16, 18-20</sup> The most important component of flow is challenge-skill balance, which describes high levels of perceived task demands (challenge) and high perceived capacity to meet challenges (skill). Designed properly, nature activity programs can be a source of unique and engaging experiences that create flow by combining challenge, confidence, motivation, and process-oriented focus.

## PURPOSE

The purpose of this investigation is to explore: (1) the experiences and beliefs of families regarding physical activity in nature settings; as well as (2) the feasibility of an intervention designed to increase youth’s awareness, connection to, and physical activ-

ity in, natural settings. To this end, particular emphasis was placed on youth perspectives from rural communities.

## METHODS

### Participants

Six focus groups were conducted in Michigan’s Upper Peninsula—which is a relatively remote, rural region. The county where focus groups were conducted had the following racial demographic information: 82% Caucasian, 13% American Indian, and 5% other or multiple races. Locality demographics were approximately: 23% Urban, 76% Rural (non-farm), and 1% Farm. Three groups were composed of youth participants ( $N = 23$ ; Mean age = 12.5 years; Range = 11-14), and three groups were composed of parents ( $N = 19$ ; Mean age = 42.6 years; Range = 31-56). The size of each focus group ranged from six to eight participants. The sample was mostly female: only three boys and one man participated. The University’s Extension/Outreach program and its regional 4-H program-partner recruited participants by word of mouth. Most of the youth who participated in the focus groups had a prior experience in Mackinac County 4-H programs; most of the parent participants were related to the youth. IRB approval for the study was obtained, and both parent and youth participants provided informed consent/assent.

### Procedures

Focus group procedures proposed by Berg were adopted.<sup>21</sup> To maximize the benefits of this data collection technique, group interaction was emphasized, and the topics of discussion were relevant to all participants. Berg presented seven reasons for utilizing a focus group design, two of which justified the current method: generating knowledge that can be tested in later research; and diagnosing potential problems with a new program or service (i.e., the development of an outreach program). Berg also identified several disadvantages of focus groups. In order to address Berg’s concerns, the following strategies were employed: focus groups were brief (50 minutes on average);



a trained and experienced moderator was used; and because confidentiality could not be ensured, sensitive topics were avoided.

An experienced focus group moderator led the first four sessions. The role of the moderator was to facilitate interactive discussion and draw information from all group participants. An additional two focus groups were conducted in order to provide more rich process data and to “saturate” emergent themes.<sup>22, 23</sup> The additional two focus groups did not bias the results of the analysis because the additional groups adhered to the same protocols and interview guide used for the previous four groups. The final two focus groups simply helped to validate the analysis from the first four groups by providing saturation (increased support for various themes) and rich narrative description. One of the co-authors, who is staff from the University extension/outreach and who assisted with the first four groups, moderated the additional two groups. All groups were audio and video recorded for transcription purposes.

### **Instruments**

The university researchers and extension staff collaborated to develop focus group questions. The team developing the theoretical foundation for the question guide by first reviewing relevant literature. This review of literature provided gaps in the literature that could be addressed by the focus groups. Next, separate focus group schedules were created for the youth and parent focus groups. Questions were generated to assess the opinions, preferences and experiences of all participants. The proposed questions were edited by the extension staff, which ensured that questions were phrased in a way that made the intent of each question clear to rural youth and adults. Possible probe questions and the rationale for each line of questioning were included so that the moderator understood why each question was included.<sup>24</sup>

The final question list was organized into two sections. One section included an introduction (ice-break questions) and open questions about nature and physical activity preferences; the second section in-

cluded specific questions regarding program development. Section one incorporated questions like: What activities do you like to do outside? What do you like about being outside and about nature in general? What do you not like about being outside and in nature? The second section posed questions such as: What time of year would be best? How long would you want the program to be (number of weeks)? What activities you would not allow/want your child to do?

The first objective of the question guide was to identify the basic preferences and interests of rural youth and adults (e.g., their likes and dislikes, barriers to being outdoors and to being active and other questions about nature and physical activity). The second goal was to examine the extent to which flow and attention restoration provided a relevant theoretical foundation for program/intervention development. The second objective was achieved through probe questions and in the content analysis (described in the next section).

