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## Perceptual Differences in Children Learning to Play Golf with Traditional or Modified (Scaled) Equipment

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Perceptual Differences in Children Learning to Play Golf with Traditional or  
Modified (Scaled) Equipment

Perceptual Differences in Children Learning to Play Golf with Traditional or Modified (Scaled)  
Equipment

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy in Kinesiology

By

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## Abstract

The purpose of the present study was to examine perception differences of competence and enjoyment between learners using modified and traditional equipment, and the potential effects these factors could have on intent for future participation. The participants in this study were 123 children (65 girls, 58 boys) aged 7 to 17 years. Through a convenience sampling method, data was obtained through surveys measuring golf participation and self-perceptions concerning perceived competence, enjoyment and intention to continue participation. To avoid an age confound, the dataset was limited to 2<sup>nd</sup> through 5<sup>th</sup> grade children (24 traditional/ 75 modified) for secondary analyses (MANOVA and ANOVA). Analysis revealed no significant differences for enjoyment, perceived competence or intention between children learning with traditional golf equipment and modified golf equipment. Traditional equipment users reported significantly higher experience levels than that of modified users. Enjoyment, perceived competence and intention were regressed on each demographic variable, which indicated traditional equipment was a strong predictor of participants' intention to continue participation. Intention was regressed on the enjoyment and perceived competence variables. For both groups, children using modified and traditional equipment, enjoyment was a strong predictor of intention to continue participation in golf. Even with a significant difference in experience levels, modified equipment users reported similar perceptual experiences as traditional users. The ability to generate positive effects immediately suggests the potential of a more effective way to learn golf. The implication of this research is that further investigations need to occur examining introductory methods to the game.

*Keywords:* golf, perceived competence, enjoyment, intention to participate, youth sports, modified equipment, SNAG Golf

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## Dedication

This dissertation is dedicated to my wonderful and loving family. To Mom, Dad, Natalie, Mackenzie, Macauley, Alex, Myla and Evie, thank you for always extending your unconditional support. I am forever grateful.

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## **Chapter One**

### **Introduction**

Initial engagement with any sport or game activity is a crucial period with which continued interest can be affected by a multitude of factors including success in skill development, enjoyment, challenge, as well as a progressive and active approach to learning. A recent example of the importance in this initial experience for sport came with the United States Tennis Association's (USTA) launch of Quick Start tennis in 2008. Tennis had been declining in participation and to combat further decline, the entrance to the sport was re-evaluated. The USTA quoted,

"In a decision that will fundamentally change the future landscape of tennis in the United States, the USTA has passed new rules governing competition for 10-and-under tennis tournaments. Studies have shown that competition, when conducted in a welcoming environment that allows for multiple play opportunities, enhances kids' enjoyment of the game. And for aspiring collegiate and professional players, the Quick Start tennis play format fosters proper technique and enhances strategy, key components to success in competitive play. This action of creating an environment conducive to success by enabling children to play to learn as opposed to learn to play has been met with success within the few years it has commenced" (USTA).

According to the Tennis Industry Association's (TIA) recent participation report, the demographic that witnessed the largest increase in 2012, a 12% increase from 2011, was youth players aged 6 to 11 years. Since Quick Start's (10 and Under Tennis) official launch in 2008, the program has reached children, parents as well as tennis providers and professionals. This has been shown to be a positive influence on numerous other industry segments. For example, there are now more than 10,000 courts in the U.S. lined for youth tennis. Sales for youth Quick Start equipment (modified balls and racquets) continue to increase, as does the number of facilities offering the youth program (State of the Industry Report, 2013). These statistics show the rapid

growth of 10 and Under Tennis since the initial 2008 launch that included 1,000 facilities (State of the Industry Report, 2013).

An almost mirrored image of what tennis suffered during its decline in participation, the golf industry is witnessing a similar decrease, enough to expose a lack of proper introduction to the sport. The National Golf Foundation (NGF) reported that from 2005 to 2012, golf participation dropped from approximately 30 million to 25.7 million (Beditz & Kass, 2012). The Professional Golf Association, in recognition of the sport's attrition and retention problems, vested interest in a strategic approach to expose underlying factors related to this decrease and requested the assistance of the Boston Consulting Group (BCG). They coined the research and strategic plan, Golf 2.0, an approach to growing golf participation. The survey's results showed that a total of 26.1 million people played golf in 2010, one million fewer golfers than the year previous (Golf 2.0, 2010). According to this study, the leading reasons as to why people do not participate or discontinue playing this lifetime sport is that the sport does not provide a welcoming entry for its beginning learners and that players lack an understanding of the game/rules (Golf 2.0, 2010). BCG's research also reported that 81 million people are not playing golf, but want to play. The top barriers associated with why people do not participate were that the sport is not welcoming to beginners, limited understanding of the game and its rules, and the fact that their significant other did not play. Another important note to this research was that 59 million have never been exposed to golf. In congruence with Golf 2.0, emphasis has been placed upon the golf industry and methods by which action can be appropriated in order to counter this decline in participation. An evaluation of the methods by which golf is introduced to new learners, specifically children, should be assessed from a pedagogical standpoint, along with how that structure affects the psychological factors of participants and their continued participation.

Children primarily participate in physical activities for reasons such as enjoyment and fun (Weiss & Ferrer-Caja, 2002), and research on young athletes has found enjoyment to have a strong effect on factors determining sport commitment (Weiss, Smith & Kimmel, 2001; Weiss, 2007). In fact, enjoyment in a physically active setting has been related to other variables that positively influence participation. Relationships between enjoyment of physical education or sport and perceptions of competence have been found in young wrestlers (Scanlan & Lewthwaite, 1986) and figure skaters (Scanlan, Stein, & Ravizza, 1989). Reports have also demonstrated that enjoyment is positively correlated with task orientation in adolescents (Duda & Nicholls, 1992; Viira, Raudsepp & Liblik, 1999), as well as the physical and psychological benefits of participating in physical activity (DiLorenzo et al., 1999). Therefore, it is important to understand that the type of environment created when learning a sport influences the psychological factors related to children's continued participation. Several studies have shown that intrinsic motivation often leads to participation in physical activities (Hein, Muur & Koka, 2004; Goudas, Dermizaki, & Bagiatis, 2001), and that creating environments conducive to intrinsic motivation are believed to foster participation in sport because of its association with enjoyment and satisfaction, or fun (Crocker, Hoar, McDonough, Kowalski, & Niefer, 2004). Perceived competence, an individual's ability to feel that they are good at something, can be raised through the type of motivational climate utilized (Theeboom, Weiss & Knop 1995). One strategy of promoting intrinsic motivation to enhance perceived physical competence is to modify skills, activities and equipment (Alderman, Beighle & Pangrazi, 2006).

The evolution of scaled equipment and activities for beginner learners in sports is not a new concept. Baseball, football, basketball and, more recently, soccer have all developed first touch programming with the goal of providing the best learning environment for potential

players to progress and develop sufficient skill to enjoy the sport, and research supports this facilitation. For example, a study done with youth basketball players indicated that modifying ball size and basket height had a positive influence on children's shooting performance and self-efficacy (Chase, Ewing, Lirgg & George, 1994). However, sports such as tennis have just recently embarked on a systematic movement to bring an adaption of the sport to children. Quickstart is the USTA's approach to scaling down courts and racquets and by modifying balls, with the goals of promoting early success and speeding up the development of fundamental skills (Elderton, 2008). A recent study, examining tennis players, found that modified balls and court size increased overall performance success for children learning in a modified environment versus the traditional environment (Larson & Guggenheimer, 2013).

