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Therapeutic Benefits of an Equine-assisted Learning Group for Children with Disabilities

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Therapeutic Benefits of an Equine-assisted Learning Group for Children with Disabilities

Submitted to the School of Occupational Therapy at University of Indianapolis in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree.

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Abstract

There is limited research regarding the benefits of unmounted equine assisted learning (EAL) activities, therefore the focus of this DCE is to investigate the benefits of an EAL program for children with a variety of diagnoses. Participants ranged from 6 to 15 years old and included 2 male and 10 female. EAL program lesson plans were developed by an Occupational Therapy Student (OTS). The 12 participants were divided into four groups of two to four participants per group. Each group met one day per week for one-hour sessions for a total of six weeks. A Professional Association of Therapeutic Horsemanship International (PATH) certified instructor and OTS led the participants through a variety of EAL activities including grooming, feeding, tacking, leading, tack cleaning, horse stretching, and vital checking. A Goal Attainment Scale (GAS) was designed specifically for this project to measure social skills, problem solving skills, activity engagement, safety awareness, and lesson plan use. Data were collected through observation and recorded after each session by the OTS. It was found that participants had improved social skills and safety awareness at the end of the EAL program. Therefore, EAL programs may be an effective alternative or supplementation to tradition therapy, however future research needs to be conducted to verify these results.

Therapeutic Benefits of an Equine-assisted Learning Group for Children with Disabilities

Children with disabilities come in many different forms with many different problem areas. There are a lot of treatment interventions being used to address these problems, however due to the individuality of the children, there is no golden way to address all issues. Humans have a variety of motivators that drive them in their everyday participation in life. Being able to find what motivates a person is important when trying to implement change. Occupational therapy is client centered and provides a holistic approach to treatment that aims to improve the overall quality of life of the clients served. However, skilled rehabilitation services are very costly, therefore insurance often dictates how often services are received. So, it becomes important to identify some alternative, affordable, yet effective treatment options for children with disabilities. Equine-assisted therapies may be an alternative to bridge the gap between being beneficial to the client and cost effective.

Humans have domesticated animals as pets for thousands of years. Humans and animals have long formed unique bonds of companionship and trust. This unique bond can be utilized as an intervention tool to promote change in children with disabilities. Animals are a good way to motivate and encourage participation in activities that a child may otherwise not want to participate in (Yap, Scheinberb, & Williams, 2017). The human-animal interaction has been shown to have many benefits including increased social interaction among humans, increased trust, decreased depression, increased positive mood, reduced stress and anxiety, increased concentration, improved pain management, increased empathy, and decreased negative behaviors (Beetz & Bales, 2016).

Literature Review

Model of Human Occupation

The Model of Human Occupation (MOHO) focuses on the connection between the mind and body that leads to occupational participation. A person's motivation to participate in activities is driven by their volition, habituation, and performance capacity (Cole & Tufano, 2008). Animal-assisted therapy fits well into MOHO due to using the animal as an environmental modification as well as a motivating factor for occupational participation. According to a case-study by Taylor and colleagues (2009), volition in a child with ASD increased over time when participating in hippotherapy. The results demonstrated that the child had increased motivation to participate in everyday activities outside of hippotherapy throughout the course of the hippotherapy intervention (Taylor et al., 2009), indicating that there may be a benefit of using horses as a motivator to participate in intervention thus increasing overall occupational participation.

Animal-assisted Interventions

Animal-assisted interventions (AAI) is defined as “various procedures that are goal-directed and targets the specific aspects (developmental, therapeutic, emotional, behavioral, etc.) of individual or groups of people involved in working with trained animals” (Glossary of terms, 2016, para. 7). AAI is an overarching term that encompasses animal-assisted activities (AAA), animal-assisted therapy (AAT), and service animal programs (SAP) (Calcaterra et al., 2015). Occupational therapist can use animals alongside traditional occupational therapy interventions to facilitate occupational performance. Many animals have been used in AAT such as dogs, cats, birds, horses, dolphins, guinea pigs and cows (Poleschuck, 1997). Research has shown that AAT can be used with clients along the lifespan (Andreasen et al., 2017). AAT has been used for

children with a variety of diagnoses including autism spectrum disorder (ASD), attention deficit hyperactivity disorder, cerebral palsy, down syndrome, fetal alcohol syndrome and victims of neglect or abuse (Andreasen et al., 2017).