Because geocaching (using global positioning units to find hidden caches) was part of the proposed intervention, moderators also asked questions regarding geocaching. Caches are objects such as a Rubbermaid container or ammo box, which contain small objects or notes that other geocachers can find and/or contribute to. The coordinates of the cache are uploaded to a website (geocaching.com) so that they can be searched for. A registered member of the website can download the specific coordinates into their GPS unit in order to find the cache. Geocaching is sometimes described as a worldwide scavenger hunt.

### **Analysis**

The coding team adopted a conservative epistemological approach. The analysis adopted a structured, analytic and quantifiable method of hierarchical content analysis.<sup>25, 26</sup> At the same time, the team did not want to ignore less saturated, but salient, themes. Memoing was conducted during the analysis to provide weight to salient open codes and to organize the content analysis.<sup>22, 27</sup> “The theory emerges with help from the process of memoing, a process in which the researcher

writes down ideas about the evolving theory throughout the process of [coding].”<sup>28</sup>

Focus group recordings were transcribed verbatim by trained transcribers and reviewed for accuracy and detail by the first author. Two trained qualitative researchers independently coded transcripts to identify raw meaning units. While open coding each transcript, researchers also engaged in memoing and identified general thematic categories.<sup>22, 28, 29</sup> This combination of bottom-up and top-down coding encompass an abductive approach.<sup>30</sup> Coders arrived at consensus on each transcript before entering raw meaning units and their general themes into a spreadsheet. Hierarchical content analysis was conducted to organize raw meaning units into specific lower-order themes, lower themes into broader higher-order themes and higher-order themes into general themes (the broadest possible category of analysis).<sup>25, 30</sup> Once complete, the content analysis was critiqued by the second author, and the third author reviewed final results. Upon finalizing the content analysis, support for each higher order theme was contrasted between parent and youth participants. Substantive results were included in the final report.

## **RESULTS**

The results of the content analysis yielded five general themes: general interests of parents and youth (nature-based and non-nature-based); barriers and dislikes regarding outdoor physical activity (PA); activity preferences; opinions about geocaching; and health and wellness education for youth.

### **General Theme #1: General Parent and Youth Interests**

This category of analysis describes the interests of both youth and parents. Their interests were organized into two higher-order themes: non-activity and physical activity.

#### **Non-activity**

Participants’ favorite less-active pastimes were spending time with animals, simply being outside, and enjoying the environment and scenery. Animal interests included observing animals in nature, taking care of domestic animals and pets,



and tracking wild animals. Participants in both age categories described an intrinsic enjoyment of simply being in nature settings. One parent described the compelling and ever-changing nature of wild-life experiences:

Even though I have camped and hiked for years, there is just some really odd things that grow... I think the things that just appeal to the senses, the visuals and the smells—you know sounds and so on, and wind. It's just nice to be able to be out.

A youth participant shared the following perspective about the restorative, calming, flow-like influence of simply being in nature:

I enjoy being in sync with nature. You can have a long day of school and you can go and sit in your tree stand for two hours and you just feel that much better coming out, and just feel that more calm and leave a lot of stress. You're so alone and it's real peaceful.

Another favorite pastime was enjoying outdoor machines such as snowmobiling, dirt biking and all-terrain vehicles. This theme had equal support from youth and parents. The final two interests in this sub-theme saw significantly more support from parents than from youth. Parent focus groups provided seven of the nine raw meaning units in the theme: appreciate the opportunity to get away from civilization. This included getting away from technology (phones, computers, television), being in unconfined space (including crowds and buildings), and a desire to 'escape.' A father described the importance of youth trying to balance modern living with nature experiences:

I think there's kind of a balancing quality with this generation because we're so plugged into their Zooms (sic.), and iPods, and TV's with 180 channels, and computers and everything else. And when they go outside they unplug. And I think it has a balancing affect and normalizing-effect in their lives.

Parents also provided five of the six raw units that described enjoying various types of weather.

