Do sensory-rich retreats at Camp Courageous enhance the parenting relationship?

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Do Sensory-Rich Retreats at Camp Courageous Enhance the Parenting Relationship?

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Abstract
The purpose of this study was to examine whether teaching parents about sensory processing will help them feel more comfortable engaging with their children, thus enhancing the quality of relationship for parents and their children with sensory processing disorders. We held one-day workshops with instruction and hands-on learning opportunities for families of children with self-identified sensory processing difficulties. Participants completed the Parenting Relationship Questionnaire (PRQ, Kamphaus & Reynolds, 2006) at the retreat before the workshop began and four weeks after the retreat. A follow-up phone interview was conducted two to four weeks after the retreat for qualitative description of the outcomes. Results from the PRQ indicated no significant changes in the parent-child relationship; however, qualitative reports indicated subtle changes were experienced by most participants. Many participants reported learning about sensory processing, enhanced observation of behaviors in their child since the retreat, and implementing strategies suggested by the occupational therapist. VanLeit and Crowe (2002) determined that even small changes in occupational performance can lead to positive changes in the parent-child relationship. Therefore, we conclude that teaching parents about sensory processing will help them better address their child’s sensory needs with the hopes of transferring into improved parent-child interaction and improved everyday functioning.
Do Sensory-Rich Retreats at Camp Courageous
Enhance the Parenting Relationship?

Many parents face challenges while raising children. However, parents of children with disabilities have extensive caregiving duties especially when the child has limitations in occupational performance areas including self-care (McGuire, Crowe, Law, & VanLeit, 2004) and social participation (Aldred, Green, & Adams, 2004). In recent years, parents have been expected to handle increased responsibility in the care of their child with a disability due to the shift of healthcare from institutions to outpatient and home health service (Raina et al., 2005). Due to the extensive caregiving role, parents of children with disabilities may often feel overwhelmed, socially isolated, and without adequate support (McGuire et al., 2004; Grant, Ramcharan, McGrath, Nolan, & Keady, 1998; Cosbey, Johnston, & Dunn, 2010), putting them at risk for mental health concerns (Raina et al., 2005). With decreased direct services and supports, providing education to parents about topics relevant to their children’s conditions may empower them to face their challenges. Sensory processing difficulty, present in several disabling conditions (i.e. autism spectrum disorders, attention deficit disorder, and Fragile X syndrome (Miller, Reisman, McIntosh, & Simon, 2001) can contribute to limitations in occupational performance and challenges associated with caregiving (Dunn, 2007). In this program evaluation, we present the preliminary outcomes of a community-based parent education program regarding sensory processing. We begin with a review of sensory processing, challenges faced by families with children with disabilities, past successful parent education programs, and the role of occupational therapy.

Sensory Processing
Sensory integration is defined as the ability to take in information through our senses (touch, movement, smell, taste, vision, and hearing), organize and interpret that information, and create a meaningful behavioral response (Miller, Anzalone, Lane, Cermak, & Osten, 2007). Each child regulates and responds differently depending on the type of stimuli encountered including sounds, sights, and touch (The Interdisciplinary Council on Developmental & Learning Disorders, n.d.; Dunn, 2007). Within sensory integration theory, sensory modulation refers to the neural capacity to regulate messages about sensory stimuli (Miller et al., 2007). Winnie Dunn (1997) developed a model of sensory processing to address the differences in children’s sensory modulation patterns and the affect those patterns have on functional performance in daily life. The model was developed based on studies including children with and without disabilities (Dunn, 2007). During the proposal of the model, Dunn and colleagues hypothesized that there was an interaction between neuroscience and behavioral concepts (Dunn, 1997) with the person’s behavior dependent upon his/her individual neurological threshold. A neurological threshold is the amount of stimuli required for a person’s nervous system to notice and react to those particular stimuli (Dunn, 1997). Dunn’s sensory processing model consists of four patterns which rely upon the person’s behavioral responses and his/her neurological threshold. These four patterns are identified as sensation seeking, sensation avoiding, sensory sensitivity, and low registration (Dunn, 2007). Sensation seeking consists of high thresholds with active strategies for self-regulation whereas sensation avoiding consists of low thresholds with active strategies for self-regulation (Dunn, 2007). Sensory sensitivity is characterized by low thresholds and passive strategies for self-regulation whereas low registration is characterized by high thresholds and passive strategies for self-regulation (Dunn, 2007).
The Sensory Profile (Dunn, 1997) is a caregiver questionnaire that measures the frequency of a child’s responses to sensory experiences. The standardized questionnaire consists of 125 behavioral statements organized into nine factors; sensory seeking, emotionally reactive, low endurance/tone, oral sensory sensitivity, inattention/distractibility, poor registration, sensory sensitivity, sedentary, and fine motor/perceptual. The caregivers report the frequency of their child’s responses to each statement based on a 5-point Likert scale ranging from 5, never to 1, always (Dunn, 1997; Bar-Shalita, Vatine, & Parush, 2008). The Sensory Profile categorizes sensory patterns as typical, probable difference, and definite difference by comparing the sum of scores to the normative distribution. Scores outside of the normative range, in combination with interference with everyday occupations, are suggestive of sensory processing disorder (Dunn, 1997).

Sensory processing disorder, also referred to as sensory modulation disorder, may interfere with a child’s ability to effectively process sensory information and respond appropriately to the surrounding environment (Dunbar, 1999). This condition may affect many areas of the child’s behavior such as hyperactivity, oral motor disorders, poor impulse control, excessive fears, inattentiveness, and excessive frustration reactions (Showers, 1999). These behaviors may range from over- to under-responsiveness when the child is exposed to various sensory stimuli (Bar-Shalita et al., 2008; Cohn, Miller, & Tickle-Degnen, 2000) which may negatively impact their interactions with both peers and adults, including family members. Sensory processing deficits may also interfere with a child’s cognitive, sensorimotor, and social development (Dunn, 1997). Play is often affected since the child has difficulty interacting with objects and people (Bundy, Shia, Qi, & Miller, 2007). These behaviors may also cause the child
to experience difficulty with socialization, coping, self-confidence, and performing activities of daily living (Cosbey et al., 2010) as demonstrated by the following study.

When comparing social participation patterns of children with sensory processing disorders to their typically developing peers, Cosbey and colleagues (2010) found that sensory processing may not have an effect on social participation. The children identified as having sensory processing disorder did not have a disability diagnosis such as autism, learning disability, or emotional-behavior disorder. However, the researchers reported utilizing conservative categorization of children with sensory processing disorders. The children were considered to have sensory processing disorder based on results from the Short Sensory Profile (SSP) as follows “(1) total score on the SSP was ≥ 3 standard deviations below the mean, (2) two subtest scores were ≥2.5 standard deviations below the mean, and (3) one subtest score was ≥4 standard deviations below the mean” (Cosbey et al., 2010, p. 464). Children’s responses indicated similar patterns of social participation in children with sensory processing disorders and typically developing peers. Similarities were found regarding the intensity of participation, diversity of activities, location, enjoyment, and people involved; however, the children with sensory processing disorder seemed to enjoy activities with less structure or clear expectations. Based on these findings, the researchers recommend educating adults about strategies to enhance the child’s sensory experience with appropriate sensory stimulation, encouraging the child to play with their peers, and encouraging social participation because children with sensory processing disorders are at a higher risk for social isolation (Cosbey et al., 2010).

**Sensory Processing and Autism**

While sensory processing difficulties can be present in isolation (Miller et al., 2001), they are commonly associated with autism spectrum diagnoses. In 2007, approximately 1 out of
every 150 children had an autism diagnosis with boys being four times more likely to be diagnosed than girls. Autism occurs in all ethnic, racial, and socioeconomic types (CDC, 2004). Autism is a developmental disability often characterized with impairments of social communication and interaction which can influence the child’s social development, including the ability to interpret social meanings, and carryover into adulthood (Aldred et al., 2004). These communication impairments can directly influence the child’s relationships with peers, adults, and even family members. Children with autism may appear affectionate and may seek social attention but they often lack the understanding of body language, gestures, and social timing of communication (McConachie & Diggle, 2006). The inability to accurately interpret social communication can directly interfere with a child’s ability to socialize and play (Weider & Greenspan, 2003). Autism is often characterized by unusual reactions to various sensations (CDC, 2004), which may be attributed to differences in sensory processing in comparison to their typically developing peers (Spitzer, 2003; Dickie, Baranick, Schultz, Watson, & McComish, 2009). Together, these characteristics of autism can create challenges for parents during daily activities and community outings as demonstrated during a review of the literature.

Studies have identified that children with autism respond differently to sensory stimuli in comparison to typically developing children (Dickie et al., 2009; Spitzer 2003; Watling, Deitz, & White, 2001). Watling and colleagues (2001) tested whether there was a significant difference in scores of the Sensory Profile for children with autism or pervasive developmental disabilities versus typically developing children. Forty children with autism were matched based on their intelligence to forty typically developing children. Parents were asked to complete the Sensory Profile by rating the frequency of their child’s behavior. The responses were converted to a numerical value according to guidelines in the *Sensory Profile User’s Manual* and the scores
were compared based on the performance of each group on each factor (Watling et al., 2001). As a group, the children with autism had lower scores than the group of typically developing children; indicating that the undesired behaviors occurred more frequently among the children with autism than their typically developing peers. Data analysis revealed that 8 of the 10 factors had significant score differences. The two factors without significant score differences were Sensory Sensitivity and Sedentary factors. The most prominent differences included Emotionally Reactive, Poor Registration, and Other factors which includes abnormal perceptual responses. This suggests that these three factors may provide clinicians assistance in discriminating between children with autism and without autism ranging from 3-to 6-years-old.