Animal-assisted Therapy & Autism Spectrum Disorder. O'Haire (2017) completed a systematic review that reported the outcomes of research examining the use of horses, dogs, guinea pigs, and dolphins in AAI; horses were the most commonly used animal. According to O'Haire (2017), increased social interaction is the most commonly reported outcome from AAI for children with ASD. Other benefits for children with ASD include improved language and communication skills, decreased problem behaviors, increased positive emotions, and improved motor skills (O'Haire, 2017). Another study by Funahashi and colleagues (2014), investigated the effects of animal assisted activities on the social behaviors of a child with ASD. Quantitative data revealed that an increase in the number of smiles throughout an AAA resulted in an increase of positive social behaviors. The number of smiles was associated with the incorporation of a dog into therapy to promote positive social behaviors (Funahashi, Gruebler, Aoki, Kadone, & Suzuki, 2014).

Animal-Assisted Therapy and Physical & Mental Disabilities. Animal assisted therapy has been found to enhance goal attainment during occupational therapy intervention with children with physical and mental disabilities (Elmaci & Cevizci, 2015). Elmaci & Cevizci (2015) found that children with fears and anxieties were more likely to overcome obstacles with the assistance of an animal compared to those without the assistance of an animal. AAT can also provide physical improvement such as balance. Badau and colleagues (2017) found that with the combination of canine and equine assisted therapies, children with neuromuscular disorders had greater increases in balance than those participating in canine assisted therapy alone. They

reported that the children had a greater motivation to change their behavior to participate more actively in the treatment sessions with animals (Badau, D. et al., 2017).

Equine-Assisted Activities

Equine-assisted activities (EAA) is a broad term used to encompass a variety of ways to connect clients and horses. According to the Professional Association of Therapeutic Horsemanship International (Smith, n.d.), equine-assisted activities are defined as "any specific center activity, e.g.. Therapeutic riding, mounted or grounded activities, grooming and stable management, shows, parades, demonstrations, etc., in which the center's clients, participants, volunteers, instructors and equines are involved". One specific form of EAA used to promote change is equine-assisted learning (EAL). EAL is defined as "experiential learning approach that promotes the development of life skills for educational, professional and personal goals through equine-assisted activities" (Smith, n.d.). There is limited research on the benefits of EAL due to it being a relatively new concept. However, there is extensive research regarding the benefits of therapeutic riding and hippotherapy.

Equine-Assisted Therapy and Autism Spectrum Disorder. Equine assisted therapy (EAT) can have a significant impact on social skills for children with ASD. Borgi and colleagues (2016) found that through a combination of mounted therapeutic riding and unmounted ground work, children with ASD demonstrated a significant improvement in social functioning, as well as, milder improvements in motor abilities and executive functioning when compared to children in a control group that did not receive EAT. Bass, Duchowny, and Liabre (2009) found that a 12-week therapeutic riding program with children with ASD resulted in improved social functioning such as decreased distractibility, increased attention, and increased social motivation when compared to the waitlist control group. Anderson and Meints (2016) found that a 5-week

therapeutic riding program resulted in a decrease in maladaptive behaviors and an increase in empathizing. However, insignificant changes of socialization and communication were noted, which contraindicates other literature (Anderson & Meints, 2016). Therefore, dependent upon the length of the program and the children involved, therapeutic riding and equine assisted therapy may be a beneficial intervention in the treatment of children with ASD.

Equine-Assisted Therapy and Physical & Mental Disabilities. Therapeutic riding can improve gross motor function in children with developmental delay (Winchester, Kendall, Peters, Sears, & Winkley, 2002), spastic cerebral palsy (Cherng, Liao, Leung, & Hwang, 2004), and Down Syndrome (Rigby & Grandjean, 2016). Other benefits of therapeutic riding include decreased spasticity, decreased muscle asymmetry, increased balance, and improved gait (Rigby & Grandjean, 2016). These finding demonstrate that equine-assisted therapies not only provide social and cognitive benefits, it can also illicit physical benefits.