Golf is one of the world's oldest games, yet the industry has not yet developed a systematic movement to develop and implement a modified introduction to the game. SNAG Golf, very similar in structure to that of Quickstart, contains all the elements of golf but in a modified form. As a player friendly, first touch development program for all ages, SNAG has its own simplified rules. SNAG utilizes developmentally appropriate equipment that will allow golf to be learned and played in non-traditional venues and allows for full shots, pitching, chipping and putting. From the balls to the clubs, targets and course play, SNAG has modified its components to simplify instruction and play so that it can be easily taught and learned with an effective transition into traditional golf. Though the comprehensive nature behind SNAG's development make it the leader in modified equipment for golf, the industry has not pursued a uniform change in the way youth are introduced to the sport. When looking at youth and their introduction to the sport of golf, no studies have been directed toward analyzing their perceived

competence and enjoyment based on the use of traditional equipment versus modified equipment, when learning to play the game.

### **Purpose of the Study**

The potential positive psychological impacts that modified equipment (as opposed to traditional) could have on children learning to play golf lacks empirical evidence. Utilizing modified equipment to teach new learners how to play golf is not commonplace, therefore it is important to assess the potential positive effects such methodology could pose for motivation, success, attrition and retention within the sport. The purpose of this research was to examine if differences in perceptions of competence and enjoyment exist between children learning golf with traditional equipment and children learning with modified equipment, as well as investigating the potential effects these factors could have on intent for future participation.

### **Definitions of Terms**

*Achievement Goal Theory:* Achievement goal theory (Nicholls, 1989) proposes that individuals differ in how they view the world and what information they find most meaningful in terms of feeling competent in achievement domains (task-goals or ego-goals).

*Competence Motivation Theory:* Competence motivation theory, based on developmental psychologist Susan Harter's research (1982), posits that individuals are motivated to feel worthy or competent and that such feelings are the primary determinants of motivation. The competence theory states that children will gravitate to areas in which they perceive competence and avoid areas where success is hit or miss and a sense of accomplishment is lacking.

*Enjoyment:* The positive affect, that reflects feelings such as pleasure, liking or fun, associated with the involvement in physical activities and sports (Kendzierski & DeCarlo, 1991; Scanlan & Lewthwaite, 1986).

*Intention to be Physically Active:* Intention is viewed as the most central predictor of behavior and is assumed to reflect the relative strength of an individual's motivation to engage in the behavior (Hein, Muur & Koka, 2004). Intention expressed by children to practice sport or physical activity can be a worthy indicator of the motivation towards this activity, as well as a strong predictor of this behavior (Goudas et al., 1995).

*Motivational Climate:* This refers to the situational and environmental factors that influence individuals' goals (Ntoumanis & Biddle, 1999). The two major types of motivational climates coaches can create are task-oriented and ego-oriented.

*Perceived Competence:* Perceived competence is defined as an individual's judgment of his or her success in meeting achievement demands (Harter, 1978). This study will specifically focus on athletic perceived competence.

*Scaled/Modified Equipment:* SNAG Golf equipment that is comprehensively scaled to various learners' needs and played on non-traditional venues.

*Traditional Equipment:* Golf equipment of traditional size and weight or material, used on traditional courses.

## **Research Questions**

Research questions addressed in the study include:

1. Do children using either traditional or modified (scaled) golf equipment differ significantly in self-reported:
  - a. Enjoyment
  - b. Perceived competence
  - c. Intention to participate

2. For children learning to play golf, how are enjoyment, perceived competence and intention to participate affected by:
  - a. Age
  - b. Gender
  - c. Grade level
  - d. Equipment type
  - e. Golf experience
3. Do enjoyment and perceived competence individually or collectively predict intention to participate for:
  - a. Children learning with traditional equipment
  - b. Children learning with modified (SNAG) equipment

### **Limitations**

1. Numerous professionals administered the surveys potentially generating slight inconsistencies that could have an effect on responses. However, each golf professional was informed on how to properly administer each instrument along with documentation.
2. All variables in this study were examined using self-reported measurements and participants were relied upon for honest and accurate responses. Each measurement scale was modified and sport-specific to golf.
3. Participants were gathered using convenience sampling due to the limitations of travel, time and money available for administration.
4. Children participating in this study had instructors from different programs in which instruction could vary and was not regulated.

## **Delimitations**

1. Participation in this study is delimited to children between the ages of seven to seventeen years. This study is also delimited to examining children's perceptions based on learning with traditional or scaled equipment.
2. Results of the proposed study can be generalized to children within this age category and, in regards to modified equipment usage, only those that utilize SNAG.
3. Instructors may have varied in the content they deliver as well as their level of experience in the sport. Participants in this study will be delimited to those instructed by golf professionals in an attempt to lower instructor inconsistencies.

## **Assumptions**

1. This study will not have the resources to provide direct administration of questionnaires to all participants. However, instructors were given specific directions on how to properly administer the questionnaires. Every professional who participated was directly corresponded with and the importance of proper administration on accuracy was stressed. It is necessary to assume that the instructors accurately and honestly administered each questionnaire.
2. Self-reported measurements of perceived competence, enjoyment and intent to continue participating were gathered from youth participants. It is necessary to assume that the participants were honest in reporting responses and provided information accurately.
3. Because the investigator could not be present at all lessons and evaluations, it is necessary to assume that the instructors consistently and conscientiously used the teaching method of instruction that labeled their participation in this study (traditional or

modified/scaled). This assumption seems tenable because the instructors were assigned to groups of modified or traditional equipment use prior to the exploratory study.

### **Significance of the Study**

This study has the potential to show higher perceived competence and enjoyment for participants who learn to play golf using scaled or modified equipment. These factors could interactively influence intent to continue participation in the future. Providing insight from these variables is catalytic for future research, benefiting the golf industry. Golf is struggling in terms of participation and is one of the few sports in which a scaled entrance to the sport is not acknowledged. The effect modified equipment has on these variables can potentially provide the support needed for the construction of a progressive and uniform method of introduction and substantiate the development of a systematic movement to bring an official first touch program to the game of golf for youth.

Experts proclaim that lifetime physical-activity habits need to be developed early in life (Sallis & McKenzie, 1991) and that early, positive, physical activity experiences may have a positive impact on the likelihood of maintaining a physically active lifestyle (Weiss, 2000). This belief demonstrates the importance of researching methods that serve to introduce golf to children. Through learning environments that promote early success and quicker development of fundamental skills, intent for golf participation in the future may likely increase. As a consequence, more youth will have fun playing this lifetime sport. When higher participation in physical activity occurs, it generates a more optimal chance for young people to experience physical and mental health benefits (Biddle, Gorely, & Stensel, 2004).

The benefits of participation in sport or physical activity go beyond just playing a game. In addition to developing sports skills and competencies sport is often considered a vehicle

through which other life skills are taught, such as persistence, teamwork, leadership, and character development (Weiss, 2008). Numerous studies have demonstrated this potential for development and have done so beyond just the physical and psychological domains going beyond to the cognitive, academic and social domains (Barber, Eccles, & Stone, 2001; Eccles & Barber, 1999; Fredricks & Eccles, 2006; Mahoney & Cairns, 1997; Marsh & Kleitman, 2003). Children developing activity habits at a young age will more likely continue those habits as they age, and potentially leading healthier lives. Because golf's participation rates are where they are, an outstanding opportunity exists to bring this lifetime sport to the masses.

Research has demonstrated that if an individual has perceived competence at a given activity, they will more likely be attracted to that activity (Weiss, 2000; Klint, Weiss & Wiese, 1987). By creating a golf environment that fosters enjoyment, fun, initial success and fundamental skill development, players can become intrinsically motivated to continue playing as they feel more competent. Research examining the effects modified equipment can have in teaching golf to children, specifically SNAG equipment, could turn the sport's entire industry around and globally impact the lives of its participants.