Studies (Watling et al., 2001; Dickie et al., 2009; Spitzer, 2003) examining this topic often utilize the Sensory Profile, additional parental questionnaires, and clinical observation to compare sensory processing of children with autism to typically developing children. These questionnaires and clinical observations provide an overview of the children’s symptoms, but demonstrate a limitation because they do not provide descriptions of the situation including the context and reaction to specific sensory experiences (Dickie et al., 2009).

Due to a lack of qualitative data available, Dickie and colleagues (2009) conducted a study interviewing parents of children with autism and parents of typically developing children to interpret information about their children’s “sensory experiences” from the parents’ perspective. The researchers sought to use the information to compare the “sensory experiences” among children with autism and their typically developing peers. The researchers interviewed one or both parents of 66 preschoolers; 37 children with a diagnosis of autism and 29 children as typically developing children. The open ended interviews were designed based on Flanagan’s Critical Incident Technique (Dickie et al., 2009). The interview asked parents to provide a
description of a “good” sensory experience, “bad” sensory experience, and a description of how the parent felt about each experience. Responses suggested that several parents had difficulty understanding the term “sensory experience” either through verbalization or reporting an experience without reference to their child’s sensory specific responses during the experience (Dickie et al., 2009). Researchers discovered a qualitative difference in the way parents of each group reported their children’s experiences. Parents of children with autism were more likely to use medical jargon, report higher recognition of sensory elements, and report strong, unusual, or extreme responses to sensory experiences (Dickie et al., 2009). Both groups of parents reported common positive experiences with movement and touch while negative experiences were often associated with sound. When compared to typically developing peers, children with autism were more likely to have a negative experience with food related tasks (Dickie et al., 2009). Findings from this study suggest that although both groups of children can have both positive and negative experiences to sensory stimuli, children with autism have more extreme negative responses than their peers. The study also found that some parents may not have an understanding of sensory stimuli regarding their children’s behavior, suggesting that parent education may be beneficial for parents for better understanding of how sensory processing impacts their children’s behavior in hopes to decrease the challenges these families experience.

**Challenges Families Face**

Parents of children with disabilities are faced with stressful and often unpredictable days that revolve around the child with a disability, especially a child with autism (DeGrace, 2004). These changes in patterns may inhibit the families’ abilities to participate in the community or even provide care for the child (Dickie et al., 2009). Several studies that have examined the challenges of raising a child with a disability will be addressed.
Raising a child can be stressful and may affect the parents’ mental health if not given emotional support. Hung and colleagues (2010) examined the mental health of parents of children with disabilities and factors that were associated with poor mental health in these parents. Results from face-to-face interviews revealed that 44% of the participants had poor mental health. Child factors found to impact the parents’ mental health included the child’s poor mobility, dependency on others to complete activities of daily living, and being a younger child. Parent factors found to have a negative impact on parents’ mental health included low income and parental distress. Parents’ mental health was most influenced by parental distress rather than the severity of the child’s disability. The researchers suggested that creating a supportive network will have a positive impact on the parents’ mental health.

Raina and colleagues (2005) examined associations between caregiver characteristics, sources of stress, family functioning, and informational support on the well-being of the caregivers of children with cerebral palsy. The researchers conducted face-to-face interviews to determine the caregiver’s perception of his or her own overall health, assistance provided to the child, self-esteem, informal social support, family functioning, income, and job-caregiving conflicts. Responses indicated a correlation between child behavior problems and caregiver self perceptions. Poor psychological and physical health for the caregivers were associated with increased behavioral problems whereas decreased behavioral problems were associated with increased caregiver psychological and physical health. Based on these findings, the researchers emphasized the importance of addressing the child’s behavior when planning interventions to decrease caregiver stress. This approach provides parents with both cognitive and behavioral strategies to manage their child’s behavior in hopes that positive behavior will result in positive psychological and physical health thus enhancing the parent-child relationship. These findings
suggest that parents are able to respond to the unique characteristics of their child with the appropriate strategies and decrease the negative impact of disability on the caregivers.

Although raising a child can be stressful, parenting can also have its rewards. The ‘push-pull’ factors are defined as the relationships between the problems that create stress but also cause moments of gratification (Grant et al., 1998). The researchers conducted interviews with a family member responsible for providing support for a child with an intellectual disability. Responses from the interviews stated that caregiving was viewed as an extension of the family routine while providing a purpose to the child. The researchers divided family members’ responses into three different axes. The first axis included responses in which satisfaction for most caregivers occurred when the child was perceived as the beneficiary (e.g. child happiness, reaching his/her potential, and improvement of his/her condition). The researchers also identified gratification of the caregivers as “intrinsic rewards” with the notion that the family member could provide better care than anyone else due to the knowledge about the child and his/her behaviors. The second axis included responses in which the caregiver was the main beneficiary reporting gratification from intrapersonal factors such as having a purpose in life, responding to a challenge, and feeling needed. The researchers identified this axis as a coping strategy. The third axis defined both the caregiver and child as the beneficiaries with emphasis on a closer relationship and expressing love for the relative. Participants were not immune to stress, stating they often felt stressed when caring for the family member with a disability. Stress factors included the child’s behaviors, loss of sleep, decreased amount of time to oneself, little time for others, decreased standard of living, and financial issues. Although the participants identified stressors associated with caregiving, the researchers stated that “satisfactions were mentioned much more than stresses” during the interviews (Grant et al., 1998, p. 68). Parent education can
help provide parents or caregivers of children with disabilities the tools to address behavioral issues, improve interaction, and develop more positive interactions with their children.

Ozonoff and Cathcart (1998) concluded that parent education is essential because parents can supplement services for their child. They can serve as liaisons in new settings for their children because the parents know the services their children require to thrive in specific environments. Through their research Cohn and colleagues (2000) discovered that many parents of children with sensory processing disorders want to understand their children and suggested that this understanding would better prepare the parents to support their child’s growth. Parent education has been shown to reduce parent stress level, positively influence the child’s social behavior, and enhance the quality of parent-child interactions (McConachie & Diggle, 2006). It may also increase the parents’ competence in their ability to interact with their child (Ozonoff & Cathcart, 1998).

**Parent Education to Improve Parent-Child Interactions**

A review of the literature demonstrates a need for parenting education to address the challenges associated with raising a child. These challenges may include occupational performance, the child’s behavior, and the parents’ interaction style. In her research, DeGrace (2004) implemented a qualitative phenomenological method to reveal the structure and meaning of five families’ lived experience of daily occupations. All participating families had at least two family members who currently lived with a child with autism. A collective narrative about their daily routines and rituals were provided by the families. The researcher conducted semi-structured interviews asking the families to describe their child’s participation in daily occupations. The researcher discovered common themes among the participating families through her self-reflections about the interviews, site observations, and experiences (DeGrace,
As a unit, the families felt they were robbed of satisfactory occupations and were not as close as other families as a result of trying to keep the child with autism occupied and pacified to prevent behavioral outbursts. These challenges brought stress to the entire family and threatened the family structure as a whole. Parents stated that they often felt overwhelmed about the intensity and cost of the services their child with autism needs (DeGrace, 2004). Additionally, the children’s behavior provided a challenge for the families, which is also addressed in the following study.

Aldred, Green, and Adams (2004) conducted a randomized control trial study investigating whether targeted psychological treatment rather than usual treatment would improve behavior and increase the duration of positive interactions between children with autism and parents. Inconsistencies of a communicative relationship between a parent and child may cause frustrations for both the child and the parents. The researchers proposed that if parents have the opportunity to learn how to be responsive and sensitive to their child’s way of communicating, the frustrations may decrease. Parents were educated and trained in adapted communication focusing on their children’s abilities. The control group received usual care which consisted of six months of regular monthly therapist contact while the intervention group received six months of bi-monthly consolidation sessions with the therapist in addition to usual care. Results from the study suggest that increased parental sensitivity resulted in increased communication and social interactions which can help reduce frustrations. However, researchers were unable to determine whether the gains resulted from the intervention, increased contact time with the therapist, or decreased parental anxiety (Aldred et al., 2004). Educating parents regarding their child’s behavior provides them with the tools to engage with their children.
Addressing difficulties in occupational performance and children’s behavior may not alleviate the challenges faced by families; therefore the parents’ interaction style must also be addressed. Kim and Mahoney (2004) examined the effects of mothers’ interaction style on children’s interactive engagement. The researchers compared the interactive engagement of children with disabilities to a group of typically developing children. Participants included mother-child dyads of typically developing children and children with disabilities. The researchers videotaped the mothers and their child playing with a set of developmentally appropriate toys. The mothers were encouraged to interact with their child as usual. The researchers found that children with disabilities have different levels of engagement when compared to typically developing peers. Results from this study demonstrate that the mothers’ affect and responsiveness are stronger predictors of their child’s engagement than their child’s developmental status, suggesting that parent education could be beneficial for both the parent and the child (Kim & Mahoney, 2004).

Occupational Therapy

Occupational therapy can assist families to decrease the challenges faced on a daily basis by providing strategies for identifying appropriate environments and encouraging social interaction among their peers. Occupational therapy focuses on improving participation in and performance of everyday tasks that have meaning and purpose (Nelson & Jepsen-Thomas, 2003). Many occupations are jointly performed by parents and children, so called co-occupations (Esdaile, 1996), including teaching/learning, developing social skills, and practicing self-care skills in order for the child to develop necessary skills and independence. Families of children with autism or sensory processing disorders can benefit from services that address sensory needs to improve co-occupations and age-appropriate independence because their days are often unpredictable, leading them to live moment to moment to keep their child in a controllable state.
There is a need for family support and interventions to help families focus on creating more meaningful occupations for the entire family (DeGrace, 2004).