The interests in this sub-theme do not provide participants with as much physical activity or as much meaningful interaction with nature. However, these activities provide opportunities for participants to initiate action in the outdoors. Outdoor education programs could use these existing interests to introduce people to more active and engaging alternatives such as combining snowmobiling with tracking. Likewise, when describing their hobbies, youth provided more examples of interests that can be combined with nature-based PA. Such hobbies included playing with and training their dogs, as well as various artistic endeavors conducive to nature activity such as painting and writing. A mother shared an example of how hobbies can lead to complex, meaningful nature experiences: "One thing I encourage with my younger one is ... we do a lot of picking pine cones and things like that and crafts. She enjoys that very much. So she has got a purpose to being outside. Hahaha!" Another mother described a daughter who was very compelled by nature and art.

My daughter likes to take pictures a lot. She will take a lot of pictures of sunsets or nature. Shes got tons of stuff up on her Myspace ... just pictures all around here... She actually walked to the docks this morning because the sunset was really pretty and really cool too. But yeah, I think she appreciates the beauty of everything for sure. She just, you know, she could spend a little more time outside and that would be nice. Hahaha.

### Physically Active

Several sub-themes had comparable support from both youth and adults. These included: archery, biking, hiking, climbing, fishing, horseback riding, and an interest in snow/ice activities such as snow boarding, snow shoeing, skating, skiing, sliding, making forts / snowmen, and ice fishing. The rest of the lower-order themes received unequal support from youth and parents. (The number of raw meaning units provided by youth

compared to parents is enclosed in parentheses after each theme.) Parents described doing chores (6:0) and camping (12:3) as enjoyable outdoor activities. Youth enjoy: play and games (9:4); water activities such as canoeing, kayaking, water-skiing, scuba diving, white water rafting (21:3); exploring new things (6:2); and extreme wilderness activities (4:2). The only lower-order themes that did not have relatively equal support were hunting (for which youth provided four of the five meaning units) and swimming (for which youth provided five of the seven meaning units).

### General Theme #2: Barriers and Dislikes about Outdoor PA

This study sought to obtain specific information regarding rural populations' opinions about engaging in nature-based PA. Participants cited numerous barriers to physical activity in nature; along with things that they dislike about nature-based PA. Participants described safety concerns (i.e., dangerous animals, allergies, lack of control and no cell reception) as the greatest impediment to outdoor activity. Insects and extreme weather were other themes within this category. It is important to note that participants were only concerned with extreme combinations of bad weather such as cold and wet, or ice and very low temperature. The fourth barrier described by the focus groups was lack of comfort. This theme included items like getting dirty, not having access to conveniences (television, computers), and not enjoying the feelings of being active or sweating. As one participant stated simply, "It's a matter of motivating to be out there you know. Because you are in your nice little warm house, and you know..." The final theme, "Inconvenience," was different from the previous one in that it was not unique to outdoor experiences, and it did not receive equal support from youth and parents. Where parents cited inconveniences like costs and location (all six meaning units derived from parents), youth described a lack of time (youth provided eight of the ten meaning units for this sub-theme).

The most important finding in this category was that regardless of what barriers



people associate with the outdoors, there are usually ways in which people can prepare for and overcome them. We found examples of this result in each group's response to questions about the best season of the year in which to hold an outdoor activity program. Every season of the year was described as being both an optimal, and a very inappropriate, time to engage in nature-based PA. It is interesting to note that the summer and winter received nine of the thirteen positive endorsements and that summer received four of the eight negative comments.

### General Theme #3: Activity Preferences

This general theme included three higher-order themes that describe the activity and program preferences of our participants: physical activity preferences, social / family preferences and specific program design preferences.

#### Physical Activity

Participants had interesting views on the importance of competition, support, and challenge in nature-based PA programs. Both parents and youth felt that activity should be competitive. Surprisingly, youth showed greater interest in competition than did parents. The following excerpt indicates the raw response to the probe question:

Moderator: Do you like to be competitive or cooperative, um for group activities?

Participant 1: Competitive.

Participant 2: Competitive.

Moderator: Okay, what do you like about competitive activities?

Participant 3: Winning.

Participant 4: A lot of them are fun...

Participant 5: I like having a challenge.

Participant 4: ...And awards.