## **Chapter Two**

### **Review of Literature**

#### **Youth Sports**

Of the numerous sport participants, children compose the greatest population. An estimated 45 million under the age of 18 years are involved in school and extracurricular physical activity programs (Weinberg & Gould, 2007). Sport is one of the limited areas in children's lives in which they can participate in an activity that produces meaningful consequences for themselves, their peers, and family (Larson, 2000). Though children compose the greatest number of sport participants, research adequately examining their participation behaviors was limited until near the 1970's. Of the estimated 45 million children participating in sports under the age of 18, the school and extracurricular physical activity programs they participated in ranged from youth basketball and baseball to cross-country skiing and rodeo (Seefeldt, Ewing, & Walk, 1993). In fact, many children are intensely involved in organized sport, participating on average eleven hours weekly in an eighteen-week season (Gould & Martens, 1979). Golf, however, has not witnessed a major contribution in this participation research. Children's sport participation usually peaks around or between 10 to 13 years and consistently declines to the age of 18 where a small percentage of youngsters remain active in organized sport (Ewing & Seefeldt, 1989; Seefeldt et al., 1978). This influential period in which children continue or discontinue sport participation highlights the importance in knowing what motivational factors and correlates contribute to children's participation decisions (Sallis et al., 1999).

A study by Ewing, Seefeldt and Walk (1993) examined 8,000 youths involved in sponsored sports, both in school and after school, ranking their reasons for participation.

Congruent with research findings by Gould, Horn and Weiss (1982) most children, both girls and boys, participate to have fun. Other reasons following “fun”, included to “improve skills”, “do something they are good at”, “to make friends”, and “be a part of a team”, as well as “to get exercise”.

Enjoyment can be defined as the positive feeling, or fun, associated with the involvement in physical activities (Kendzierski & DeCarlo, 1991). Two reviews reported strong positive relationships, across numerous studies, relating enjoyment to be an important correlate of physical activity (Health Education Authority, 1997; Sallis, Prochaska & Taylor, 2000). In fact, research examining the psychological and environmental variables related to physical activity in youth discovered that enjoyment was a consistent predictor of participation for both girls and boys (DiLorenzo, Stucky-Ropp, Vander Wal & Gotham, 1998; Sallis et al., 1999). Studies have also reported that enjoyment is associated with several other physical activity correlates, including self-efficacy, goal setting (Rovniak, Anderson, Winett & Stevens, 2002), task orientation (Boyd & Yin, 1995; Newton & Duda, 1993), and perceived competence (Boyd & Yin, 1995; Boyd, Weinmann & Yin, 2002). Not only can enjoyment be related to the experience of “fun” children report, but it’s relation to other significant physical activity correlates pose enjoyment as an important factor to use when evaluating interventions aimed to increase physical activity and sport programs. Dishman and colleagues (2005) demonstrated support for this notion when their evaluation of a physical activity intervention program reported a positive association between enjoyment and increased physical activity in high school girls.

Despite the vast benefits associated with sport and physical activity participation, an estimated 35% of children drop out of sports each year (Gould & Petlichkoff, 1988). Though some of these participants leave to try another sport, the prevalence of this behavior begins in

early adolescence (ages 11-12) (Weiss & Petlichkoff, 1989; Petlichkoff, 1996; Tremblay, Katzmaryzk, & Wilms, 2002). This suggests that for every ten children who begin a sport season, three to four will discontinue before the start of the next season. Furthermore, the common reason adolescents drop out of activities or report negative experiences is a result of not having fun (Dworkin & Larson, 2006; Weiss & Ferrer-Caja, 2002). Specifically, a study done with youth swimmers identified reasons of fun as the number one influence for participation and reasons of not having fun as the number one influence for drop out (Tuffey, 1996). Interestingly, research has also noted that youth with higher perceived competence rated more reasons for having fun than did those with lower perceived competence, and vice versa (Gould, Feltz, Weiss & Horn, 1982).

### **Psychological Influences in Youth Sports**

The reasons children provide for playing sports or not playing sports perpetuate only a surface level indication of the true motives behind sport participation. Sport psychologists have begun to look into the deeper, underlying psychological components that contain the origin of these participation motives. For instance, research has demonstrated a positive relationship exists between children's perceptions of competence and their amount of physical activity (Weiss, 1993). Maureen Weiss and her colleagues are leading researchers in this area and their studies have concluded that participants differ from non-participants and those who drop out in their levels of perceived competence (Weiss & Ferrer-Caja, 2002). That is, children who choose not to participate or drop out likely have low perceptions of their abilities to learn and perform sports skills whereas children who have higher perceptions of competence will persist.

It is important to note that of the studies that have examined drop out reasons in sport (Gould et al., 1982; Klint & Weiss, 1986), most of those who dropped out left for either another

sport or that same sport at a slightly less challenging level. This supports the other reasons, previously stated, that children gave for participation in that children are not only looking to participate in something they are good at, but also to play the sport at a level they feel competent. Weiss and Petlichkoff (1989) derived three main underlying psychological motives for participation or withdrawal that originated from children's surface level responses. These underlying motives were perceived competence, stress response, and goal orientations.

Competence motivation theory, based on developmental psychologist Susan Harter's research (1982), suggests that individuals are motivated to feel competent and that such feelings are the major determinants of motivation. A player's perceptions of competence work alongside their perceptions of control over the skills they can learn and perform, to influence their motivation. Affective or emotional states such as enjoyment, anxiety, pride and shame influence motivation directly. Though feelings of competence and control do not directly influence motivation, they do influence those affective states and in turn influence motivation.

Recently, research has examined views of competence in terms of social relationships with others. A study done with middle-school students involving relationships between task, ego, and social goal orientations and motivational outcomes demonstrated that social orientations were related to enjoyment, perceived physical competence, and intrinsic motivation (Stuntz & Weiss, 2009). Sport and exercise psychologists have focused on achievement goals as a way of understanding differences in motivational outcomes (Duda & Hall, 2001; Dweck, 1986; Maehr & Nicholls, 1980; Nicholls, 1984). Prior to the addition of social goal orientation research, achievement goal theory suggested that there were two predominant states of goal involvement that those states attempt to understand someone's motivation by examining how goal orientations (view of success or failure) interact with the individual's perceptions of competence, perceived

ability, and achievement behavior (Nicholls, 1980, 1984; Duda, 2001). These two goal orientations are mastery (task) or outcome (ego), and both have been well studied. Gould and Petlichkoff (1988) found that these goal orientations are psychological factors that underlie the motives for youth sport participation. Research has consistently shown that a mastery orientation is positively associated with adaptive and persistent psychological and behavioral responses in young athletes (Duda & Whitehead, 1998; Roberts & Kavussanu, 2001). Furthermore, children high in mastery orientation generally report high levels of enjoyment, and are more likely to be persistent in the face of failure when learning new tasks (Smith et al., 2008). Alternatively, children who adopt an outcome orientation are likely to select tasks in which they are guaranteed success and view ability is demonstrated by out-performing others (Duda & Hall, 2001). Children who report high levels of outcome orientation generally exhibit a less positive psychological and behavioral profile and view success in comparison to others around them (Smith et al., 2008).

Csikszentmihalyi, Rathunde, and Whalen's (1997) research on talent development found that those who demonstrated a lack of persistence in their talent area often experienced anxiety in response to their perceived skill level, or competence, being too low for the challenges offered to them. In terms of anxiety, research has shown that most children participating in sport do not experience excessive trait or state anxiety levels (Gould et al., 1991; 1996); however, it can be problematic for certain children in specific situations. The type of sporting environment, for instance, can influence certain levels of anxiety. Youth participants in individual sports reported experiencing more state anxiety than youth in team environments (Weinberg & Gould, 2007). Team environments can decrease performance pressure on individuals as well as generating a more social engagement. When children define success or competence in terms of their social

relationships with peers, it can instigate a positive motivational impact and reinforce youth sport persistence (Stuntz & Weiss, 2009; Joesaar, Hein & Hagger, 2011). Research supports that children with stronger friendships and social acceptance are more committed to further participation, more intrinsically motivated, report experiencing more enjoyment and have more positive self-perceptions (Weiss & Smith, 2002). Since golf is considered an individual sport, efforts to incorporate a socialization aspect could be beneficial for increasing competence perceptions.