The ability of occupational therapists to provide support for families of children with autism, or other disabilities, can be enhanced if they have an understanding of everyday occupations the families experience (DeGrace, 2004). Occupational therapists can help caregivers of children with disabilities find a balance between stress and gratification through development of home education programs. When implementing a home program, adults must recognize that each child has individual differences and sensory needs. This recognition will help provide situations that will address the child’s unique sensory needs while encouraging social participation.

Educating parents about implementing a home program can be challenging because the program will only be beneficial if it does not create added stress for the family. In addition to therapy services, parents will utilize their knowledge to implement home programs to facilitate their child’s development. When the home programs meet the needs of the families, the programs provide additional support for the child therefore promoting generalization of the intervention in a variety of contexts, not just in the clinic (Rocha, Schreibman, & Stahmer, 2007). Effective parent training may result in a better understanding of their child’s behavior leading to improved confidence of parenting skills and perhaps decreased stress (McConachie & Diggle, 2006). Prior to developing a parent-education program, clinicians must develop an understanding of the child’s occupational performance. One method for interpreting a child’s occupational performance is discussed in the following study.

A study conducted by Spitzer (2003) examined how 3-and 4-year-old children with autism create meaning through daily occupations and their engagement in those occupations.
Utilizing a qualitative method for data collection, the researcher visited each child on 14-15 different days over a period of 6 months. To obtain information from a social context and gain a better understanding of the children, the researcher interviewed adults familiar with the children. Due to the qualitative nature of the study, Spitzer focused on the difficulties encountered during interpretation of a nonverbal child’s meaning rather than providing detailed information about the performed occupations. Aware of the difficulty faced during interpretation of interactions with the children, Spitzer identified three considerations and strategies for interpretation of the children’s actions; “adultcentric” interpretation, language gap, and perceptual gap (2003). An “adultcentric” interpretation occurs when children and their actions are interpreted with regard to adult standards rather than from the child’s perspective (Spitzer, 2003). The language gap requires the researcher to pay special attention to the children’s nonverbal cues and actions in addition to interviewing adults close to the child. The perceptual gap occurs due to the various sensory perceptions. The challenge with the perceptual gap is that two people may interpret the same stimuli in two very different ways (Spitzer, 2003). To overcome this obstacle and for better interpretation from the child’s perspective, the researcher suggests imitating the child’s actions and sharpening awareness of one’s own senses.

Spitzer (2003) recommends clinicians actively participate with non-verbal clients to better understand the child’s subjective meaning of occupation and therefore provide the child with a sense of purpose. In addition to interpreting the child’s meaning associated with occupational performance, clinicians must consider the family’s routine when developing a parent education program.

Family routines contribute to a common identity among family members. Occupational therapists can help enable all family members create meaningful routines (Darlington & Rodger,
2006; Dunbar, 1999). Some routines may include family meals, bedtime preparation, or family holidays. Activities of daily living (ADLs), including self-care occupations, often play a part in a family’s routine. ADLs are divided into two components, basic activities of daily living (BADLs) and instrumental activities of daily living (IADLs). BADLs refer to self-care occupations associated with taking care of one’s own body which include drinking, eating, dressing, and toileting (Rodger & Brown, 2006). IADLs refer to taking care of others such as caring for a pet or shopping. Children spend approximately 55% of their week engaging in ADLs. The amount of assistance required by children in regards to ADLs varies based on personal factors including age, culture, developmental level, and temperament (Ziviani, Desha, & Rodger, 2006). Children are dependent on their parents for help with their ADLs until they reach school age, but by 5-6 years old most typically developing children are able to address their own self-care needs (Rodger & Brown, 2006). However, people with disabilities have been found to devote more time to self-care occupations and less time to productive occupations (Ziviani et al., 2006). Children with disabilities often require more assistance when performing their ADLs. It is important for the children to learn the skills needed to master self-care occupations and routines because the development of self-care occupations coincides with the development of self-efficacy, self-awareness, and life satisfaction (Rodger & Brown, 2006). A referral to occupational therapy is often provided to help the family address the child’s self-care difficulties (Rodger & Brown, 2006). The occupational therapist can collaborate with family members to determine the best action plan for the child’s success in this sensitive area.

Occupational therapy can also assist parents by providing an additional focus to help parents recognize and address their child’s sensory processing skills. Parents’ knowledge about their child’s sensory processing skills can be helpful when planning the child’s day. When
parents demonstrate the appropriate knowledge of their child’s sensory processing skills it allows them to understand their child’s behaviors and adjust their daily routines to provide their children with enjoyable experiences (Dunn, 1997; Dunbar, 1999). Parents’ awareness can also help create a more successful environment during co-occupations with their child because the parents can predict their child’s responses based on different stimuli. The program should also aim to make the family feel comfortable rather than overwhelmed or stressed with the changes in routine (Dunbar, 1999; Raina et al., 2005; Cohn et al., 2000). A home program may not be implemented if the family feels uncomfortable or overwhelmed by the program; therefore it is important for the occupational therapist to build an open relationship with the families so their concerns can be addressed with interventions appropriate for the family (Dunbar, 1999). When creating a home program for families, the occupational therapist should identify the family’s routines, roles, and values to ensure the home program supports the family by providing meaning and purpose. To better understand the family’s routines, roles, and values, the therapist should ask the parents their hopes and expectations for therapy outcomes (Cohn et al., 2000).

Cohn and colleagues (2000) conducted a qualitative research to identify parents’ hopes for occupational therapy outcomes for children with sensory processing disorder. The semi-structured interview asked parents to talk about their concerns and hopes for their child. The researchers discovered parents wanted their children to develop appropriate behaviors for social participation, competence to control their behavior, and mechanisms for self-regulation. Parent-focused outcomes included learning strategies to support the child and personal validation. Parents expressed concerns about the child’s behavior due to sensory needs and social behaviors. Parents reported wanting a better understanding of their child to help facilitate their child’s development. The researchers suggest that occupational therapists have the opportunity to
provide parents with validation for their concerns and address those concerns through description of family routines. This allows the therapist to design an intervention that can be integrated into family routines while addressing social participation, self-regulation, and self-competence for their children. This approach also seemed appropriate in the following case study.

A case study conducted by Dunbar (1999) studied Sara, a 3-year-old girl who demonstrated difficulty with occupational performance both in her social and home environment. Sara’s teacher reported that maladaptive behaviors were interfering with Sara’s ability to interact with others; thus interfering with her ability to play. Her parents also voiced concerns of her behaviors at home including seeking movement, hanging on objects, and taking risks during play. The author and Sara’s parents agreed to weekly 1 hour outpatient therapy sessions supplemented by a home program designed by the parents and therapist. After observing the therapy sessions, Sara’s mother noted increased awareness of Sara’s sensory needs and addressed those sensory needs at home by incorporating movement in Sara’s daily routines. Sara’s mother also used this education to alter family routines to better address Sara’s needs. Occupational therapy was discontinued after three months due to the family moving to another state; however, prior to discontinuing therapy Sara’s behavior began to improve with decreased tantrums, quietly engaging in play, cessation of head banging, and sleeping through the night. This suggests that increasing parents’ awareness of their child’s sensory needs through education may lead to appropriate changes in the family routine to better address the needs of the child, encourage appropriate occupational performance, and result in positive changes in the child’s behavior.

Bono and colleagues (2004) suggest that positive changes in the children’s behavior may allow families to engage in meaningful occupations as a whole unit. The involvement of
occupational therapists and implementation of the sensory processing strategies may help co-
occupations of daily living become more enjoyable and less stressful for the entire family.

We are seeking to determine whether teaching parents about sensory processing will help
them feel more comfortable engaging in play, recreation, or community outings with their
children, thus enhancing the quality of relationship for parents and their children with sensory
processing disorders. We held one-day workshops with instruction and hands-on learning
opportunities for families of children with self-identified sensory processing difficulties.
Funding for the retreats was provided to Camp Courageous by Lucas County Board of
Developmental Disabilities. See Appendix A for the goals and objectives of the grant. This is a
report of the mixed methods outcome measurements obtained for program evaluation.

Methods

Participants

The target population for this research study included families with children with autism
or sensory processing difficulties living in Northwest Ohio or Southern Michigan area.
Recruitment for participants was conducted through advertisement by the Autism Society of
Northwest Ohio (ASNO), flyers through the Lucas County Board of Developmental Disabilities,
and word of mouth communication. Participants were self-selected and self-registered for the
retreats through Camp Courageous. Participants paid a fifteen dollar registration fee to Camp
Courageous, unless they demonstrated financial need in which case, scholarships were provided.
No random sampling or random assignment was conducted for treatment or control. This was
purely a descriptive, outcomes measurement study.
Nineteen families self-registered for one of three one-day retreats at Camp Courageous. Children of concern ranged in age from 3.5 to 14.3 and had a variety of diagnoses including autism spectrum diagnoses, developmental disability, blindness, and genetic disorders.

**Retreat Format**

Retreats were held at Camp Courageous, an accessible campground in a wooded area of rural northwest Ohio. Retreat staff consisted of Camp Courageous counselors and students of the University of Toledo’s occupational therapy doctoral program who were provided a stipend. Supervision was provided by the executive director of Camp Courageous and a registered and licensed occupational therapist.

