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Sensational Hiking: Collaborating with Community Organizations to Provide Sensory Information to Enhance the Trail Evaluation Process

Abstract

Accessibility is about more than just physical access to places where people live, work, and play. It's also about having access to sufficient information to make an informed decision. Community organization Access Recreation, is setting the precedent for providing information regarding nature and hiking trails so people of all abilities can enjoy outdoor recreation. An occupational therapy practitioner enhanced their efforts by educating them on sensory systems, and how deficits in this area may impact the hiking experience of a client with sensory processing disorder, or sensory sensitivities. Occupational therapy practitioners across the world can join similar efforts and utilize these resources with clients with a range of limitations. The therapeutic effects of nature are well known, and pairing physical exercise or therapy interventions with exposure to natural environments could be more beneficial than traditional therapies, or offer a new context to learn in.

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Degree Name

Doctorate of Occupational Therapy (OTD)

Keywords

Sensory system, sensory processing disorder, nature therapy, accessibility, hiking

Subject Categories

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Provide Sensory Information to Enhance the Trail Evaluation Process

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Abstract

Accessibility is about more than just physical access to places where people live, work, and play. It's also about having access to sufficient information to make an informed decision. Community organization Access Recreation, is setting the precedent for providing information regarding nature and hiking trails so people of all abilities can enjoy outdoor recreation. An occupational therapy practitioner enhanced their efforts by educating them on sensory systems, and how deficits in this area may impact the hiking experience of a client with sensory processing disorder, or sensory sensitivities. Occupational therapy practitioners across the world can join similar efforts and utilize these resources with clients with a range of limitations. The therapeutic effects of nature are well known, and pairing physical exercise or therapy interventions with exposure to natural environments could be more beneficial than traditional therapies, or offer a new context to learn in.

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Introduction

A community organization interested in expanding outdoor recreation opportunities to people of all abilities has blazed a trail...literally. Portland-based non-profit organization Access Recreation, conducts trail assessments from the perspective of a user with a disability. This information is then compiled, formatted, and made available in an online format which includes photos, closed-captioned videos, trail maps, and other descriptive information.

Access Recreation started as a grassroots project spearheaded by Georgena Moran, an outdoor enthusiast and wheelchair user. She believes that the more people know about a trail, the safer the trip down it will be, for people of all abilities (G. Moran, personal communication, July 5, 2016). Often times, the biggest obstacle to accessibility is not a lack of handrails or pavement, but rather a lack of access to useful information. Providing trail information can empower individuals to make their own determination about whether to attempt a particular trail, or not.

After becoming frustrated with the lack of information readily available, Georgena reached out to local land management agencies to learn more about the trails in order to prepare for her own outdoor recreation activities. State and local agencies had the information, but were hesitant to provide usability ratings due to the risk of liability since each hiker will have their their her or his own unique experience on the trail depending on their abilities and the trail's current condition. She banded with members of the agencies and community, in an effort to provide the necessary information for trail users (G. Moran, personal communication, July 5, 2016).

Access Recreation has developed guidelines for minimum information that should be provided about hiking trails and outdoor facilities that would benefit hikers with disabilities. The hope is that other organizations throughout the world, would use these guidelines to improve the

information sharing process and content. The guidelines suggest the following information be made available about outdoor recreation areas: contact information, location, degree of exertion, amenities available, and a physical description of what a user might see or hear on the trail (Access Recreation, 2013).

As more members of the community partner with Access Recreation, the breadth of knowledge and experience grows. This was the case regarding an occupational therapy student who suggested that accessibility should not just include information about the physical environment, but the sensory environment too. The Access Recreation team became intrigued with the concept of sensory processing, and thus a partnership began.