### **Adult Effects on Perceived Competence and Enjoyment in Youth Sporting Environment**

As previously discussed, research shows a relationship between competence and motivation (Weiss, 1993) and demonstrates that motivational orientations can influence feelings of competence and positive affects. When motives such as developing a skill, experiencing fun and enjoyment, achieving success and being with friends are not met, children withdraw. Realizing this, Gould and Horn (1984) suggested that adult teachers and coaches structure the athletic environment so that these motives are accomplished. A study of 108 youth soccer players found that perceived competence, perceived control, trait anxiety and motivation along with various coaching behaviors predicted perceived competence and were in turn related to the players' motivation levels (Wong & Bridges, 1995). Thus, coaches, teachers and exercise leaders, as well as parents, play a vital role in fostering participation through the psychological climates they generate.

Clearly, in recent years sport psychologists have studied how perceived ability and goal orientations can influence motivation. In conjunction with that research, studies have also revealed how the structure of the social climate influences goal orientations and motivation levels (Ntoumanis & Biddle, 1999). Climates created of mastery or task goal orientation instigate

more adaptive motivational patterns such as positive attitudes, heightened effort, and effective social interactions. Alternatively, climates created in outcome goal orientations lead to less adaptive motivational patterns such as low persistence, low effort and attribution of failures to low ability due to social comparison (Ntoumanis & Biddle, 1999). More importantly, Duda and Hall (2001) found that the motivational climate in which players participate influence the types of goal orientations they adopt. For example, task or mastery climates are associated with individuals adopting a mastery orientation, while outcome oriented climates are associated with outcome goals (Duda & Hall, 2001).

Research suggests that achievement motivation can be learned and appears to develop in three sequential stages (Scanlan, 1982; Veroff, 1969). Throughout the first competence stage (autonomous), which is thought to occur before age four years, children rarely compare themselves with others. During this stage, the focus is on self-testing and mastering the environment. When children near five years, they move to the next stage, social comparison, and begin to become preoccupied with comparing their abilities to others. The third and final stage has no typical age for entrance. This stage is the most desirable, as it integrates self-comparison and mastery with social comparison. Individuals in this stage understand when it is appropriate to compete and compare their abilities with others and when it is appropriate to apply more weight to self-comparisons. Understanding that preschoolers may not care to compete with others while fourth graders seem preoccupied with it better enables professionals to maintain a learning environment that supports teaching children when it is appropriate or inappropriate to compete and compare themselves in a social manner.

## **Modified Approaches to Learning Sport and Motor Skill Acquisition**

The ability to create environments conducive to development is contingent upon understanding how motor development occurs and how the learning process can be affected both physically and psychologically. Empirical evidence supports that structuring mastery environments for children generates positive psychological factors leading to continued participation as well as better skills acquisition and performance (Theeboom, De Knop & Weiss, 1995). Understanding this relation to skill acquisition can influence structured environments where children can find initial success when learning difficult tasks.

Motor skill development evolves by transitioning from periods of instability to periods of stability, or attractor states, which are essentially acquired skills. Dynamic in nature, motor systems are sensitive to the conditions initially in place when they begin to develop. They are coined “open systems” because varying factors within the environment can influence their form. These influential factors that guide the formation of the motor system are considered constraints on the resulting behavior (Newell, 1986). From a constraints-led perspective, skill acquisition can be viewed as the process of stabilizing an appropriate movement pattern to complete a task, or also called an attractor state. This process of dynamic human movement systems, or “perceptual motor landscape” can contain numerous attractors or areas of stability (Davids et al., 2003; Glazier et al., 2003). The system of movement is flexible and adapts to environments that contain constraints acting to direct proper motor skill development, which implies that placing proper constraints within the learning environment can greatly impact the skill development and acquisition process.

A learner in sport can be theorized as a dynamic movement system searching for stable and functional states of coordination during goal directed (or constrained) activity (Handford et

al., 1997). The term functional signifies a pattern of behavior that will support the performer in achieving a specific task such as performing a golf swing. The stability of functional coordination patterns can be altered by constraints imposed on learners such as the performance instruction, the nature of the equipment used in performing an activity and the performance environment (Newell, 1996). Studies have shown how key constraints, such as scaled modifications, may channel motor skill acquisition in sport (Davids et al., 1999; Handford et al., 1997). This provides evidential support for the theoretical perspective that coaches and instructors can manipulate task constraints such as equipment and practice contexts in order to enhance motor learning and performance of sports skills (Handford et al., 1997). To further understand these constraints, research has examined applicable strategies demonstrating how these practice constraints facilitate the emergence of skilled movement in children.

In a sporting environment, a vital task constraint during practice is the size and weight of a piece of equipment relative to the participant's body and size (Araujo et al., 2004). Though not limited to, modified equipment as a type of task constraint has obvious implications for use with children (Haywood et al., 2012). Motor development theorists have long been interested in the dimensions of sports equipment and playing areas, and their effects on children's skill acquisition (Gallahue, 1987; Chase, Ewing, Lirgg & George, 1994; Haywood & Getchell, 2001). Eventually, research proposed that children's skill acquisition would be enhanced if sports equipment were correctly scaled to body dimensions (Alderman, Beighle & Pangrazi, 2006; Konczak, 1990). This is witnessed in various sports such as football, basketball and baseball with the implication that appropriate scaling can facilitate the emergence of skilled behavior in beginner participants. Research conducted using a scaled soccer ball showed that players using the scaled ball performed significantly better than players using the traditional ball (Button et al.,

1999). Similarly, studies conducted on beginning tennis players showed significantly better skill acquisition and performance and participants who used modified equipment rated a significantly happier experience (Gruetter & Davis, 1985; Larson & Guggenheimer, 2013; Farrow & Reid, 2010). In fact, children may show preferences in equipment based on only slight differences (Beak et al., 2002). A study looking at the preferred size of a basketball used by ten year olds showed that 66% preferred using the smaller ball as opposed to the adult-sized ball; accuracy positively correlated with the improvement of fit between ball size and hand size (Regimbal et al., 1992). This research illustrates how information from a performer's equipment can constrain and influence motor skills that emerge during performance and make the experience more enjoyable. However, relative to positively influencing the emergence of skills, research shows decrements in skill acquisition when training occurred with equipment too large for grasping, throwing or kicking by children (Siedentop, Herkowitz & Rink, 1984). Throughout this study, importance is placed on what equipment coaches use to teach golf, a sport where beginners, amateurs and professionals all play on the same course.

The type of instruction implemented is another task constraint method to be utilized in assisting skill development. Adopting a game-based approach to instruction allows learners to play the game in its entirety but at a modified level. For the last few decades, the Teaching Games for Understanding (TGfU) approach has been a successful curricular model in physical education. The TGfU model emphasizes teaching students tactical understanding before dealing with the performance of specific skills, particularly in isolation or drills (Griffin, Mitchell, & Oslin, 1997). Initially emerging in the UK, the TGfU approach, in theory, enables learners to play a modified game that generates a meaningful connection as to what skill needs to be developed and its associated significance in improving performance (Bunker & Thorpe, 1986;

Bunker, Thorpe & Almond, 1986). With a constructivist approach to learning, importance is placed on the experiences learners bring to the learning process and being actively involved in that learning process (Kincheloe, 2005). Being active learners, children are forming new meaning from applying prior knowledge to their experiences as they attempt to improve their subsequent understanding and performance. They are put in a position to self-correct by playing to learn as opposed to learning to play. Therefore, unlike the traditional skills drills and technique replications directing teaching strategies, methods of using skills that the students already possess to engage immediately in simplified and developmentally appropriate forms of games will challenge players to realize the need for specific skill and to explore a range of tactical options to attain that skill set. Essentially, the methods of breaking down a sport into developmentally appropriate games, that keep the concepts of the sport as a whole incorporated, can likely retain players who want to progressively learn the sport. The basis of this approach implicates that golf could benefit from an approach to introducing new learners that allows the learners to actively engage in their own learning, and to do so in game-like situations. This would require modified equipment and learning environments that allowed learners to participate and practice golf in its entirety.