The retreat programming was preceded by an hour in which families arrived, checked in, received materials, and were offered a continental breakfast. As they were ready, families were greeted by retreat staff and the children were transitioned to the retreat staff for the morning session. Refer to Appendix A for the schedule events.

The sensory retreat was divided into a morning session and an afternoon session. During the morning session, parents attended an interactive workshop on the topic of sensory processing. The workshop addressed modalities of sensory input including smell, vision, hearing, touch, taste, body, and movement senses. Other topics included how sensory modality contributes to daily functioning and description of how rhythm, pattern, intensity, and quality of sensory stimulation influence arousal. Additional components of the workshop included discussing patterns of sensory processing according to Dunn’s four quadrant model and asking parents to describe prominent sensory patterns of themselves and their child through use of the Sensory Profile. During the workshop, parents were encouraged to discuss the sensory needs of their individual families through environmental/schedule modification and incorporating
sensory-rich activities. The parents utilized a journal for observations of their child’s sensory needs including environmental/schedule modifications, activities for calming, and activities for arousal or expanding sensory tolerances. Parents were encouraged to identify three additional activities to try at home, gather related materials into a plastic shoe box, and identify two resources for further information/education for sensory processing. The parents had a variety of items to choose from to include in the sensory boxes including pinwheels, theraputty, tootsie rolls, stress balls, noise makers, scents, materials and instructions to make gak, bubbles, and feathers. Refer to Appendix B for the educational materials and parent journal.

While their parents attended the morning workshop, the children (those with autism or sensory processing difficulties and their siblings) participated in sensory-rich activities with retreat staff. The staff observed the children for their behaviors and reactions to sensory stimuli while engaging in the sensory-rich activities such as obstacle courses, nature hikes, finger painting, and nature painting. Refer to Appendix C for a complete list of activities available. Children were not forced to participate and chose the activities within safety limits. Materials and demands were modified as appropriate to encourage participation.

The retreat staff members were provided with strategies to make the activities enjoyable for children with a variety of sensory processing reactions. Calming and alerting strategies were suggested to increase participation for children who may have otherwise been hesitant to participate. For example, suggestions for the obstacle course included hiking without a trail, developing an obstacle course in a field, and encouraging the children to walk, climb, and maneuver throughout the obstacles in their path. The calming modification suggested encouraging the child to carry rocks/weights, climb harder objects, or hold a staff member’s hand. The alerting modification suggested encouraging the child to climb a variety of surfaces,
go through the obstacle course different ways, and encouraging the child to go faster. The retreat staff members were encouraged to implement the strategies as deemed appropriate for each child.

Prior to lunch, retreat staff introduced the menu to parents and discussed the sensory aspects of the food. The parents were encouraged to discuss the various sensory stimuli associated with the different food items of the menu, observe their own reaction and their child’s responses to sensory aspects of the meal, and list three ways to implement sensory aspects of food to meet their child’s sensory needs.

After lunch, parents and their child (children) participated with one another in sensory-rich activities with assistance from retreat staff as needed. The parents were encouraged to observe the behaviors and responses to sensory stimuli noting whether their child’s (children’s) responses were consistent with past responses, observations from the retreat staff, and the sensory patterns identified by the Sensory Profile. At the conclusion of the retreat, parents were asked to reflect on the sensory-rich activities by discussing observations and modifications with retreat staff, entering information into sensory journals, identifying two additional activities to try at home, and gathering materials as needed.

Data Collection Procedures

Prior to collection of information, a researcher approached parents to describe the study and details of participation. The researcher offered to answer questions and invited parents to participate in the study. Attendees who provided informed consent were provided with tables to sit at to complete the Parenting Relationship Questionnaire (PRQ, Kamphaus & Reynolds, 2006). To maximize convenience for participants, data collection procedures were designed to co-occur with the standard elements of the retreats.
If the parent provided written consent, he/she was asked to complete the PRQ (Kamphaus & Reynolds, 2006) on two occasions: 1) Upon arriving at the retreat before the workshop began; and 2) at 4 weeks after the retreat, the PRQ and return-paid postage were mailed to consenting participants. Mailed packets were followed with a reminder phone call at one week.

The outcome measurement plan of the research included a follow-up phone call two to four weeks after the retreat. For consenting participants, the responses to these phone calls were included for qualitative description of outcomes. The responses to the open-ended interview questions were recorded through note taking by the researcher calling the participant. The parents were asked to verbalize their understanding of sensory processing and its impact on everyday function, report notable observations since attending the retreat, report attempted modifications and their outcomes, report attempted sensory-rich activities and their outcomes, and report usefulness of the Sensory Profile, sensory journal, modifications, and activities recommended at the retreat.

**Apparati**

**Parenting Relationship Questionnaire (PRQ)**

The PRQ was developed based on the concept that knowledge about the parent-child relationship can help clinicians understand and treat behavioral issues experienced by the child (Kamphaus & Reynolds, 2006). This standardized questionnaire is used to assess variables of family and parenting relationships along subscales of attachment, communication, discipline practices, involvement, parenting confidence, satisfaction with school, and relationship frustration. The statements reflect common thoughts and situations a parent or caregiver may experience when caring for his or her child. The parents rate their responses on a Likert-type scale by circling corresponding letters for never (N), sometimes (S), often (O), or always (A). It
takes approximately 10 to 15 minutes to complete the questionnaire and parents must be able to read at a third-grade reading level or above (Kamphaus & Reynolds, 2006).

As reported by the authors (Kamphaus & Reynolds, 2006), the reliability and validity were determined with studies conducted during the standardization process. While determining the reliability, the median values indicated high internal consistency with the values ranging from .82-.87. These findings indicate that the PRQ provides a reliable estimate of the dimensions of the parent-child relationship (Kamphaus & Reynolds, 2010). When determining the test-retest reliability, the respondents were asked to repeat the questionnaire within a couple weeks as changes were less likely to occur in this time frame without intervention. The median values measured at .79 with an indication of correlation. Validity tests demonstrated moderate correlations between the scales (Kamphaus & Reynolds, 2010). Two validity indices are available with paper scoring. The F-Index reports if respondents were overly negative toward the relationship with the child whereas the D-Index reports if respondents were overly positive toward the relationship with the child (Kamphaus & Reynolds, 2010). When implementing computer scoring, two additional indices can be utilized to determine the validity of responses. The Consistency Index measures how often the respondent makes discrepant choices for similar items on the test. The Response Pattern Index measures when the respondent provides random answers to items, indicating the respondent may not have been paying attention to the statement (Kamphaus & Reynolds, 2010).

**Phone interview**

A phone interview was conducted to assist with qualitative data measures. Refer to Appendix D for the phone interview. The interview was conducted between two to four weeks after the participants attended the retreat. The researchers called the participants to discuss what
they felt they learned while attending the retreat. The phone interview contained six open-ended questions. The researchers informed the participants that handwritten notes were being recorded for their responses and participants were encouraged to be honest with their responses. The questions asked what the participants learned about sensory processing, whether they had used the information since the attending the retreat, whether they noticed any changes in their children’s behaviors, and whether the information they learned at the retreat was helpful. Participants were also encouraged to ask questions during the interview if their questions were not addressed during the sensory retreat. All additional questions were forwarded to the principal investigator and answered in a timely manner.

**Data Analysis**

Responses to some items of the Parent Relationship Questionnaire were not sufficiently normally distributed to allow parametric testing; therefore, the Wilcoxon Signed Rank Test was used to identify “the relative magnitude of differences and the direction of change” (Tomita, 2006, p. 251) among the participant responses. It was also utilized to determine whether there was a positive change in the parent-child relationship. For participants aged 6 years and older, subscales were scored by comparing the sum of scores to normative data according to the age of the child and the gender of the respondent (Kamphaus & Reynolds, 2010), yielding a T score. To assess for isolated rather than broad changes, we compared pre- and posttest scores for each test item using the Wilcoxon Signed Rank Test with $\alpha=0.01$ to control for multiple comparisons. These comparisons were not limited by age as the case with determine the scores of the subscales; therefore, the comparisons gave us additional information that could not be addressed through interpretation of the subscales. We further assessed whether subscales with pretest T
scores outside of the mean by at least one standard deviation (and therefore indicative of an area of difficulty) improved into the normative range at posttest.

The responses for each question of the phone interview were reviewed and categorized into common themes by the researcher. One occupational therapy graduate student served as a peer reviewer by independently examining the responses and categorizing the responses into common themes. After the researcher and peer reviewer were comfortable with their independent categorization of themes, they discussed the common themes identified for each question. In a comparison of the identified themes, no reorganization was required due to agreement of themes.

Results

Parenting Relationship Questionnaires

Seven families of children aged 6 or older participated in both pre and post testing using the PRQ. Within the normative population, T scores average 50 with a standard deviation of 10. Across the population, it was clear that the area of communication was challenging for most families participating, falling outside of the normative range at an average of 26±4. At pretest; however, the mean scores in all other areas were within normal ranges. Post test scores did not differ significantly from pretest scores in any area. Refer to Table 1 for average T scores pre and post retreat, along with statistical results. Overall, eleven families completed both pre and post tests. Item-by-item analysis did not reveal significant changes on specific items.

Pretest ratings indicated at least one area of concern for 3 participants including attachment (n=1), communication (n=3), discipline (n=1), and satisfaction with school (n=1). Scores in these areas did not improve into the normative range at post test.

Responses to phone interviews

Out of 19 participants, the researchers were able contact 12 participants to obtain
qualitative responses. The researchers attempted to contact all participants but were unable to contact some participants due to various reasons such as incorrect phone number, participant unavailable during times of phone calls, and participant not returning phone calls. The researcher attempted to contact unavailable participants a minimum of twice weekly for up to four weeks following the sensory retreat.