What Occupational Therapy Brings to the Table

One of the major skills of an occupational therapy practitioner is the ability to analyze environments and activities ~~, then~~in order to provide related suggestions to promote occupational engagement and health. The American Occupational Therapy Association (AOTA), ~~believes~~ promotes providing opportunities for all members of society to engage in health-promoting occupations through flexibility in the analysis of the environment and context in which clients thrive is essential (AOTA, 2015). This includes the ability to teach our clients how to adapt and modify their environments and contexts, whether that be a bathroom, conference room, or nature trail, in order to facilitate successful participation in desired activities. As part of Pacific University's School of Occupational Therapy capstone project, a graduate occupational therapy student provided consultative services to enhance the efforts of Access Recreation by educating the trail assessment team on sensory systems and sensory processing. Several trails were also evaluated for sensory demands, and this information was given to the organization to ~~contribute~~ enhance the information currently available. This supported Access Recreation's efforts to

provide information that would be as inclusive as possible. A sensory evaluation form (Table 1) was developed and shared with the intent that Access Recreation’s trail assessment team could include a more thorough overview of sensory components on previous and future trails.

Previously, trail assessments focused primarily on physical components and amenities that would be important for people with mobility, vision, and hearing impairments. As part of the intervention implementation, Access Recreation members were educated and trained on the process of evaluating a trail for sensory components by the occupational therapy student.

Table 1

Sensory Factors	
<p>Auditory Processing</p> <ul style="list-style-type: none"> - Cars/street noise - Water noise - Gravel/ foot traffic - Crowds/ Conversation - Nature/animals - Acoustics/Echoing 	<p>Olfactory/Smell:</p> <ul style="list-style-type: none"> - Wet surfaces/freshly rained - Plants in area <ul style="list-style-type: none"> o Seasonal allergies - Fumes, river smell - Flowers
<p>Visual Processing:</p> <ul style="list-style-type: none"> - Light <ul style="list-style-type: none"> o Shade/shadows o Bright light or ambient - Water <ul style="list-style-type: none"> o Shade/shadows o Reflection o Waterfall/movement - Clearly marked trail borders - Signage - General view - Vistas/overlook - Depth discrimination <ul style="list-style-type: none"> o Stairs, inclines, rocks on the ground 	<p>Vestibular/Movement Processing:</p> <ul style="list-style-type: none"> - Climbing over/under natural or man-made obstacles on trail - Activity level <ul style="list-style-type: none"> o Endurance/length o Rest areas o Altitude o Inclines of trail <ul style="list-style-type: none"> ▪ “Heavy work” vs leisurely - Stairs - Roadways/street crossing
<p>Proprioceptive/Touch Processing:</p> <ul style="list-style-type: none"> - Braille signage - Moving through trees/grasses, over varying surfaces (gravel/rocks vs. pavement/asphalt) - Opportunities to touch <ul style="list-style-type: none"> o Tree trunks o Leaves 	<p>Cognitive/ Safety Factors:</p> <ul style="list-style-type: none"> - Signage <ul style="list-style-type: none"> o Simple, easy to read o Frequency o Nature Center or trail guide available on site - Trail borders <ul style="list-style-type: none"> o Clearly marked

<ul style="list-style-type: none"> ○ Water ○ Climbing 	<ul style="list-style-type: none"> ○ Physical barriers (fencing) ○ Railing present ○ Proximity to streets/roads - Fall risks <ul style="list-style-type: none"> ○ Surface (compact or loose, muddy, slippery, water crossings) ○ Distance to lower surface from overhang ○ Natural or man-made obstacles (roots, bridges, large rocks, steps)
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Sensory System Overview and Populations with Sensory Processing Disorder

Sensory systems play a powerful role in our body’s ability to function every day. When functioning optimally, our body takes in sensory input, organizes it in the brain, and sends out neural signals to the rest of the body, resulting in appropriate activation of behavioral, emotional, and motor responses (Ayres, 1972; Dunn, 1997; Miller & Lane, 2000). Sensory Processing Disorder (SPD) exists when our sensory systems do not effectively integratefunction, consequently making engaging in everyday activities significantly more challenging. Symptoms of SPD occur within a broad spectrum of severity (Moglen, Miller, & Schoen, 2012). Most people will have occasional difficulties processing sensory information, usually influenced by lack of proper sleep or high levels of stress. However, for children, adolescents, and adults with SPD these difficulties are chronic and can influence their perceptions and willingness to engage in daily activities (Bar-Shalita, Vatine, & Parush, 2008; Kinnealey, Koenig, & Smith, 2011).