An interaction with a parent focus group described a similar sort of mastery-type competition being an important motive for youth. In response to the probe, "and what do you think they like about that?" a mother said, "Probably conquering it. She can do anything." The moderator sum-

marized, "So there's a challenge there?" The mother replied in agreement, "Oh, they build pyramids and everything!" Youth provided eight of the thirteen meaning units for this sub-theme; and while all three youth groups felt that competition made activity more fun, only one parent group supported the idea. This parent group acknowledged that "maybe [competition] would make them work a little harder just you know, 'We gotta beat them.'" Complementary to this finding, parent groups strongly suggested that activities be cooperative (providing six of the seven meaning units). Three participant groups (two youth and one parent) believed that it is important for nature programs to be challenging. However, one of the youth groups warned that it is very important that activities not be overwhelmingly difficult. One of the interesting examples of this challenge in nature is the notion of adventure and of trying new things:

I've never tried bear hunting. I've heard a lot of stories about it and I've seen videos of it and it looks really interesting just to watch the bear, even, out there, if you can get him to come in and how smart and mischievous they can be as you set up your bear bait usually in some type of barrel and you've got it covered and they have to really dig and fight to get the food. I thought that would be interesting to watch and try.

Also included in this category, were a number of interesting lower-order themes with limited support. Two parent groups felt that the programs should be "laid back." One parent group emphasized that the activity should foster an intrinsic motivation (i.e., enjoyment of the task for its own sake). Finally, one youth group suggested that there be extrinsic rewards or awards.

In reviewing all of the comments offered by our participants, it is clear that youth are more interested in competing than might have been expected. However, the type of competition must be fair, positive and fun, and should involve cooperation. Youth and adults agree: a "win at all cost" environment will not foster enjoyment of nature and ac-

tivity. Youth want to be socially connected, but as long as the competition is friendly, and not mean-spirited, competition will enhance the enjoyment of the activity. In addition to all of the items presented above, people are interested in activities that facilitate optimal flow experiences. A parent described what it was that made nature activities compelling for her daughter: "It's a 'now' thing! She's so into what she's doing. She has to focus and pay attention to what she's doing. She enjoys it."

#### Social and Family Preferences

*Social.* Although small portions of youth in each of the three youth groups enjoy being alone, being with friends received overwhelming support. A boy described the safety and emotional benefits of social support, while acknowledging that individual activities can also be satisfying:

If you're doing something that you could get hurt in or go snowmobiling, it's a lot more fun if you have other people. Later on you can reflect on that memory, talk about it amongst yourselves. But some things you really want to do by yourself.

Parents underestimated the extent to which youth would most prefer to be with friends, as 13 of the 14 meaning units in this lower-order theme were provided by youth. Also, all three youth groups and only one parent group endorsed this theme. A mother from that focus group explained how important social support is among other (intrinsic) factors:

My daughter is interested in like a 4H group that kind of revolves around horses...she is drawn to it because of the camaraderie with other kids who love the same thing she does. And to grow in knowledge and grow in her skills involving horses, and that could be positive...that can be good for a lot of years to come.

It is interesting to note that participants were not comfortable being in a program with unknown peers. Youth did not want to meet new people their age; they wanted to be with their friends. Designing a program



for kids to be alone would not only be less efficient, but it would not attract as many adolescent youth. However, it is important to remember that some people—including young people—prefer to be on their own at times. It is a special characteristic of physical activity in nature that it is conducive to both very social group activities, and to introspective independent activity. Also, recruiting groups of friends could help to give each youth participant the additional confidence and support to initiate a nature PA program that could include new and potentially scary activities.

*Family.* Despite expressing a strong desire to do Nature PA with friends, youth were very open to and interested in doing more physical activities with their parents (and siblings). All six focus groups felt that youth activities could include parents, but youth groups were even more enthusiastic about the idea than their parents (as youth provided nine of the fourteen meaning units in this lower-order theme). Although there is no question that the vast majority of youth participants would prefer to do activities with youth friends, versus their family, they were surprisingly enthusiastic about being with their parents. This enthusiastic interest in being active with parents was expressed most eloquently in this simply statement: “My family is not outdoors, but I want them to be!” A parent augmented the previous quote while describing the positive influence can have on their children’s interests:

For us, our kids have really learned to really love it because my husband and I love it. And so I think that that love, and doing things with our family, like hiking [and] the adventure of cooking your own food ... We just make it a fun time and so I think that they have really learned to appreciate the little stuff or surprises that we come across the way. Or you know, kind of a family thing. They just kind of learned to love it as well: it’s been part of our lives.