Themes

After reviewing the responses to each question, the researcher categorized the responses into common themes. The common themes for each question are discussed.

**Question 1: Defining sensory processing**

Two themes emerged related to the participants’ understanding of sensory processing. The most common theme found that the participants have an individualized understanding of sensory processing and provided specific examples of their children’s behavior to define sensory processing. A majority of participants stated that the child’s sensory processing disorder influenced the family’s everyday functioning. For example, one participant stated that it is difficult for her to communicate with her son when he experiences “sensory overload.” She reported learning the importance of being attentive to his responses to various stimuli so that she can have a better understanding of his sensory needs. This also leads to a better understand of what environments may be challenging for him and gives her the opportunity to provide appropriate modifications so he will not experience sensory overload and communication may be less of a challenge.

The second theme included general definition of sensory processing. Two participants responded with generalized definitions of sensory processing and explained their understanding
of the term on how it affects people in a broad perspective, rather than using examples of their child’s behavior. One participant defined sensory processing as, “The way we take in different information through our senses and how people are able to handle that information.”

**Question 2: Notable differences**

Two themes emerged regarding the participants’ identification of any notable observations related to the child’s sensory processing. The most common theme found that participants had become more aware of the child’s sensory processing experiences and understood how sensory processing impacted their child. One participant stated she was learning more about her son’s sensory needs by paying attention to subtle cues and his responses to various sensory stimuli in his environment.

The theme among the remaining five participants indicated they had not noticed new behaviors demonstrated by their child since attending the sensory retreat. One participant responded that she had not noticed anything new since the retreat but stated that the information was helpful because it reinforced information she learned prior to attending the retreat. She also stated that learning the information from a different perspective gave her a better understanding of sensory processing and how it affects her child.

**Question 3: Changes made**

Two themes emerged when the participants were asked to describe any changes made based on what was learned at the retreat. Six participants responded that their daily routines had not been modified or changed since attending the retreat. One participant explained that her son has been making significant progress for the past 18 months; therefore, she did not want to make any changes at this time.
Other participants responded that they felt the information at the retreat was helpful and provided valuable suggestions including techniques and resources. For example, one participant stated that she had been implementing the supplies in the sensory box provided at the retreat and the supplies have been helpful in the car because they keep her son occupied. This particular participant was happy because her son was not “stimming” as much as he had been prior to implementing the strategies learned at the retreat.

**Question 4: Activities tried since the retreat**

Two themes emerged when participants were asked to describe any activities they had tried since attending the retreat. Ten of the participants reported trying new techniques and receiving positive responses from their child. Many parents reported implementing various supplies from the sensory boxes assembled at the sensory retreat, with parents identifying specific sensory tools that have been helpful in addressing their child’s sensory needs. One participant reported implementing the feather as a calming technique by stroking the feather lightly across her grandson’s arm. She stated that this method has been helpful in keeping her grandchild calm during church services.

Two participants denied implementing new techniques since attending the retreat. One participant stated her son’s seizure activity was too high to implement any new sensory strategies. The second participant stated that she had not implemented any new strategies but she has learned to be attentive to her son’s responses to various stimuli.

**Question 5: Information helpful**

There were two themes in response to whether the participants found the information learned at the retreat helpful. Nine participants agreed that the information and suggestions
provided at the retreat were helpful and stated they would recommend the retreat to others. Three participants stated that the information presented at the retreat served as a review but did not learn any new information; however, these participants stated that the information was presented in a manner that helped them educate others about their child’s sensory needs.

**Question 6: Participant questions**

Two themes emerged when the participants were asked if they had questions about sensory processing that were not addressed during the sensory retreat. The most common theme was that they did not have any additional questions; however, two participants asked additional questions. Both participants had concerns related to their child’s sensory processing difficulties. One participant was concerned about her son’s difficulty to adapt to his environment. She was particularly concerned that accommodating to his needs would enable him as she did not want his sensory needs to become a social issue. She stated that since she could not control every aspect of his environment, she wanted to ensure she was not doing more harm than good by accommodating to his sensory needs. Another participant was concerned about her child’s need for proprioceptive input, how it affects the family’s morning routine, and strategies that could be implemented in making the morning occupations more successful. All questions and concerns were forwarded to the principal investigator and answered in a timely manner.

**Discussion**

We used pre and post test responses from the PRQ to determine any self-reported changes in the parent-child relationship after attending the sensory retreat at Camp Courageous. Responses to the PRQ prior to learning information at the sensory retreat indicated that communication is an area that creates challenges for most families participating in the study. This finding supports evidence in the literature that families with children with autism
experience communication challenges (Watling et al., 2001). This suggests that therapists must address this challenge between the families and their child because it can impact the child’s occupational performance (Bar-Shalita et al., 2008). Since the child may have difficulty communicating his/her wants, needs, or discomforts, parents must interpret the child’s behavior to the best of their ability. Although communication can be difficult for families, parents can learn how to interpret what is meaningful for their child. By observing their child engage in various daily activities and their child’s reactions to objects, sounds, locations, and body movements, the parents have the tools necessary to determine what is meaningful for their child without the use of verbal communication (Spitzer, 2003). When parents demonstrate the ability to adapt to their child’s sensory needs, they facilitate the child’s engagement in daily family routines with the possibility to creating a positive experience for the child and other family members (Dickie et al., 2009).

Posttest responses to the PRQ indicated no significant changes in the parent-child relationship since attending the retreat. Responses for the pretest indicated at least one area of concern for 3 participants including attachment, communication, discipline, and satisfaction with school. These areas did not improve into the normative range at post test. These findings suggest that attending the sensory retreat did not significantly change the global parent-child relationship during the between the time of the pretest and the posttest.

We used qualitative measures to determine any subtle changes that may not have been detected by the PRQ. The most common response from the phone interview indicated that the child’s sensory processing difficulties affect the family’s everyday functioning which is consistent with the literature (Cohn et al., 2000; McConachie & Diggle, 2006; DeGrace, 2004). These findings indicate the importance of addressing the family’s needs in relation to providing
education to parents for modifying the child’s environment or the components of the occupation to address the child’s sensory needs (Cosbey et al., 2010). Educating parents about environmental modifications may encourage different, even pleasant, experiences. Positive and successful interactions among the child and family members may be achieved when the family members are given the opportunity to engage in mutually enjoyable activities, which may require modifications to address the child’s sensory needs. This can be accomplished by helping the parents and child identify activities they find enjoyable. The parents can determine whether an activity is appropriate for their child by examining the physical, cognitive, and sensory components of the activity and the environment (Cosbey et al., 2010).

Occupational therapists must encourage parents to assess their child’s sensory needs when performing activities of daily living because the child’s participation is often influenced by the child’s enjoyment of the activity rather than the occupational performance (Bar-Shalita et al., 2008). Parents can modify activities of daily living to reduce or enhance sensory stimulation. For example, if a child seeks movement the parents can arrange the child’s clothing throughout the room and allow the child to retrieve each article of clothing while dressing.

When parents learn about their child’s sensory needs, they may notice behaviors that may have seemed insignificant prior to learning about sensory processing. The responses in the phone interviews varied in relation to the parents noticing any changes in the child’s behavior since attending the retreat. Many parents stated they noticed new observations of behaviors in their child. This suggests that information from the retreat provided parents with helpful suggestions to read subtle cues from their child or be more aware of their child’s responses to various sensory stimuli. This supports the importance of educating parents to enhance their parenting skills and provide a renewed confidence in those skills (Rocha et al., 2007; Dunbar,
The participants who reported no noticeable changes in their child’s behavior credited this to previous knowledge of their child’s needs due experience and receiving education from various healthcare professionals throughout the years.

Noticing new behaviors to specific sensory stimuli can assist parent in implementing new strategies to address their child’s needs. Responses were divided among the participants to whether they implemented new strategies since attending the retreat. Many participants reported implementing changes through the use of the sensory items from the sensory box at the retreat to address their child’s particular sensory needs. The variety of items used for each child demonstrates the importance of allowing the parents choose the items with assistance from the occupational therapist as needed. For example, one participant reported that her daughter appeared to enjoy the theraputty and it focused her sensory stimming behavior on one item rather than multiple items. Another participant reported utilizing the feather as a calming technique for her grandson during church services. The participants that denied utilizing new strategies or techniques stated various reasons for not implementing what they learned at the retreat. One participant verbalized concern for change in routine since her son had been making excellent progress in recent months and she did not want to chance going backwards. Another participant reported that she did not want to overwhelm her son with too many changes due to the upcoming holidays. These hesitations are not surprising as it can be difficult to want to implement changes if families have already found a strategy or technique that works for their child. Although the participants did not state hesitation due to being overwhelmed, the literatures suggests that a home program will not be implemented if the parents feel overwhelmed or feel that the suggestions do not fit into the family’s routines (Cohn et al., 2000; Dunbar, 1999; Raina et al., 2005).
Among the participants that have implemented new techniques reported positive responses from their child. A majority of participants implemented the sensory boxes compiled at the retreat. One participant that had not implemented items from the sensory boxes stated she had refrained from doing so due to the high level of her son’s seizure activity and not wanting to overstimulate her son and trigger more seizures. Another participant stated that she has learned to respect her son’s sensory needs through years of experience and she does not want to make changes in fear that his progress will diminish.

Many participants stated they would recommend the retreat to others due to the helpfulness of the information presented. Some participants reported the information served more as a review for them and reiterated information they had already learned. Two participants reported the information was presented in a way that helped them explain their child’s sensory needs to others so that it would be understood.