### **The Game of Golf**

In the 1920s, golf made its aggressive debut in American culture. Not surprisingly, only about two percent of the U.S population participated in golf and approximately 90% of that two percent were males (Beditz, 1994). During the 1960s, golf witnessed its first major participation boom from about 4.4 million to 11.2 million, 3.3% to 7.1% of the total U.S. population (Beditz, 1994). Two major factors during this time responsible for this growth were the U.S. government providing financing for the development of public courses and media exposure of the game

introducing the world to Jack Nicklaus and Arnold Palmer. The second massive growth in the sport's participation came from 1986 to 1992 when the ratio of public and private courses available in the United States favored public. During this period, golf courses became a major part of real estate and resort development when deregulation of the banking industry gave rise to savings and loan institutions aggressively funding new-development projects (Beditz, 1994). The growth in public courses instigated consumer research on how to attract and retain golfers.

The National Golf Foundation, which was founded in 1936, saw a need in the industry for consumer-oriented research for golfers' and non-golfers' behaviors and attitudes toward participating in golf. In their initial research, they found that golfers do not want beginners on the course. That perception actually kept non-golfers from participating and this was especially true for minorities. However, the number of minorities participating in the sport has very recently seen an increase. According to NGF's 2011 participation report, roughly half of golf's participants are females, juniors, and minorities. Though there has been a slight increase in these minority groups, likely as a result of the industry marketing towards these groups in an attempt to alleviate the game's participation decline. The golf industry's participation profile consistently remains as Caucasian males, college graduate or possessing some college, with a household income of approximately fifty thousand or more (Golf Participation in the US, 2011).

Several agencies, such as NGF and the Professional Golf Association of America, have vested interest in obtaining information on who chooses to play or not and their reasons. According to the recent Golf 2.0 study, among the leading reasons as to why people do not participate or lapse from playing this lifetime sport is that golf does not provide a welcoming entry for its beginning learners. In addition, the lack of understanding the game and its rules is a factor high on the list (Golf 2.0, 2010). Other factors were time, money, their significant other

did not play, or other hobbies taking precedent. BCG's research also reported that 81 million are not playing golf, but want to play. Another important note to this research was that 59 million had never had contact with golf.

### **Problem Area in the Sport of Golf**

Becoming skilled in golf is a continual process that involves learning to implement the appropriate stroke for an almost infinite amount of situations that arise in game play on an almost infinite amount of course scenarios.

“Simply stated, the goal of golf is to get the ball into each of 18 holes in succession with the fewest number of shots, using no more than 14 clubs. After you hit the ball into all the holes, you add up your scores from all the holes. The lower your total score, the better” (McCord, 2006).

This definition is very simply stated. The difficulty lies in many outside stimuli, along with many more psychological factors within the golfer, which makes this a difficult sport to learn. Golf can be alleged as one of the most difficult games to learn and play because, as mentioned previously, every course will differ in its structure and environment, altering tactical approaches with each stroke. Furthermore, the player will have only an average of three minutes between shots to analyze and assess the structural layout (McCloud, 2006). Based on this information players need to select tactics, in congruence with their abilities, that will allow them to move the ball effectively, and they need to precisely coordinate patterns of motor movement that will successfully accomplish the selected tactics (Hopper & Kruisselbrink, 2002). The tactical complexities within the sport, such as spatial awareness, depth perception and biomechanics, paired with difficulties congruent to initially learning motor skills necessary to play, demands the best methods of introducing this sport to new learners in order to keep them motivated to continue.

Golf is struggling with the pedagogical method by which it introduces learners to the sport. The unwelcoming introduction, stated as one of the top reasons for non-participation, is neglecting to allow beginners to actively engage in the sport, find initial success and enjoy their experience. This is not because the game lacks enjoyment or is too challenging to learn at a young age. Perhaps, there is a need to change how it is taught. Using an environment conducive for initial success, such as the TGfU approach, may provide a modified and engaging situation to learn golf. Introductory methods utilized in golf need to be examined on the ability each has to influence factors associated with perceptions of competence, motivation and enjoyment.

### **Two Introductory Methods in Golf Instruction**

Few introductory methods, for the game of golf, are available for teaching the fundamentals of the game by individuals who have little experience playing the game. Many sports have leagues or programs that are modified and adapted for the new learner. Much like junior leagues in football, soccer, and basketball, as well as Quick Start tennis, these introductions to games are developed so that the new learner can enter the game environment by actually playing the game. The games are modified yet render all aspects of the game itself. The modifications allow new learners to develop the fundamentals necessary for the next level of the game. As the learner is developing those fundamentals and skills, the modifications perpetuate successful situations for the learner, encouraging continued participation and persistent practice through the adversity that comes with learning new skills. Much like the entrance of Quick Start to the tennis world, an introductory program is necessary for the game of golf. When Quick Start was introduced to the tennis world, the years following showed growth in the game's participation as new learners were playing in a more successful environment in comparison to their skill levels (State of the Industry Report, 2013).

**Modified Golf Methods.** SNAG® Golf (Starting New At Golf) offers an introductory program for golf that very closely resembles with the introductory methods of Quick Start for tennis. SNAG® contains all the basic elements of golf but in a modified form. The game has its own simplified rules and terminology, which adds fun to the learning and playing experience. Falling somewhere between miniature golf and regulation golf, SNAG® allows for full swing, pitching, chipping and putting. SNAG®'s curricular structure also incorporates meeting standards regulated by the National Alliance for Sport and Physical Education (NASPE). Other programs that have been developed to provide modified introductions to golf are TriGolf, Birdie Ball, The First Tee, Tee it Forward and First Swing but do not have curricula extensive enough to be comparable to SNAG®, nor do they enable the new learner to experience all aspects of the game and play the game in its entire form. In fact, many of the First Tee programs use pieces of SNAG® equipment. SNAG® Golf's curricular design and modified equipment and rules render it a respectable program to utilize in assessing its impact on the psychological factors effecting children's participation.

SNAG®'s equipment design is comprehensive and utilizes the science of human learning combining components such as color psychology, neurolinguistics, learning styles and psychoacoustics. The SNAG® system utilizes primary colors that were chosen based on the color psychology aimed at eliminating fear in the learning process and creating a fun, relaxing environment to put the players at ease. The word cues create exact tasks designed to develop golf specific motor skills. The training tools work by using psycho-acoustic sounds and rhythms, visual stimuli as well as tactile and kinesthetic feedback to build motor skills for each swing or stroke.

In order to simplify the learning process, SNAG® has only two clubs, the Roller and Launcher, that allow players to fully grasp the concept of each swing and how to easily hold the club. The word cues, “Left on Yellow”, connect, “Right on Red”, match up with color position on the grip of the club to ensure players are successful in learning how to hold a golf club every time they swing. Of the SNAG® clubs, the Launcher is used to launch, pitch, and chip the ball; like a putter, the Roller is used to roll the ball toward the target. All shots other than rolling (putting) are played off of the Launch Pad, which is a mat and tee. This ensures that the player will have an optimal lie every time and assists in attaining ball flight. The target, called a Flagsticky, is not a hole with a cup inside but rather an aboveground weighted cylinder covered with a hook material. The SNAG® ball is slightly smaller than a tennis ball and is covered with a loop material yet maintains the same weight as a normal golf ball. The SNAG® Ball has a limited distance, with the average player launching it a maximum of 50 yards. Unlike golf, where you finish by putting your ball into the cup, in SNAG®, you finish by sticking your ball to the Flagsticky. Because of the mobile Launch Pad and Flagsticky, SNAG® is portable and playable just about anywhere.