Parents provided the majority of specific ideas about exactly what activities are ideal for families—including: camping, fishing, hiking, riding machines, skating and camping—which everyone can participate

in (i.e., low intensity activities). The key, parents explained, is that the activity allow for interaction (teamwork and talking) and healthy activity.

#### **Program Preferences**

The most important consideration for program developers is safety concerns. For example, parents are worried about injuries, dangerous outdoor activities that involve weapons, and a general lack of supervision or training. Parents were particularly dedicated to this theme, as well as the notion that programs have to include parent chaperones. Parents also provided recommendations for how program developers can best communicate with parents. Youth groups emphasized the need for fun and variety (variety both in terms of the types and locations of programming). Interestingly, despite the fact that youth did not describe having participated in much camping activity, all three youth groups were very interested in including camping in a nature activity program.

#### **General Theme #4:**

##### ***Opinions about Geocaching***

All six focus groups had a majority of members who were interested in and motivated to experience geocaching. Despite very strong support for geocaching, concerns were noted. For instance, some youth expressed concern that geocaching can be frustrating and inactive if a person is very close to the cache, but cannot find it. Especially for new geocachers, it is important that the task not be too difficult or frustrating. Geocaching should not be the primary activity; it should be used to enhance nature activities by adding challenge and fun. One youth participant explained that “it’s fun because it’s like just looking for something or looking at your GPS trying to find it because it’s something to do.” All six focus groups expressed a desire for more information about what geocaching is and how to do it.

##### ***General Theme #5: Health and Wellness Education***

An important finding emerged that did not fall under any of the previous themes. Youth receive inadequate education on the value of healthy active lifestyles. All three

youth groups strongly supported this theme with only three individual group members describing strong wellness education from their schools. Two of the three youth groups described getting the majority of their knowledge about healthy living from participating in sports. None of the youth participants described having received training in nature activity from their school’s physical education programs. This lack of exposure and education / training is a major barrier to engaging in PA in nature. A parent explained how she identified and managed this problem:

We had moved from the country in town...I thought my kids spent a lot less time outside because they just didn’t know what to do and then but we finally decided, ‘No you’re going to get out there anyway and go figure it out.’ So they got out there and they had to invent things. So they got the rollerblades out and they discovered things like hockey while rollerblading and so they invented their own thing only because we forced them to get out. Otherwise they would have probably occupied themselves inside the house. They really had to become creative.

There is clearly a deficiency in the school-based education of the youth in this study. Both youth and parent focus groups expressed interest in having an educational component to an outdoor program. The educational material should include three foci: safety, wilderness/activity skill development and wellness education. Administrators and mentors in sport, exercise and outdoor programs should be aware of this educational deficiency and take the time to promote healthy, active living as a fundamental life skill. Another parent from the same group quoted previously in this section felt that kids would enjoy and benefit from nature activity training.

You know something that our kids would absolutely love getting out in nature and you know, like survival-type skills and you know how to survive a day out in the wild—that sort of thing or how to



build a shelter out of stuff. I know my daughter would love it, but not all girls love that stuff. I know boys would really like it. So that would be cool: they are learning things and they get out pocket-knives and actually use them. Umm...so really cool stuff.

Overall, there was overwhelming support for any initiative that would improve opportunities for youth and families to engage in nature-based physical activity. A parent reminded us how important, but undervalued, physical activity is:

I don't know if my kids actually appreciate it. I think they just take it for granted. It's just something that when you get older you appreciate the time that you spend outside, or the time that you did when you were a kid. But I don't know if we realize how, you know, how nice it is for them to be able to be outside.