Occupational Performance and Participation

Equine assisted learning (EAL) programs are very similar to hippotherapy, however many differences are noted. According to Professional Association of Therapeutic Horsemanship (PATH) International, EAL is defined as "experiential learning approach that promotes the development of life skills for educational, professional and personal goals through equine-assisted activities" (Smith, n.d.). Hippotherapy is defined as "how occupational therapy, physical therapy, and speech-language pathology professionals use evidence-based practice and clinical reasoning in the purposeful manipulation of equine movement to engage sensory, neuromotor, and cognitive systems to achieve functional outcomes" (American, n.d.). Both programs have a therapeutic goal and incorporate use of the horse as a motivational tool and an environmental constraint. However, hippotherapy is focused on promoting changes in everyday

activities and occupational performance (AOTA, 2014), while EAL is focused on increasing horsemanship with a secondary increase in life skills (Smith, n.d.). Both hippotherapy and EAL have functional outcomes; however, hippotherapy is more generalized to everyday activities as compared to EAL. The greatest difference to note is that EAL does not involve an occupational therapist. EAL is normally designed and implemented by a certified PATH instructor.

Autism Spectrum Disorder (ASD) is a main diagnosis among participants with difficulties in social skills. Occupational therapy practice uses social skills training groups to promote changes in social skills for children with ASD (Case-Smith & Arbesman, 2008). These groups have been found to improve a participant's ability to initiate and maintain conversations with others, as well as increase confidence and self-esteem (Broderick et al., 2002). Similarly, EAL brings children whom have a lack of social skills together; it promotes them to work together to problem solve through activities and communicate their needs and wants. However, social stories are often incorporated into OT sessions to guide and teach appropriate behaviors (Case-Smith & Arbesman, 2008). EAL lacks this aspect of social groups due to the focus of EAL being on increasing horsemanship skills.

Occupational therapy in the school systems is a related service which means that the OT services must support the educational goals (Dunn, 1988). Likewise, EAL is a related service that must support a horsemanship goal (Smith, n.d.). However, both services still incorporate interventions that can be applied to everyday activities and occupational participation. Many school systems work under the direct service model in which children are treated individually or in small groups to reach educational goals (Dunn, 1988). EAL also is a direct service provided in small groups that is used to elicit changes to reach individuals' goals.

Many positive effectives of animal assisted therapy and therapeutic riding have been noted, however there is limited research on the effects of unmounted equine-assisted learning activities. Therefore, the purpose of this Doctoral Capstone Project is to determine the benefits of an equine-assisted learning program for children with a variety of diagnoses. Unmounted interactions with the horse will be used to elicit positive social, cognitive, emotional, and physical changes through the development of grounded horsemanship skills.

Methods

Setting

Morning Dove Therapeutic Riding Inc. is a Premiere Accredited Center of the PATH located in Zionsville, Indiana. All instructors must be PATH certified to facilitate classes and programs (About us, n.d.).

Assessment

A needs assessment was conducted to gain information through interviews, review of electronic records, and observation. Interviews took place face-to-face in both individual and group settings with three PATH certified instructors at the facility. Interviews were used to gain perceptions and thoughts on needs of the facility, needs of the target population, and identify resources available. Next, electronic records were reviewed as a nonintrusive method to gain information about the target population. Target populations diagnoses, strengths, weaknesses, and goals were identified through review of records and categorized into groups in which the target population was going to participate in the equine assisted learning (EAL) program. Evidence based research through review of journal articles was used to gain greater insight into rider diagnoses. Lastly, the target population was observed in the first EAL program session to get a greater understanding of their real-life behaviors, abilities, and limitations.

The needs assessment determined that Morning Dove needed an equine assisted learning (EAL) program to address the needs of the participants during the winter months when therapeutic riding was not in session. The overall goal of this program was to increase grounded horsemanship skills. The EAL program was named Barn Buddies because the participants helped with completing daily chores throughout the barn.

EAL Program

Participants. The target population was a convenience sample of participants that attended therapeutic riding or hippotherapy classes at the facility, Morning Dove. Participants were hand selected by the executive director to participate in the EAL program based on therapeutic need, potential gains, and schedule availability. Participants ranged from 6 to 15 years old and included 2 males and 10 females. Participants were not excluded for having comorbid diagnoses. Participant diagnoses included Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), spinal cord injury, nonverbal processing disorder, anxiety, hypotonia, cerebellar ataxia, epilepsy, speech & language delay, or no diagnosis. Participant goals for participation in equine activities were to develop coping skills, emotional regulation skills, problem solving skills, and social communication skills. Additional goals were to increase independence, confidence, focus, and to overcome fears.