The system contains four creative training tools that will enhance player progress. The Roller Brush is a tool designed to improve the Rolling stroke. It clips to the shaft of the Roller and the bristles hang about 1 inch below the sole of the club. The player will “paint” straight lines in a slow and deliberate manner. The kinesthetic feedback teaches the player to feel the brushing motion of an effective rolling stroke that slows the stroke creating more consistency. The SNAGazoo is a tool designed to help the player form an “L” with their target arm and the shaft of the club when playing a pitch shot. The pitch shot is usually the most difficult shot for players because it requires a shorter swing and greater feel. This tool teaches how the hands and

club form an “L” at the 9 o’clock position and provides immediate auditory feedback when performed correctly. The feedback has a low tolerance of incorrect positioning, enabling and encouraging self-correction. The SNAG-O-Matic is a tool developed to assist the player in making a proper chip shot. The object of the tool is to keep the shoulders, arms, hands and club making a fluid stroke. The tool rests on the top of the grip (dots correspond to that on the grip of the club) and against inside of the target arm to help prevent the hands from flipping. Beneficial for players who roll their wrists over at the top of the swing, this tool provides complete support throughout the entire swing. The Snapper is a tool developed to assist the player in making a fundamentally sound full swing. Four exercises accompany the Snapper and are designed to help the player understand how their body will move during the full swing. Each exercise specifically targets teaching how the hands will work with the correct pressure on the grip, feel the circular motion of the swing, and develop the proper weight distribution needed during the swing. These activities work together to assist the player in kinesthetically learning where power is developed during the swing and the circular motion that fulfills it.

SNAG®’s philosophy is to simplify in order to make the game “easy to play, easy to teach and fun to learn.” To fulfill this, programming involves the demonstration of the whole skill first, and then the breakdown of the skill into its parts so it can be seen, understood and executed properly by the player. Each part is described by a phrase or word picture and assigned a word cue. When word cues are given in their proper sequence, the player is able to recall the descriptive phrase or mental image and can work on his or her own to practice the skill. By performing specific tasks outlined in the SNAG® Coaching System, players develop correct golf motor skills. The program builds on strong fundamentals of the different strokes and swings and

develops playing ability quickly and effectively. This structure allows SNAG® to be taught and played almost anywhere with immediate, positive results.

SNAG® designs programs that are innovatively systematized to allow for an approach to games teaching based on the individual game playing needs of a learner and incorporates the teaching of technical skills with tactical understanding developed from a comprehensively modified game. This implicates that by simplifying game structures, such as reducing the area of play, adapting rules to players needs, using lighter or smaller equipment, using objects that move more slowly, and incorporating “game-like” situations, new learners experience more successful introductory situations. Successful initial experiences allow players to feel empowered and can foster continued participation. Effective games teaching from the TGfU standpoint is about simultaneously teaching tactical understanding and skill development rather than focusing specifically on one or the other (Bunker & Thorpe, 1986; Hopper & Kruisselbrink, 2002). Griffin et al., (1997) state that “a tactical approach...lets your students experience the excitement of actual play before they begin practicing specific skills...When they understand why each skill is important, students can apply the skills effectively during game play” (p.1). The TGfU approach was proposed as a way of putting the “why” of a game before the “how” (Hopper & Kruisselbrink, 2002) and this is the approach SNAG® offers new learners to golf. Bunker and Thorpe (1986) suggested that learners have to make decisions about “what to do” to play a game successfully, then “how to do” what they have realized they need. Incorporation of SNAG® components empowers students, enabling self-correction, through creating modified games and utilizing modified equipment to construct an environment in which the children can learn the game of golf in a tactically progressive way but without technique isolation. SNAG’s program is in 42 countries, 10,000 schools and 5,000 golf courses; their success is shown through the

growth of their programs, enabling more children to be introduced to golf (SNAG Golf, March 1<sup>st</sup>, 2014).

**Traditional Golf Methods.** If the focus is shifted to traditional methods or techniques of introducing beginners to this lifetime sport, children, as previously shown, are not very enthusiastic. Most individuals are introduced to golf by parents or family members, which may lead to lessons being taken from golf professionals. Often physical educators, whose profession is teaching sports and developing fundamentals and skills in new learners, are not the primary individuals introducing golf. In fact, because of the characteristics of golf, physical educators who have golf in their lesson plans are likely to teach a unit that introduces putting and with equipment that is improperly scaled to be relative to the actual game or in its complete form. With regard to physical education, the exposure to golf is fairly limited unless the school has a physical educator with experience in golf or an affiliation with the The First Tee.

The First Tee was created by the World Golf Foundation in 1997 and incorporates a national school program that provides physical educators and students with a golf program consistent with national standards set by NASPE that provide daily lessons to improve motor skill development and promote lifelong participation in golf. It is an organization developed to strategically bring the game of golf to young people who may not otherwise have the opportunity, The First Tee links golf professionals with the school system to provide introductory golf education to children in physical education classes K-12. Though this program has seen success in the sport's ability to teach life skills, other sports do not require professionals in the discipline to design curricula or structure pedagogical methods for the physical education courses.

Most initial exposure to golf instruction originates from golf professionals, which is not the case for almost all other sports. For instance, most beginners in basketball are not taught directly by professional basketball players. In fact, research on motor learning that analyzed children who saw unfamiliar models of skill performance, demonstrated that children who saw the skill modeled correctly tended to perform the skill better, regardless of who was modeling the skill (Lirgg & Feltz, 1991). This implicates that the importance in motor learning, from a teaching standpoint, derives not from the educator being a professional athlete in the sport, but more simply from the proper modeling of the skill.

Other methods of changing or modifying only portions of the game will be considered traditional methodologies. Tee it Forward has recently been developed to create shorter distances on courses for children and families to play on. However, research has not shown this to be an effective scaled approach to learning the game. The creation of women's tees to equalize physiological differences between males and females is still unable to account for fourteen strokes that exist between male and female golfers. Therefore, SNAG is the only comprehensively scaled and educationally developed modification of this sport.

The literature places attention on the reasons children choose to participate in sports and how the learning environments that are created have an affect on those motives. Neither the BCG's or the NGF's participation research illustrated success from a traditional teaching perspective, suggesting much is to be evaluated within golf's traditional and modified introductory methods. For a complex game such as golf, a curriculum that epitomizes a game-based or modified approach may produce a more optimized initial experience with this lifetime sport and foster continued participation for both learners and instructors.

## **Chapter Three**

### **Methodology**

#### **Participants**

Participants in this study consisted of children 7 to 17 years of age who have participated in at least one golf lesson (see Table 1). For this study, participants were divided into two categories. The first category, traditional golf equipment, consisted of players who participated in golf instruction with the use of traditional equipment and methodologies. The second category, modified golf equipment, consisted of players who participated in golf instruction with the use of SNAG equipment and methodologies. In order to keep as much consistency as possible between the varying instructors, only golf professionals' students were used, as opposed to including physical educators and recreation professionals. A convenience sampling method was employed to obtain participants from professionals instructing in the United States. Some of the teaching professionals used in this study have taught with both types of equipment used. Participants were included and separated by the equipment type they used to learn.