## DISCUSSION

### *Promoting Active Living*

The participants involved in this investigation seemed to enjoy outdoor activities. Both parents and youth mentioned outdoor activities in which that they regularly participate. However, many activities demanded low levels of physical effort (e.g., bird watching, animal tracking and riding outdoor machines). In addition to being more physically active, it seemed possible for these rural youth to be more engaged with the environment. The results from these focus groups help to develop programs that will facilitate more active engagement in challenging outdoor physical activities. From an ecopsychology perspective, deeper, more meaningful engagement will foster better psycho-spiritual growth.<sup>8-10</sup>

Although there was an overall lack of experience with nature activities, participants showed interest in being more involved. To increase physical activity, they need to be able to overcome barriers associated with nature. Participants mentioned safety as one of the primary barriers. If one does not know the terrain, the animals in a particular

habitat, or how to handle a crisis situation, there may be fear associated with participation in nature activities. In spite of these reservations, and without prompting from the moderator, participants explained that there were almost always ways to overcome barriers. Participants' lack of experience, training and knowledge suggests that training and real experiences are of utmost importance. The key for those who promote outdoor physical activity is to train participants to overcome these challenges and to build their confidence to succeed. In terms of theory, this idea corroborates the concept of flow and its tenet of challenge-skill balance.<sup>16-19</sup>

A program designed to promote physical activity in nature should begin by considering safety. Sedentary and unskilled populations should be "hooked" into nature-based activities with simple, fun, and socially supportive tasks that are not overly skill-demanding. Once hooked, programs should aspire to educate, teach physical skills, and enhance the confidence of participants. While developing skill and confidence, nature-based activity programs should simultaneously teach participants to develop optimal experiences while exposing them to unique and stimulating environments. Only as participants become more confident and educated in nature, should activities become more complex, competitive, and skillful. Challenging activities lead to autotelic, self-motivating, and thereby more sustainable experiences. Complex physical and mental activities should be balanced with emotionally and cognitively engaging but restorative activities such as drawing or tracking.

Another important component that needs to be addressed is educating youth on the importance of physical activity and a healthy lifestyle. Youth indicated limited exposure to active lifestyle and outdoor activity in school. This deficiency in health education perpetuates the obesity epidemic in America. Health classes in school, after-school programs and community interventions should value the importance of physical activity. A nature program would be an ideal opportunity to implement a healthy lifestyle component—especially for

rural populations. Youth can be exposed to activity in an environment that is unique to traditional gym-based physical education: an environment that might be more engaging and long-term motivating.

Youth and adults not only noted that they enjoy outdoor activities, but they appear to prefer a variety of different types of activities. Youth preferred fairly competitive and challenging activities that can be performed with friends. They also expressed a desire to be successful, and liked to be the creators of their own experience or adventure. In this sense, youth's preferences were similar to the three critical factors—competency, autonomy and relatedness—described in Deci and Ryan's theory of intrinsic motivation (i.e., Self-Determination Theory).<sup>31</sup> Adults preferred activities that were more cooperative, relaxing, and enjoyable. It is interesting to note that, based on the review of literature; youth may be more motivated by the optimal experience (flow) elements of nature activity; whereas adults appreciate the restorative aspects of the outdoors. In advocating for family activities that will engage both parents and youth the aforementioned results should be considered, along with parents' emphasis on family activities being highly interactive. Those designing programs for youth should be aware of the differences in preferences between youth and adults so that the program is specific for them and not simply what an adult would enjoy.

The prevalence of obesity in children and adolescents has progressively increased over the past decade.<sup>1</sup> A major cause of the increased obesity in youth is insufficient physical activity. It would be interesting to explore if children's and families' natural interests to engage in nature could be used to initiate physical activity in outdoor settings. Such activities have the potential to improve fitness, elicit complex and motivating flow experiences, develop family and social relatedness, and provide other long-term health benefits. Limited research is available on the benefits of connecting children with nature and what effects natural settings have on physical activity and health benefits. In order for this type of intervention to be effectively



implemented, researchers must develop and evaluate programs in order to determine the most effective practices in designing physical activity programs.

### *Future Directions and Limitations*

Based on the result of this study, two future directions are clear. First, there is a desperate need for more outreach programs to be developed, employed in real populations (as opposed to conducting laboratory-based research) and evaluated. By developing these programs, the best practices identified by researchers can be integrated and tested. This combination of outreach and evaluation will provide practical and substantive information for how community agencies can facilitate positive behavior change in youth and families.

The second direction for future research should compare nature activities to traditional outdoor and indoor exercise. Examining the unique benefits of nature-based activities is intuitively promising, and under-researched. For instance, Focht compared the effects of walking exercise in indoor and outdoor settings on emotion, enjoyment and motivation for 35 young adult females.<sup>32</sup> Of the two conditions, outdoor walking reported more positive emotional responses, greater enjoyment and greater intention to engage in future outdoor exercise. Studies such as these reveal a promising direction in physical activity research, and should be extended to include even more complex activities in even more natural outdoor environments.