Program Planning. The PATH certified instructors and the Occupational Therapy (OT) student brainstormed and constructed a lesson plan topic list for the EAL program. The finalized topic list included feeding and nutrition, basic horse facts and first aid, horse leading and behavior, parts of tack and cleaning, and tacking of horse. These topics are areas of basic horsemanship (Horsemanship, 2017) that the PATH instructors felt would be most beneficial for the participations to learn and practice. Next, the OT student gathered resources regarding the

topics and developed individualized lesson plans for each session. Lesson plans included horsemanship objectives, life skills objectives, program activities, discussion topics, and ways to grade activities for all levels to promote therapeutic outcomes.

Instrument. The primary outcome measurement tool was the Goal Attainment Scale (GAS). The GAS is a five-point scale from -2 to +2 that can be used to measure outcomes from different contexts and make quantitative data out of qualitative outcomes (Sharp, 2007). Kiresuk (1994) has found that GAS is a valid and reliable measure of quantitative data, dependent upon the individual scoring the levels. A GAS was designed by the OT student to measure the outcomes of the EAL program. The OT student observed all individual and group interactions throughout each session. One GAS was scored each week to obtain an overall scoring of individual and group performance. The participants were assessed in areas of social communication, occupational engagement, safety awareness, and problem-solving skills. Also, the instructors were evaluated on how often they followed the lesson plans designed for the program. For further review, please see the GAS in the Appendix.

Data Collection & Analyses. One Occupational Therapy (OT) student completed data collection through observation of participants and recorded observations after each session. Data collection was performed at the facility. Data were analyzed by finding the average of all scores for the GAS. These averages were used to determine if goals were met.

Implementation

Training. The certified instructors had daily access to the weekly Barn Buddies lesson plans to review at their leisure before their scheduled day of instructing. However, during the weekly staff meetings, the OT student reviewed the lesson plan for the week with the certified instructors, demonstrated priority areas that were most important to be addressed with

participants, allowed time to review resources, and answered the instructors' questions. The OT student made sure all resources were prepared each day for the sessions.

Intervention. The 12 participants were divided into four groups with two to four members per group. Each group came to the facility and participated in the lesson one day per week for duration of six weeks. Each session lasted for one hour. Each session began with participants throwing grain for horses and ended with filling grain buckets for the following morning. These activities were used as grounding activities to provide consistency and carryover each week to promote successful activity participation and decrease anxieties (Vernberg et al., 2008). The middle portion of the session varied each week and consisted of activities such as making horse treats from a recipe, taking vital signs, practicing horse stretches, leading horses, grooming horses, cleaning tack, tacking up a horse, and learning about safety awareness. At each session, both a certified PATH instructor and the OT student were present. The certified instructor served as the teacher and mentor related to horsemanship. The instructor led the group through the lesson plans, taught horsemanship skills, and assessed safety awareness around the horses. The OT student assisted with transitions, promoted activity participation, promoted social communication, and assisted with problem solving. The OT student worked both one-on-one and in the group format with participants. One-on-one interactions included helping participants refocus their attention to task, grading activities to just-right challenge for each participant, promoting respect of personal space, and facilitating social skills through conversation and communication. The OT student assisted the group with problem solving through activities, learning to take turns and share materials, and recognizing body language of others and horses.

Results

Goal Attainment Scale. After the termination of the six-week equine assisted learning program, collected data were assessed utilizing the GAS. Participants' scores for each goal were averaged. Possible scores ranged from +2 to -2. The results are listed below.

Lesson Plans. Data were collected based on percentage of utilization of lesson plans. The expected goal of usage was 80%. The final score was -1, which was less than expected level of success. The results indicated that the lesson plans were utilized 63% of the time. Instructors reported that they veered from lesson plans due to time restraints, decreased preparation, weather conditions and incompatibility with participant skills.