Table 1

*Demographic Frequencies and Percentages of Traditional and Scaled (SNAG) Equipment*

Variable	Traditional Equipment (N=48)		Scaled (SNAG) Equipment (N=75)	
	N	Percentage	N	Percentage
<b>Gender</b>				
Female	27	56.30%	38	50.70%
Male	21	43.80%	37	49.30%
<b>Grade</b>				
2nd-3rd	8	16.60%	22	29.30%
4th-5th	16	33.40%	53	70.70%
6th-7th	18	37.50%	0	0.00%
8th-9th	3	6.30%	0	0.00%
10th-12th	3	6.30%	0	0.00%
<b>Age</b>				
7-9 years	15	31.30%	40	80.00%
10-11 years	20	41.70%	15	20.00%
12-13 years	10	20.80%	0	0.00%
14-15 years	1	2.10%	0	0.00%
16-17 years	2	4.20%	0	0.00%
<b>Experience</b>				
1-9 lessons	11	23.00%	75	100.00%
10-19 lessons	10	20.80%	0	0.00%
20-29 lessons	6	12.40%	0	0.00%
30-39 lessons	13	27.10%	0	0.00%
40-49 lessons	6	4.2%	0	0.00%
50 or more	6	12.50%	0	0.00%

**Survey Administration**

Data was collected by administering traditional paper and pencil questionnaires, which can be viewed in Appendix A and Appendix B. Golf professionals were educated on how to properly administer the questionnaire and do so with each of their students. Parents of children that participated were given consent forms to review and sign. All participation remained anonymous and was voluntary with the awareness that individuals could withdrawal from participation at any time. All willing participants were asked to complete the questionnaire

following participation in at least one session of golf instruction. Questionnaires were completed in approximately 20 minutes. All information related to participants' identities were kept confidential and destroyed following input completion.

### **Instrumentation**

Three questionnaires were used in this study. The first questionnaire contained questions measuring children's' perceptions of competence relative to playing golf. The second questionnaire contained statements measuring children's' enjoyment participating in golf. The third questionnaire contained questions measuring children's' intent to continue participation in golf. Demographical information obtained included age, gender, grade level, individual or group learning environment, and golf experience.

*Self-perception profile for children.* The original 28-item version of this instrument (The Perceived Competence Scale for Children, Harter, 1982) was modified to 36-items subdivided into six 6-item subscales (Harter, 1985). In taking a multidimensional approach, Harter's instrument has been recently updated to its current form, The Self-Perception Profile for Children (SPPC) and was utilized in this study (Harter, 2012). The SPPC has been designed for children aged 8 to 15 years (grades 3 to 8) and contains domains that define important life concerns delineated from Harter's life-span perspective (Harter, 1999, 2012). These domain-specific evaluations include scholastic competence, social competence, athletic competence, physical appearance and behavioral conduct as well as a scale of global self-worth. For this study's purpose, the athletic competence subscale was utilized and modified sport-specific to golf, which was done similarly and successfully in the physical education setting (Weiss, 2002). The purpose of the "structured alternative format" within this scale is to offset the tendency of participants to give socially desirable responses (Harter, 1982). Each participant is presented

bipolar statements such as, “Some Kids Often Forget What They Learn” but “Other Kids Can Remember Things Easily.” Participants first decide which statement is most like them and then whether it is “Sort of True for Me” or “Really True for Me.” Each item is scored on a four-point scale from 1 to 4, where a score of 1 indicates lowest perceived competence and 4 indicating this highest level of competence. The scale “counterbalancing” structure alternates the scores of the items (half scored 1, 2, 3, 4 and the other half scored 4, 3, 2, 1) to insure children, again, are tracking the content of the items and not simply providing random responses or all one-sided (Harter, 2012). Items are scored 4, 3, 2, 1, where 4 represents the most adequate self-judgment and 1 represents the least adequate self-judgment. Items that are counter balanced will have the most adequate self-judgment on the right (1, 2, 3, 4). The items were modified sport-specific to golf. Scores from the child’s assessment are transferred to a data-coding sheet where the average score of all 6-items in the subscale is calculated.

Internal consistency reliabilities for athletic competence from four samples in the 1990s, reported Cronbach alpha ranging from .76 to .91 (Harter, 2012). Exploratory factor analyses revealed clear discernment between the designated factors, with high loadings and basically no cross-loadings (Harter, 2012). Harter et al. (1999, 2012) developed a model of constructs that when embedded into a model of determinants, demonstrates correlations empirically supporting this instrument’s construct validity. Internal consistency reliability for athletic competence from this study’s sample reported Cronbach alpha of .62. This scale can be found in Appendix A.

*Enjoyment.* Enjoyment of golf was assessed using the revised Physical Activity Enjoyment Scale (PACES). This instrument was originally developed to measure the positive affect related with involvement in physical activities in college students (Kendzierski & DeCarlo, 1991). Since that time, the instrument has exhibited internal consistency in 12 to 16

year-old children, with coefficient  $\alpha = .90$  (Crocker et al., 1995). The original PACES consisted of 18 bipolar statements that were on a 7- point continuum (I enjoy it - I hate it) and added to produce a total enjoyment score. Motl et al. (2001) modified the PACES for use with young adolescent females. In doing so, two items were removed and some statements were rewritten to improve comprehension and reduce redundancy. A 5-point Likert-type scale (1 = “Disagree a lot” to 5 = “Agree a lot”), considered more comprehensible to younger children, replaced the 7-item scale (Motl et al., 2001). This revised PACES consists of 16 statements which begin with the stem “When I am physically active...” The stem statement for this study was modified to golf specifically stating, “When I am playing golf...” A score is computed by calculating the average of the 16 items.

To satisfy comprehension uncertainty regarding this study’s younger targeted age group, a pilot test was conducted with modified vocabulary. The instrument was administered to 26 children ages 8 to 9 years. Children were provided instructions to complete the questionnaire and prompted of their ability to ask questions regarding their understanding of each statement. None of the 26 children piloted asked any questions pertaining to their comprehension of the questionnaire statements. Internal consistency of the 16 items measured by Cronbach alpha was .91. Internal consistency reliability from this study’s sample, reported Cronbach alpha of .88. This scale can be found in Appendix B.

*Intention to participate.* The intent to continue participation in golf was assessed using the Intention to be Physically Active (IN) scale. This scale was initially developed to measure intention to be physically active after graduation. In developing the items for this scale, researchers reviewed numerous studies involving the theory of planned behavior, where results indicated a strong relationship between attitudes and intentions (Ajzen, 2001; Hagger et al.,

2002). The five-item instrument is scored on a five-point Likert-type scale ranging from 1=strongly disagree to 5=strongly agree (Hein, Muur & Koka, 2004). This scale originally contained seven items and upon content validity examination, three items were removed. Four items emerged in one factor with strong factor loading over .60, and the internal consistency of four items measured by Cronbach alpha was .80 (Hein, Muur & Koka, 2004). The four items were adapted to be specific to golf. For example, the original item “After graduation I would like to be physically active” was adapted to “After golf lessons I would like to be a golfer”. A score is computed by calculating the average of the four items.

A pilot test was conducted with modified vocabulary, in order to reassure comprehension. The instrument was administered to 26 children ages 8 to 9 years. Children were provided instructions to complete the questionnaire and prompted of their ability to ask questions regarding their understanding of each statement. No inquiries were made regarding comprehension during administration. Internal consistency of the four items measured by Cronbach alpha was .62. Internal consistency reliability from this study’s sample, reported Cronbach alpha of .63. This scale can be found in Appendix B.

### **Ethical Consideration**

A request was sent to the University of Arkansas Institutional Review Board (IRB) to approve the use of human subjects for survey implementation. Upon receiving IRB approval, the research instrument and consent forms were dispersed to participating golf professionals.

## Analysis of the Data

Refer to Table 2 for the complete analysis plan.