The limitations of the current study should be considered. As an exploratory study, many variables of interest were identified, but not examined sufficiently to recommend them as being causal, or definitively significant. Also, the generalizability of any qualitative study is debatable. Quantitative studies that can isolate and measure these factors objectively and across various populations are necessary. It is important to study other rural, as well as urban and suburban, populations. It would also be relevant to explore a variety of youth age groups. Unfortunately, the distribution of this sample did not include a representative number of

men and boys. As such, results may reflect more female interests.

Given the research conducted with urban and suburban populations, the results from the focus groups are encouraging. This line of research is timely in that the Boy Scouts of America celebrated their 100<sup>th</sup> anniversary during the course of this study in 2009. Their website contains numerous practical articles that support many of the results from this study (e.g., “The Wonder of the Woods: What are our children missing?”). These articles and related information are located online at [scoutingmagazine.org](http://scoutingmagazine.org).

## **TRANSLATION TO HEALTH EDUCATION PRACTICE**

### *Promoting Training, Experience, and Education*

There are numerous strategies that educators and other advocates of active living can adopt in order to promote confidence.<sup>33</sup> The most important and effective source of self-efficacy is positive (successful) experience. If people set realistic challenges, and focus on goals that are both controllable and task-oriented, they will perceive their experiences more positively. For example, if introducing mountain biking, the leader should choose an easy trail for the first attempts, instead of a technically difficult trail. Another strategy to improve self-efficacy and to overcome apprehension is to utilize vicarious experience. If people see other people to whom they can relate engage in nature activities, they will be more confident and motivated to engage in even novel tasks. Apprehensive outdoor adventurers can also be encouraged to engage in new activities by learning to regulate emotional and physiological responses.

The aforementioned confidence-building strategies can also help to facilitate flow experiences. One of the key determinants of flow is challenge-skill balance. Improving self-efficacy will increase perceived skill and openness to attempt highly challenging tasks. In addition to fostering confidence, a task-oriented focus facilitates optimal experience. To promote engagement in outdoor activity, participants could integrate tasks

like photography, poetry, drawing, examining different types of plant growth or rock formation, and reflective journaling along with their physical activity. A mountain biker might do some of these engagement-tasks during a break while on a ride; a hiker could integrate several such activities while out on a trail. While it is important for people to seek challenging activities, people who have not engaged in as much outdoor activity might have to build up to more challenging nature activities. Recommendations for developing a progressive, multi-phase activity program are described at the end of this section.

A specific example of how training and experience could facilitate nature activity is with geocaching. Participants showed an interest in geocaching despite the fact that few knew exactly what it entailed. There were concerns about it being difficult and potentially frustrating; however, participants were interested to learn more. Training youth and parents to geocache would help to make outdoor physical activity more fun, challenging, and engaging. Without learning the specific skills of the activity, initial frustration would eliminate interest. Geocaching should not be used as a primary activity, but as a catalyst that enhances the outdoor experience.

While participants could be more physically active, and engaged in more complex experiences with nature, there is clear interest and initiative already present. The critical objective with this population would be to train and challenge them to elevate their involvement. As previously mentioned, health education should include an outdoor education component in which children and adolescents are taught to learn about and potentially appreciate the environment. There were also positive results in terms of rural families' interest in being physically active in nature together—as a family. Just as parent influences on children are vital, children and adolescents can affect the behaviors of the rest of their families. This is particularly important in populations that experience health disparities—including rural populations. Promoting activities that are not only healthy, but that support family





togetherness, reveals the holistic benefits of nature-based physical activity. Such benefits include the social, ecological, emotional, psychological, spiritual and physical dimensions of wellness.

### ACKNOWLEDGEMENTS

This research was supported in part by a grant from Michigan State University's Families and Communities Together program. The authors would like to thank two undergraduate students, Kayle A. Fredrickson and Mark Keller, for their assistance in transcribing the initial interviews, as well as Michelle Walk for her help in moderating the first four focus groups.

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