Social Skills. The OTS observed participants for initiation of conversation with peers and adults. The final score for initiation of conversation with peers was 0, which is expected level of success. On average, 70% of participants initiated conversations with peers throughout the six week duration. The final score for initiation of conversation with adults was +1, which was more than expected level of success. On average, 85% of participants initiated conversation with adults (which included the instructor, OTS, barn manager, executive director or volunteers). Therefore, the results indicate that participants initiated conversations with adults more often than with their peers. During week one, 25% of participants' initiated conversations with their peers. By week six of the program, 85% of participants' initiated conversations with their peers. Therefore, participants social skills increased through the six-week EAL program.

Problem Solving. Participants were observed as a group throughout each session and an assistance level was determined for the level of assistance required to problem-solve through a specific task. At every session, each group distributed dinner to the horses and made grain for the following morning. This task required participants to work together and follow multistep written

instructions. The final score was -1, which was less than expected level of success. The participants required minimal assistance 35% of the time, moderate assistance 48% of the time, and maximum assistance 17% of the time. Overall, the amount of assist required decreased each week due to the repetition of the activity. However, when group dynamics changed (such as when a participant was absent), the assist level changed.

Engagement. The final engagement score according to the GAS scale equated to -1, indicating less than expected level of success. This indicated that an average of 46% of participants stayed engaged throughout an entire activity and did not require any redirects back to the activity. Activities were different each week, therefore length of time, motivation to participate, and difficulty level varied each week.

Safety Awareness. The final safety awareness score according to the GAS equated to 0, indicating expected level of success. Seventy-eight percent of participants demonstrated safety awareness each week around the horses. The need for safety awareness varied each week due to the amount of horse interaction based on the weekly activity. Some activities, such as grooming, required more safety awareness than others, such as cleaning tack. However, safety awareness was needed each session due to some form of interactions with the horses.

Discussion

Based upon the needs assessment, Morning Dove Therapeutic Riding Center needed lesson plans for their unmounted equine assisted learning program. Therefore, the lesson plans and resources created by the OTS for the Barn Buddies program met the needs of the facility. For quality improvement, results of the GAS was used to analyze how often the lesson plans were utilized during the sessions. It was found that instructors utilized the lessons 63% of the time which was less than the expected amount of use based on the goal of 80%. The GAS allowed the

OTS to determine effectiveness of lesson plans to make suggestions and edits of the lessons for the following year of Barn Buddies. The sessions were implemented by four different instructors; therefore, each instructor followed the lesson plans in their own way. The lesson plans were made available to each instructor via a hard copy and online. The lesson plans and resources remained at the facility after the conclusion of the DCE to be used in the future. Due to the involvement of the OTS in the implementation of the Barn Buddies lesson plans, the OTS recommended that the instructor have a second volunteer to assist with implementation of lessons in the future.

The positive impact an equine assisted learning program can have on children with disabilities is evident based on the results. Social skills were shown to increase over the course of the program based on the increase from 25% to 85% participants initiating conversations with peers. Therefore, a significant improvement in social skills throughout the duration of the Barn Buddies program was determined which indicates that the program met the social needs of the participants. However, participant engagement in activities decreased from 50% of participants during week one to 42% of participants during week six. The results indicate that more participants were engaged at the start of the program as compared to the end of the program. Participant engagement may have decreased due to decreased motivation to participate, decreased interest in the sessions activity, instructors not following the lesson plans, or increased distractions from peers due to increased likelihood of initiating conversations with peers. During week one, 62% of participants demonstrated safety awareness. By week six, 85% of participants demonstrated safety awareness around the horses. This shows that participants were more aware of their bodies in space in relation to that of the horse. They also had a better understanding of

safety needs by the end of the EAL program. Overall, this shows that participants had increased levels of social skills and safety awareness at the discontinuation of the EAL program.

Overall Learning

Leadership Skills. According to Mumford and colleagues (2000), three skills needed to make an effective leader include increased levels of subject knowledge, problem solving skills, and social skills. As an OT student, I had a large volume of subject knowledge relating to human occupations and ways to promote successful participation with individuals of all skill levels. However, I had limited knowledge relating to horsemanship skills as compared to that of the certified instructors located on site. Therefore, I continued to develop my skills through research, education, and on-site experience with the horses as I developed the Barn Buddies lesson plans. Through this continued research, I developed a basic level of horsemanship knowledge and skills that allowed me to plan sessions to promote a learning experience for the Barn Buddies participants. I determined ways to increase my knowledge on my own and used my social skills to communicate and learn from others with a large knowledge on horsemanship. My strong social skills allowed me to assist the participants with developing their own social skills and problem-solving strategies.