Limitations

There are several limitations that must be considered in the interpretation of the data including participant factors, apparati factors, and the format of the sensory retreats. This study was conducted in Northwest Ohio and the participants reside in Northwest Ohio and Southern Michigan limiting the generalizability of this study’s findings. The small sample size of participants must also be considered. Of the 19 pre-tests completed, only twelve posttests were returned for interpretation with seven posttests eligible for statistical interpretation due to age limitations. Of the 19 participants, the researchers were able to contact twelve participants for qualitative responses. The small number of participants affects the generalizability of the study’s findings.
Since recruitment was through the Autism Society of Northwest Ohio, the Lucas County Board of Developmental Disabilities, and word of mouth the participants attending the sensory retreats have access to resources for families raising children with disabilities. The responses from the study’s participants may differ from parents that do not have access to these community resources.

The apparati used may be possible limitations with regard to ceiling effects, time limitations, and self-reported responses. There were no significant changes with an item-by-item analysis in comparison of the pre and post test responses of the PRQ. This could be due to insufficient amount of time between the pre-test and posttest to determine significant change. This lack of significant change may also be a result of ceiling effects on the PRQ; therefore the PRQ may not have been the proper instrument to determine subtle changes. Additionally, the results relied on self-report from the parent/caregivers about the relationship with their child. The participants may have responded with bias since the researchers were involved in the retreat and the participants may have reported utilizing techniques as not to offend the researcher. The participants’ responses to the PRQ may have reflected what the participants thought the researchers wanted to know or the participants may have wanted to report a healthier relationship with their child than in reality.

The limitations associated with the sensory retreats may have been that the retreats did not allow sufficient time or acquaintance with participants to provide individualized suggestions. The limited time of the retreat may have impacted participants’ responses, they may have needed longer exposure to uptake the ideas or perhaps attend a follow-up session to encourage individualized ideas. Also, some participants were distracted by their children outside and were
unable to focus on the content of the retreat thus impacting the retention or understanding of the information presented.

**Future Efforts**

To ensure better generalizability of the study’s findings, the following suggestions should be considered in future efforts. Future research efforts must include a larger and more heterogeneous population to increase the generalizability of the study’s findings. Future studies should either allow a longer amount of time between the pretest and posttest measures or implement the use of a different parent-child relationship questionnaire that could measure more subtle changes than the PRQ used in this study. It is recommended that the researchers record phone interviews to obtain specific details of the participants’ responses. It is recommended to recruit participants through a variety of agencies including public places to ensure that families without access to resources are not excluded from future studies.

**Occupational Therapy Implications**

This study demonstrates that parents of children with sensory processing disorders are willing to learn how to address their child’s sensory processing difficulties. Responses from many parents during the phone interview indicated that even though they already had some knowledge about sensory processing, they were willing to learn the information from another perspective. These parents were seeking guidance on how to accommodate their child’s sensory processing needs to possibly enhance the interaction with their child.

Occupational therapy often has a significant role in families of children with autism. Families often trust occupational therapists to work with their children and address their child’s sensory needs. Due to many families’ familiarity with occupational therapy, they may feel more
comfortable learning about this topic from an occupational therapist since many therapists build a rapport with the child’s family when working the child.

A successful intervention requires sensitivity and willingness to understand the difficulties experienced from the perspective of the families (Cohn et al., 2000). Occupational therapists have the opportunity to build a rapport with families and learn about the challenges individual families experience when raising a child with sensory processing disorder. Building trust is important because the families’ interpretation of whether healthcare professionals empathize with their particular situation determines the families’ satisfaction of the service (Grant et al., 1998). The therapist can demonstrate empathy by encouraging implementation of shared occupations for the entire family rather than suggesting controlling occupations that do not meet the child’s needs or the family’s expectations (DeGrace, 2004).

When working with a child, interventions should not be exclusive to the child’s needs, but should support and nurture the whole family (Raina et al., 2005; Dunbar, 1999). When determining the appropriateness of a home program the occupational therapist must include the family members’ roles, routines, and values to develop a program that supports the family environment (Dunbar, 1999). The occupational therapist can accomplish this by observing the parents interact with their child and ask the parents about their routines so occupations can be modified appropriately.

Creating home programs that address the family’s concerns will help the occupational therapist build a collaborative relationship with the family. Effective partnerships with family members can only be accomplished by creating goals influenced by family’s concerns about the child’s occupational performance (Dunbar, 1999). Occupational therapists must collaborate with families to examine occupations in family life and the environmental impact on the child’s
occupational performance (Dunbar, 1999). These concerns can be addressed by providing parent training sessions that address parent-implemented interventions. These interventions may result in generalization of improved occupational performance to other contexts outside of the clinical setting (Rocha et al., 2007). Providing these parent training sessions may lead to newly learned skills, improvement of current parent skills, (Rocha et al., 2007) and renewed confidence in their parenting skills. These improvements may also result in reduced stressed for all family members (McConachie et al., 2006; Rocha et al., 2007).

The parenting training sessions must respect the individual differences among families to be effective. To assist with their child’s development, the parents must respect their child’s sensory preferences when engaging in activities (Cosbey et al., 2010). The occupational therapist must help the parents examine the sensory demands that various occupations put on their child. The occupational therapist will assist the parents in identifying appropriate contexts and approaches to support their child with sensory processing disorder. Understanding the sensory demands placed on a child and the child’s sensory needs can help parents modify the environment or occupation to facilitate participation in the occupation (Cosbey et al., 2010).

Occupational therapists can provide families with recommendations specific to their child’s needs. If an occupation requires modification, the occupational therapist has the experience and training to make recommendations for the families that may help the child with sensory processing disorder adjust to his/her environment. Various activities can be demonstrated by the occupational therapist followed by the opportunity for parents to try the different techniques in the presence of the occupational therapist. The occupational therapist can provide feedback and make suggestions based on the child’s responses. The parents can
implement the suggested strategies to address their child’s needs and make changes as appropriate.

Receiving suggestions from an occupational therapist can be helpful for families; it may be helpful to include other families for information support. Incorporating the material in a group setting can encourage a supportive atmosphere that only other families experiencing the same challenges can provide. Conducting the parent training sessions in a group format may facilitate discussion among families and provide informal support. Family members can share their experiences with other participants and provide feedback for different approaches that may or may not have worked for their child. These shared experiences among different families may provide encouragement and reassurance that they are not the only family experiencing these frustrations, challenges, and joys of raising a child with sensory processing disorder (McGuire et al., 2004). At the sensory-rich retreats, the parents were given the opportunity to ask questions and interact with one another at the conclusion of the lecture portion of the sensory retreat. Providing the parents with the opportunity to discuss the challenges they experience uncovered the reality that these challenges are not uncommon and renewed their confidence that they are not alone on this journey (McGuire et al., 2004).

Conclusion

We examined whether teaching parents about sensory processing would help them feel more comfortable engaging in play, recreation, or community outings with their children, thus enhancing the quality of relationship for parents and their children with sensory processing disorders. Results from the PRQ indicated there were no significant differences between the pretest and the post test thus no significant changes in the parent-child relationship; however, qualitative reports indicated subtle changes experienced by most participants. Many participants
reported learning new information regarding sensory processing, observing behaviors in their child since attending the retreat, and implementing strategies suggested by the occupational therapist at the retreat. VanLeit and Crowe (2002) determined that even small changes in occupational performance can lead to positive changes in the parent-child relationship. Thus we conclude that teaching parents about sensory processing will help them better address their child’s sensory needs with the hopes of transferring into improved parent-child interaction and improved everyday functioning.
Acknowledgments

We would like to express our appreciation to the families and their children who generously gave their time to participate in the study and taught us about the experiences families encounter when raising a child with sensory processing disorder. This project would not have been possible without their participation. We also thank Steve Kiessling, the executive director of Camp Courageous, Inc., for allowing us to conduct the sensory retreats on the grounds of Camp Courageous. We thank the retreat staff for making the families feel comfortable by keeping the children occupied with various sensory occupations. We also thank Abby Enser for serving as a peer reviewer for qualitative data review. Finally, we acknowledge the Lucas County Board of Developmental Disabilities for funding the *Empowering Families* grant.
References


Table 1.

*Pre and post retreat T-scores on the PRQ for participants aged 6 and older (n=7)*

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<th>Post-test</th>
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<td>(mean T score ±sem)</td>
<td>(mean T score ±sem)</td>
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Appendix A: Grant Goals and Objectives; Retreat Format

Retreat Events

9-10 am
- Registration
- Research Participation (for some)
- Introductions, Exploration, and Transitions

10am – 12pm, Morning session
- Parents/caregivers: Workshop
- Children: Sensory-Rich Activities

12 pm – 1 pm, LUNCH

1 pm – 3 pm, Afternoon session
- Families: Sensory-Rich Activities

Retreat Staff

This event will not be possible without YOU!
- You will gain knowledge & skill that you can use to help families observe sensory-related behaviors and modify activities to enhance participation
- Without sensitive, hands-on help, many of the targeted families cannot participate in community events

Retreat Staff Training (Goal A)
1. Retreat staff will demonstrate knowledge of sensory processing and observation of sensory-processing related behaviors to the level which supports the goals of the retreats. This will be ascertained
   a. Through pass rates on a knowledge test with 100% of Retreat staff scoring at \( \geq 90\% \) prior to the first retreat,
   b. in discussions with key staff,
   c. during retreats as they report to parents/caregivers and other Retreat staff, and
   d. during debriefing sessions.
- We will review the very same notebook materials that participants will receive which covers:
  - Sensory modalities
  - How sensation influences alertness
  - Sensory processing patterns (Dunn’s 4 quadrant model)
  - Alertness and productivity
  - Meeting sensory needs
- We will review the goals of the workshop, the detailed itinerary, and your role

Participant Outcomes (Goals B-D)
B. Provide participants with a basic understanding of sensory processing and how it impacts everyday life
C. Provide participants with a basic understanding of the sensory needs of individuals with sensory processing disorder
D. Participants will learn least 6 activities that they can replicate at home to address the sensory needs of their children
Retreat: Morning Session Workshop

Education
1. In the morning session, parents/caregivers will attend a workshop on the topic of sensory processing. During or by the conclusion of the workshop, parents/caregivers will
   a. List all modalities of sensory input
   b. Identify the how each sensory modality contributes to daily functioning.
   c. Describe the influence sensory stimulation on arousal.
   d. Recognize patterns of sensory processing according to Dunn’s four quadrant model.