Many physical and mental health disorders present with difficulties processing sensory information. Some of these include: autism spectrum disorder, attention deficit disorder, brain injury, and obsessive compulsive disorder. If proper intervention is not obtained, occupational impairments can be present throughout the lifetime. Because optimal motor output is driven by efficient, accurate intake and processing of sensory input, individuals with sensory problems may

be more likely to have less effective or efficient motor patterns (Reynolds & Lane, 2008). This could pose potential safety concerns when hiking on various trail surfaces. Detailed assessment of sensory problems may help clinicians identify sensory inputs that are more problematic, which is essential in order to organize the environment and daily routines to minimize distressing experiences (Leekam et al., 2006). For people with sensory problems, having information about environmental sensory components prior to an activity can help facilitate more opportunities to safely and successfully engage with sensory components in the environment.

Therapeutic Benefits of Nature Assisted Therapy

Nature-assisted therapy (NAT) is any intervention with the aim to treat, hasten recovery, and/or rehabilitate patients with a disease or a condition of ill health, with the fundamental principle that the therapy involves plants, natural materials, and/or outdoor environment, without any therapeutic involvement of extra human mammals or other living creatures (Annerstedt & Währborg, 2011). Any practitioner that incorporates the relationship between human and the natural environment (or components of nature) into their individual therapy sessions can practice NAT (Berger & McLeod, 2006). Additionally, therapeutic effects of nature can be obtained through self-led exposure in natural environments, without a therapist present. These effects have been well documented and include improved executive attentional performance, stress relief, increased energy and revitalization, enhanced self-esteem, positive engagement, improvement in self-concept, better mood, cognitive and immune system function, and decreases in blood pressure, stress hormones, tension, confusion, anger, and depression (Berman, Jonides, & Kaplan, 2008; Paxton & McAvoy, 2000; Annerstedt et al., 2010; Barton & Pretty, 2010; Pretty, Peacock, Sellens, & Griffin, 2005; Thompson Coon et al., 2011). For populations who have

insufficient access to therapy, or facilities that do not have the resources available to provide NAT, there is additional incentive for individuals to self-initiate engagement in natural environments, and enhance their quality of life on their own volition.

Physical activity in natural settings does not need to be strenuous to enhance health. The type of “green space” utilized has more influence than the intensity of the activity. Low-intensity walking in rural settings has been shown to have greater restorative abilities for people with poor mental health compared to a group with good mental health ~~and~~ walking in urban settings (Roe & Aspinall, 2011). Natural settings with broad leaved trees and water features are associated with greater perceived health benefits and restoration (Annerstedt et al., 2010; Barton & Pretty, 2010; White et al., 2010). These findings suggest that NAT is an effective alternative for enhancing physical, cognitive, and mental health outside of traditional facilities. Furthermore, since NAT does not require complex treatment tools or expensive equipment, clients who engage in NAT have the potential to recreate the experience on their own. Since other people typically use nature walks, trails, walking paths, community gardens, and parks, NAT also provides opportunities for people to develop healthy psychosocial skills by interacting with people in their community.

Future Implications for Recreational Areas and Therapy: From Community to Clinic

One of the greatest benefits of practicing occupational therapy is the breadth of knowledge within our scope of practice and sharing that information with a broad range of clients. In this case, the occupational therapy practitioner was able to educate the client, a community organization, on sensory processing which resulted in the provision of more inclusive resources for hikers of all abilities. Advocacy efforts were also implemented via grant writing to secure funding for Access Recreation during the upcoming grant application cycle.

This project resulted in mutual benefit, as clinicians can utilize Access Recreation's product in their practice, as well as it being available to the general public. Online resources developed by Access Recreation can be utilized by practitioners using NAT to plan community outings that meet the sensory needs of clients. Practitioners can also refer clients with sensory processing difficulties to the website so they can select and pursue their own outdoor adventure.

Interventions could include teaching clients how to navigate the website, read symbols related to trail information, and select a hike that best fits their needs. Ideally, recreational areas and parks will start to implement the updated guidelines so that outdoor recreational opportunities can be enjoyed by people of all abilities.

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