I provided services through direct, group, and consultative routes. I worked as a consultant to Morning Dove through planning programs and increasing resources for future use. During the implementation of the Barn Buddies program, I worked one-on-one with group members, as well as assisted with facilitating group interactions. Therefore, I fulfilled multiple leadership roles throughout the course of my DCE experience including directing others, relationship building, verbal and non-verbal communication, and coaching.

Conclusion

The Doctoral Capstone Experience (DCE) was a learning experience that made me grow as a professional and as a person. Throughout my DCE at Morning Dove Therapeutic Riding Center, my professional oral, non-verbal and written communication was challenged which, in turn, forced me to grow and adapt. I interacted with a variety of individuals throughout my DCE including Morning Dove staff members, PATH certified instructors, participants, and participants' family members.

I had the most interactions with the Morning Dove staff members, due to the small number of employees, spending 40 hours onsite, and sharing an office with three other staff members. I communicated verbally and non-verbally daily with the staff members through informal day to day interaction, facility orientation, formal and informal interviews, learning sessions about therapeutic riding and horses, lesson planning assistance, advocating for OT, and weekly meetings. During weekly meetings, I updated the staff members about my project progress, asked questions, and shared plans for the future. I also communicated frequently with the PATH certified instructors while developing and implementing the lesson plans. During the planning stage, I communicated with the instructors about their goals for the program, topics to incorporate into the lessons, and potential resources to include. When writing lesson plans, I developed and followed a lesson plan template to ensure that the lessons were parallel and easy to follow. Lessons were reviewed and approved by the instructors before implementation.

Interactions with participants and family members were always held to the highest standard of professionalism. I always introduced myself and my role upon first interaction with a participant or family member. I also made sure they felt welcome and comfortable by offering a smile and a calming presence. When working with the participants during the implementation of

Barn Buddies, I made sure I was available for questions or assistance when required, offered guidance toward solutions, or gave praise and encouragement for positive behaviors or actions. I gave participants space when they needed a break or provided encouragement to participate when they needed redirecting. I attempted to maximize participants experience by being an effective therapist that was able to read a situation and implement an appropriate solution based upon the specific needs of the child.

Overall, I learned a lot about my own abilities and grew in my confidence through the DCE. Since Morning Dove does not have any therapists on site, I had to rely on my education and professional experience from the past three years to successfully implement the lesson plans I created. This really pushed me to trust myself and my abilities during implementation. Therefore, I feel that this professional experience has made me ready for being an independent therapist in the future.

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Appendix

Goal Attainment Scale

Goal:	Much more than expected level of outcome +2	More than expected level of outcome +1	Expected level of outcome: success 0	Less than expected level of success -1	Much less than expected level of success -2
Lesson plans will be utilized 80% of the time.	Lesson plans utilized 100% of the time	Lesson plans utilized 90% of the time	Lesson plans utilized 80% of the time	Lesson plans utilized 40% of the time	Lesson plans utilized 0% of the time
50% of group members will initiate conversation with peers each session.	100% of group members initiate conversation each session	75% of group members initiate conversation each session	50% of group members initiate conversation each session	25% of group members initiate conversation each session	0% of group members initiate conversation each session
50% of group members will initiate conversation with an instructor each session.	100% of group members initiate conversation each session	75% of group members initiate conversation each session	50% of group members initiate conversation each session	25% of group members initiate conversation each session	0% of group members initiate conversation each session
Group will require min A for problem solving group tasks in each session.	Independent with problem solving	Standby A for problem solving	Min A for problem solving	Mod A for problem solving	Max A for problem solving
50% of group members will stay engaged in group activities each session	100% of group members will stay engaged in group activities each session	75% of group members will stay engaged in group activities each session	50% of group members will stay engaged in group activities each session	25% of group members will stay engaged in group activities each session	0% of group members will stay engaged in group activities each session
75% of group members will demonstrate safety awareness each session.	100% of group members demonstrated safety awareness	90% of group members demonstrated safety awareness	75% of group members demonstrated safety awareness	50% of group members demonstrated safety awareness	25% of group members demonstrated safety awareness