Self Assessment: Parents/caregivers will
   e. Through the use of a standardized questionnaire (Dunn’s Sensory Profile), describe the prominent sensory processing patterns of themselves and their child (children).
   f. Engage in discussions about addressing the sensory needs of their individual families through environmental/schedule modification and incorporating sensory-rich activities at home.

Journals: Parents/caregivers will
   g. Prepare to utilize a journal for observations of their child’s (children’s) sensory needs. In their sensory journal, list 3 ideas for home for
      i. environmental/schedule modification,
      ii. activities for calming, and
      iii. activities for exploring, arousing, or expanding sensory tolerances.

Stations: Parents/caregivers will
   h. Attend 50% of stations that present sensory-rich activity ideas (both those used at the Retreat and others).

Each station will provide information about an activity including its name, the sensory needs it could be used to address, materials needed, methods for constructing the materials and engaging in the activity, and examples for modifying the activity according to various sensory needs.

Take-home materials will be available for some of the activities.

Stations

- Theraputty & bingo chips
- Making stress balls
- Making Gak
- Music makers
- Bubbles
- Weighted balls/bean bag tosses
- Pumpkin carving/egg decorating
- Stompers
• Push & pull of war
• Scents
• Resource table: catalogues, DVDs, books, contact information for local OTs, etc.
• Retreat: Morning Session Workshop

Parents/caregivers will

i. Identify 3 additional activities to try at home and gather the related materials.
j. Identify 2 resources for further information/education/services for sensory processing.

Sensory-Rich Activities

2. During the morning session, children (those with sensory processing difficulties and their siblings) will engage in fun, sensory-rich activities with Retreat staff. During activities, the children will be observed for their behaviors and reactions to sensory stimuli. Children will not be forced or coerced to participate. Activity materials and/or demands will be modified in real time as needed to enhance participation.

During or by the conclusion of this session,

a. Children will try 75% of activities presented, with modifications as needed.
b. Children will participate in 50% of activities to completion, with assistance and modifications as needed.
c. Retreat staff will describe each child’s behaviors and reactions to the sensory stimuli of relevant modalities to the child’s parent/caregiver(s), including:
   i. Activities he/she enjoyed or did not enjoy,
   ii. Patterns of behavior such as sensory avoiding/sensory seeking, and
   iii. Response to any modifications to activities.

LUNCH

3. Just prior to lunch, Retreat staff will introduce the menu to parents/caregivers and discuss the sensory aspects of the food. Parents/caregivers will

a. Describe the expected sensations the food will provide
b. Predict the effect on their own and their child’s (children’s) level of arousal.
c. Observe their own and their child’s (children’s) responses during lunch and make an entry in their journal.
d. List (in their journal) 3 ways they could use the sensory aspects of food to meet their child’s (children’s) needs.
e. Gather recipes as needed.
Retreat: Afternoon Session

4. After lunch, parents/caregivers and their child (children) will engage together in sensory-rich activities with the assistance of Retreat staff.
   a. Parents/caregivers will observe their child’s behaviors and responses to sensory stimuli noting whether their observations are consistent with
      i. The child’s usual responses,
      ii. The child’s sensory processing patterned identified by the Sensory Profile, and
      iii. The observations of Retreat staff.
   b. 100% of parents will modify the activity materials and/or demands according to their children’s sensory needs, with coaching/assistance from Retreat staff as needed.
   c. Families will participate in 75% of activities to completion, with modification and assistance from Retreat staff as needed.
   d. Parents/caregivers will reflect on the sensory-rich activities, including
      i. Discussing observations and modifications with Retreat staff,
      ii. Making entries into their sensory journals, and
      iii. Identifying 2 additional activities to try at home and gather materials as needed.

Retreat Staff Roles

- Safety!
  - Assist with registration, introductions, exploration, transition
  - Assist in gathering materials & saying goodbye
- Sensory-rich activity facilitator:
  - Sensory-rich activities: engage, modify, observe
  - Clean up for lunch
  - Visit with families over lunch
  - As possible, work with same child/parent in afternoon session, facilitate their engagement, observations, and modifications
  - Allow time for parent to make journal entries
- Session facilitator:
  - Be available for questions and discussion throughout workshop
  - Facilitate stations
  - Visit with families & activity facilitators over lunch
  - Work with families during afternoon session, facilitating engagement, observations, and modifications
  - Assist families in making journal entries
Appendix B: Educational Materials and Parent Journals

Sensory Riches:

A Journal

To enhance the life of a child with sensory processing difficulty

Developed by Alexia E. Metz, Ph.D., OTR/L
For Sensory-Rich Retreats
At
Camp Courageous
With support from
Lucas County Board of Developmental Disabilities
Empowering Families Grant
Our senses

- Provide us with information about our bodies and the world around us
- Used for planning and decision making
- Strongly influence alertness, in both directions

<table>
<thead>
<tr>
<th>Senses that provide information about our bodies:</th>
<th>Senses that provide information about our world:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Light touch</td>
<td>• Vision</td>
</tr>
<tr>
<td>• Touch pressure</td>
<td>• Hearing</td>
</tr>
<tr>
<td>• Position sense</td>
<td>• Smell</td>
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<tr>
<td>• Movement sense</td>
<td></td>
</tr>
<tr>
<td>• Oral senses</td>
<td></td>
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</tbody>
</table>

Light touch

- Tells us what we have come in contact with, especially recently
- Generally alerting: denotes potential danger
- Slow vs. fast
- Expected vs. unexpected
- Different effects at different body parts
- Provided by
  - Others—both intentionally and not!
  - Clothing and long hair
  - Air movement

Touch Pressure

- Tells us what we are in contact with
- Gives some information about where we are relative to things in our environment
- Generally calming: denotes stability
- Provided by
  - Contact with supporting surfaces (to the soles of the feet, from the seat of a chair, the back of a chair)
  - Self: crossing arms, crossing legs
  - Others: hugs, squeezes, pats
  - Fitting clothing
- Note: we tend to get used to this sensation, so any given stimulus is less noticed with time
Position sense

- Tells us how our bodies are positioned
- Tells us if we’re sustaining any impact to our frame or joints
  - Carrying weight
  - Jumping up & down
  - Pushing/pulling
- Used to inform us how we should respond with our muscles/joints
- Provided by
  - Joint position & movement
  - Action
  - Interaction with the physical world
- Enhanced, steady impact tends to be calming
- Sudden, forceful impact can be alerting

Movement sense

- Tells us if we (specifically our heads) are still or moving
- Is compared to input from the visual sense for verification
- Used to tell us how we should respond to keep our balance
- Moving in a straight line, stopping, and starting are detected by one vestibular organ
- Moving in a circular motion is detected by a different vestibular organ
- Slow, rhythmical movement tends to be calming
- Fast, varied movements tend to be alerting

Oral senses

- Tells us what we have in/near our mouths
- Various aspects are considered
  - Taste
  - Texture/size
  - Resistance (chewiness)
  - Temperature
- An area where individuals can usually identify their preferences!
- An area used commonly for alerting and calming, almost instinctively
- Provided by
  - Food, candy, gum, etc.
  - Drink
  - Tongue
  - Fingers/hands
  - Non-edibles
  - Musical instruments
Vision
- Provides information about what is present in our surroundings
  - Detection of light & dark
  - Detection of edges/contrast, patterns
  - Detection of color
- Visual acuity ensures focus
- Visual perception ensures understanding and develops from experience in the world
- Used to decide what to pay attention to
- Bright lights, bright colors, contrast, patterns tend to be alerting
- Dim lights, muted colors, clean lines & organization tend to be calming

Hearing
- Provides information about what is going on around us and even outside of our visual range
  - Detection of pitch, rhythm, quality, volume
  - Recognition of the source of the sound
  - Locating the sound
  - Distinguishing one sound from the background
- Used to decide what to pay attention to
- Rhythm, volume, pitch influence alertness
- Note: most of us tend to get used to constant sounds, some people don’t!

Smell
- Provides information about potential sources of
  - Food
  - Danger
- Strong connection to emotional memories
- Note: most of us tend to get used to constant smells, some don’t!

Qualities of sensations
- Intensity (volume, brightness, speed)
- Pattern (visual patterns vs solid colors, rhythm of music, rocking vs. gliding, etc.)
- Duration
- Quality (pure, mixed, scratchy, smooth, etc.)
Sensations of different modalities interact with one another. The effects of sensations on our level of alertness can be long lasting.

Consider these examples:
- What do you do when bit by a bug?
- What do you do after bumping your elbow?
- How much more stimulating is a restaurant if it is both brightly lit and loud?
- Do you work out harder with the loud, fast music and bright lights?
- How much louder do your children seem at the end of a long, difficult day?

How long do you feel relaxed after a massage, bath, or shower?

The meaning of sensation predicts our responses to them. The meaning of sensation is an entirely personal thing that results from:
- Preferences
- Associations
- History of positive/negative experiences
- Our own nervous systems
- Our current state of alertness

Meeting sensory needs

Understanding that sensory processing varies from one person to the next helps us to understand that each individual is having his/her own experience even in the same environment/activity.

This can allow us to “reframe” how we see difficult behaviors.

When we have insight into sensory processing, then we can use our “thinking brains” to meet sensory needs in socially appropriate ways.

Ways to meet sensory needs:
- Provide opportunities to gain sensation that is enjoyed and sought
- Provide the ability to escape or minimize sensation that is distressing
- Change the sensory qualities of the environment or the materials used for an activity
- Use individually selected sensations to alter level of alertness in anticipation of activity
- Schedule activities at a time that alertness is optimal

In order to begin doing this, we must identify two things:
1. Sensory processing patterns
2. Daily patterns of alertness
### Dunn’s model of sensory processing

**Self-regulation**

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Passive</th>
<th>Active</th>
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<tbody>
<tr>
<td>High</td>
<td>“Bystander”</td>
<td>“Seeker”</td>
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<tr>
<td>Low</td>
<td>“Sensor”</td>
<td>“Avoider”</td>
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</table>

**Threshold:** The intensity of stimulation needed to cause a response. Thought to reflect some characteristic of an individual’s nervous system. Varies somewhat from day-to-day, setting-to-setting.

**Self-regulation:** The pattern of behavior an individual demonstrates with regard to meeting his/her own needs. Thought to reflect temperament and learning from past experiences. Can also vary from setting-to-setting.
Our family’s sensory processing patterns

My Sensory Profile

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Raw Score</th>
<th>Definitely Less Than Others</th>
<th>Probably Less Than Others</th>
<th>Typical</th>
<th>Probably More Than Others</th>
<th>Definitely More Than Others</th>
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<tbody>
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My Child’s Sensory Profile

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Self-regulation

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</table>
My pattern of alertness

Alertness: readiness for an activity

Yerkes & Dodson Law

“The Zone”
Range of alertness in which productivity is maximal

My child’s pattern of alertness
Ways in which we are similar:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Ways in which we are different:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Other notable similarities or differences in our family:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Alertness: readiness for an activity

→ Alerting →
- Unexpected
- Light touch
- Bright lights
- Contrasting colors
- Contrasting patterns
- Fast music
- Loud music
- Fast movement
- Strong flavors
- Textured foods
- Bright smells

← Calming ←
- Expected
- Deep pressure
- Dim lights
- Low contrast, color
- Slow music
- Quite music
- Slow, rhythmical movement
- Subtle flavors
- Smooth textured food
- Subtle smells
Calming Ideas for Our Family

Alerting Ideas for Our Family

Ideas for Expanding Sensory Tolerances in Our Family
Modifications to address sensory needs

Environmental modifications

Consider each room in the house (and seat in the car!) for

- Its function
- The time of day it is used
- Who uses it
- Its sensory qualities

Consider the implements/tools used for tasks for

- Who uses them
- Their purpose
- Their sensory qualities
- Where are they? Where are they used?

Clothing

- Texture
- Fit
- Coverage
- Color/pattern
- Pockets
- Activities done while wearing them

Food

- Texture
- Smell
- Flavor
- Time of day/routine
Schedule/routine modifications

Morning routine

- For alerting
  - Open curtains
  - Scented soaps
  - Grooming
  - Bright clothes
  - Visual schedules with contrast
  - Varied breakfasts
  - Time to engage in alerting activities
- For calming
  - Gradual lighting
  - Bland soaps
  - Minimal grooming
  - Soft, easy to don clothing
  - Preparations ahead of time
  - Bland, similar breakfasts
  - Steady pace to routine

After school

- Level of alertness dictates what activity is needed
- Should there be a break time or go straight to homework/afterschool activities?
- What spaces can be used?
- Preparations for the next day?

Bedtime

- Have for seekers: have needs been met?
- For sensors/avoiders, calming bedtime routines & sleeping environments
- Staggered routines?

Community outings/Weekends

- How many things can get done in one day?
- What is the best time of day for our family?
- What is the sensory environment like where we are going? Does it vary with time?
- What features can we control?
- How can we prepare?
- Who needs to go?
- How long will it take?
Environmental & Schedule Modification Ideas for Our Family
Stations

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________
Stations

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________
Stations

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________

Activity name: ___________________________

Notes:

Modifications for our family:

______________________________________________________________________________
Other ideas & resources
### Lunch

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Taste</th>
<th>Smell</th>
<th>Temperature</th>
<th>Texture</th>
<th>Movement Sensation in the mouth</th>
<th>My child’s predicted reaction</th>
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Observations of my child at lunch:

I ideas for using the sensory aspects of food at home:
Effects of sensory aspects of food

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Taste</th>
<th>Smell</th>
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SENSORY-RICH RETREATS

Sensory-Rich Activity

My child participated in: ________________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
Sensory-Rich Activity

My child participated in:______________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
Sensory-Rich Activity

My child participated in: _______________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
Sensory-Rich Activity

My child participated in: ________________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
Sensory-Rich Activity

My child participated in:________________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
Sensory-Rich Activity

My child participated in: ________________________________

Reactions to sensory aspects of the activity:

Modifications attempted & their effect:
The following were the best recommendations/ideas for our family:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
References


Appendix C: Retreat Activities

Sensory-Rich Activities

**Nature Painting:** Pine needles as paint brushes, pine cones and leaves as stamps, mud, berries, flower pollen as paint

- Children use items found in nature as paint brush or even paint.

Calming modification: Hiking/climbing, rolling logs, etc. to find painting materials, and reaching overhead to paint

Alerting modification: Variety of nature textures, colors of paint, etc.

- Parents can use a variety of different materials at home to modify the nature experience.

**Buried Treasure:** Dig for items in the sand dunes, under log ecosystems

- Children dig and sift through material (beans or grain) to find large and small objects

Calming modification: Digging, rolling logs, piling sand/dirt, gloves, use of tools

Alerting modification: Digging for varied items, digging deeper/faster, using hands

- Parents can use bins of different materials with hidden objects or treats at home for their child to discover.

**Pin Wheels:** Use leaves, pinecone needles, bark to create pinwheels on sticks

- By making pinwheels out of different materials they can blow to spin them. Different materials will need a different amount of force to move.

Calming modification: Blowing harder, adding resistance

Alerting modification: Using bright streamers, sparklers
Parents can use standard materials at home to make the pinwheels (paper, plastic, cardboard)

**Nature band:** Use different sized PVC pipes to create large wind chimes and group flutes

- Students blow across containers or tap the side of containers filled with different amounts of liquid to create different tonal sounds.

Calming modification: Blow harder, slow rhythms, fewer pitches

Alerting modification: Blow harder, fast rhythms, variety of pitches

- Parents can use small pop bottles to create a personal sound scale at home.

**Obstacle Courses:** Hike without a trail, set up a maze/obstacle course in the field

- Children walk, climb, maneuver, and work through different obstacles in their path. Examples are chair in hallway, jungle gyms, logs on trail, thick plant growth, etc. Different levels of difficulty can be added as children progress.

Calming modification: Climb harder obstacles, carry rocks/weights, staying near the ground, holding a hand

Alerting modification: Climb a variety of surfaces, go faster, go through different ways

- Parents can easily replicate real world examples in their homes.

**Monster Hike:** Have plywood cutouts tied to the bottom of their shoes and hike the waterline trail

- With blocks on the bottom of their shoes and walking hard on the ground, children hike a trail leaving ‘monster’ foot prints through the woods.

Calming modification: Stomp harder, slower, increase weight

Alerting modification: Stomp faster, increase weight, add songs/sounds
• Parents can easily alter their child’s shoe for their back yard or local park.

Impromptu Balance Beams: Hike trials and use different downed trees for children to walk across

• Children walk across beams at different heights and widths

Calming modifications: Go slower, carry weights, reduce distractions, wider surfaces

Alerting modifications: Higher beams, go faster, march, sing

• Parents can use everyday items, such as towels, wooden boards, playground equipment

Paint Balloons: Use chalk paint on basketball court and sidewalk to create murals of broken balloons

• Children throw, stomp on, and squish small paint filled balloons.

Calming modifications: Wear long pants, stomp harder, throw heavy ones, have a towel close at hand

Alerting modifications: Contrasting colors, throw faster, throw heavy ones

• Parents can use the activity at home with soap, or powders to contain messes.
Appendix D: Phone Interview

Do sensory-rich retreats at camp courageous enhance the parenting relationship?

Follow-up Phone Call

Participant name: _______________________________

Phone number: _______________________________

Date of retreat: _______________________________

Date of call: _________________________________

Record the participant’s responses to the following open-ended questions:

1. Please describe your understanding of sensory processing and its influence on you & your child’s everyday functioning:

2. Please describe any notable observations, relating to your child’s sensory processing, that you have made since attending the retreat:

3. Please tell me about any changes you’ve made based on what you learned at the retreat. Were they helpful?
4. Please tell me about any activities you've tried that you learned about at the retreat. How did they go?

5. Have you found the information and suggestions helpful?

6. Do you have any questions about sensory processing? (Answer questions as able, refer to Principal Investigator, Alexia Metz at (419) 530-6692 for unanswered questions)