Table 2  
*Analysis Plan*

Research Question	Variables	End Point	Approach
1) Do children using either traditional or modified (scaled) golf equipment differ significantly in self reported:			
a) enjoyment	DV: enjoyment,	Determined if	MANOVA
b) perceived competence	perceived competence IV: equipment type	enjoyment and perceived competence score means differ significantly between equipment groups.	procedure to compare group differences
c) intention to participate	DV: intention, IV: equipment type	Determined if intention score means differ significantly between equipment groups.	ANOVA procedure to compare group differences
2) For children learning to play golf, how are enjoyment, perceived competence and intention to participate affected by:			
a) gender	DVs: Enjoyment,	Determined how	Regress each
b) grade level	Perceived	each dependent	DV on IV
c) type of lesson	Competence,	variable impacted	factors using
d) equipment type	Intention IVs:	the independent	multiple
e) golf experience	Gender, Grade Level,	variable factors.	regression
f) age	Lesson Type, Equipment Type, Golf Experience, Age		
3) Do enjoyment and perceived competence predict intention to participate for each group:			
a) children using traditional equipment	DV: Intention, IV: Enjoyment, Perceived Competence	Determined if enjoyment and perceived competence impact intention to participate.	Regress DV on IV factors using multiple regression
b) children using modified equipment	DV: Intention, IV: Enjoyment, Perceived Competence	Determined if enjoyment and perceived competence impact intention to participate.	Regress DV on IV factors using multiple regression

Note. IV is Independent Variable and DV is Dependent Variable

## Chapter Four

### Results

#### Descriptive Analysis

Data analysis began with descriptive statistics examining children who were learning to play golf with traditional equipment (see Table 3) and with modified equipment (see Table 4). Within this sample, the following demographic information was analyzed: gender, age, grade level and experience playing golf. The variable, lesson type, was omitted due to lack of sufficient data for “individual lessons.” Over 90% of this sample participated in group-lessons.

Table 3

*Descriptive Statistics for Traditional Equipment Usage*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	48	7	17	10.60	2.07
Grade Level	48	2	12	5.48	2.23
Gender	48	1	2	1.44	0.50
Golf Experience	48	3	85	24.50	19.04
Perceived Competence	48	1.67	3.67	2.50	0.52
Enjoyment	48	2.00	5.00	4.29	0.74
Intention	48	1.00	5.00	4.32	0.77

Note. 1 = Female, 2 = Male

Table 4

*Descriptive Statistics for Scaled (SNAG) Equipment Usage*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	75	8	10	9.07	0.58
Grade Level	75	3	4	3.71	0.46
Gender	75	1	2	1.49	0.5
Golf Experience	75	1	7	5.15	2.58
Perceived Competence	75	1	4	2.67	0.67
Enjoyment	75	1	5	3.94	0.94
Intention	75	1	5	3.63	1.15

Note. 1 = Female, 2 = Male

## **Inferential Analysis**

The first research question addressed whether children differ significantly in self-reported enjoyment, perceived competence and intention to participate based upon their use of traditional equipment or modified equipment. A correlation matrix (see Table 5) displayed a more than moderate relationship between enjoyment and intention ( $r = .73$ ). To examine the dependent variables, enjoyment and perceived competence, a multivariate analysis of variance (MANOVA) was conducted to determine if there was a significant difference between the independent variable's group means. Statistical significance was found based on the equipment type used, Wilk's  $\Lambda = .92$ ,  $F(2,120) = 5.224$ ,  $p = .007$ , partial  $\eta^2 = .08$  (see Table 6). There were no statistically significant differences between group means for perceived competence  $F(1,121) = 2.031$ ,  $p < .05$  but there were significant differences for enjoyment  $F(1,121) = 4.674$ ,  $p < .05$ . Children using traditional equipment reported significantly higher mean scores for enjoyment (4.29) than that of children using modified equipment (3.94). Alternatively, traditional mean scores for perceived competence (2.50) were not significantly different from modified equipment scores (2.67). The dependent variable, intention to participate, was assessed using analysis of variance (ANOVA) to determine any significant differences between the independent variable's group means. There were significant differences between group means  $F(1,121) = 13.34$ ,  $p < .05$  (see Table 7). Children using traditional equipment reported significantly higher mean scores for intention (4.32) than did children using modified equipment (3.63).

Table 5

*Pearson Correlations Between Variables*

Variables	Age	Grade	Gender	Equip. Type	Golf Exp.	PC	Enjoyment
Age							
Grade	.958**						
Gender	.067	.077					
Equipment Type	-.484**	-.519**	.055				
Golf Experience	.565**	.607**	-.184*	-.620**			
Perceived Competence	-.135	-.113	.136	.128	-.077		
Enjoyment	.164	.173	-.088	-.193*	.162	.343**	
Intention	.210*	.222*	-.075	-.315*	.178*	.282**	.729**

Note. \*= Significant at the .05 level (2-tailed), \*\*= Significant at the .01 level (2-tailed)

Table 6

*MANOVA Summary of Enjoyment and Perceived Competence*

Variable		SS	df	MS	F	Sig.
Perceived Competence	Between Groups	0.776	1	0.776	2.031	0.157
	Within Groups	46.248	121	0.414		
	Total	47.024	122			
Enjoyment	Between Groups	3.520	1	3.520	4.674	0.033
	Within Groups	91.127	121	0.779		
	Total	94.648	122			

Note. Dependent Variable= Perceived Competence and Enjoyment, Independent Variable= Traditional Equipment and Modified Equipment

Table 7

*ANOVA Summary of Intention to Participate*

	SS	df	MS	F	Sig.
Between Groups	13.901	1	13.901	13.339	0.000
Within Groups	126.096	121	1.042		
Total	139.997	122			

Note. Dependent Variable= Intention to Participate, Independent Variable= Traditional Equipment or Modified Equipment

**Secondary analysis.** Secondary analyses were conducted due to a possible age confound.

The initial sample resulted in half of the traditional equipment users in grades 6<sup>th</sup> through 12<sup>th</sup>, and all of which were older than the modified sample ranging from 2<sup>nd</sup> to 5<sup>th</sup> grade. Therefore,

the dataset was paired to children in grades ranging from 2<sup>nd</sup> to 5<sup>th</sup> in each group (see Tables 8 and 9) and a MANOVA re-examined if a significant difference existed between the traditional and modified group means. Statistical significance was not witnessed in this sample, based on the equipment type used, Wilk's  $\Lambda = .066$ ,  $F(2,96) = 1.689$ ,  $p = .190$ , partial  $\eta^2 = .034$  (see Table 10). There were no statistically significant differences between group means for perceived competence  $F(1,97) = 1.962$ ,  $p > .05$  nor for enjoyment  $F(1,97) = .230$ ,  $p > .05$ . Children using traditional equipment did not report significantly higher mean scores for enjoyment (4.04) than that of children using modified equipment (3.94). Traditional mean scores for perceived competence (2.46) were not significantly different from modified equipment scores (2.67). The dependent variable, intention to participate, was re-analyzed using an ANOVA to determine any significant differences between traditional and modified group means. No significant differences resulted between group means  $F(1,97) = 3.585$ ,  $p > .05$  (see Table 11). Children using traditional equipment reported slightly higher mean scores for intention (4.12) than did children using modified equipment (3.63), but this was not a significant difference. An ANOVA was also conducted to investigate the differences in experience levels (number of golf lessons attended) for 2<sup>nd</sup> through 5<sup>th</sup> grade children using traditional or modified equipment. Results indicated a significantly higher experience level for traditional users (15.63) than modified users (5.15),  $F(1,97) = 58.48$ ,  $p < .05$ . The traditional group's older participants (6<sup>th</sup>-12<sup>th</sup> grades, removed for secondary analyses) reported significantly higher means for enjoyment (4.53) than the younger group (4.04),  $F(1,46) = 5.652$ ,  $p < .05$ .

Table 8

*Descriptive Statistics for Traditional Equipment Usage (2<sup>nd</sup>-5<sup>th</sup> Grades)*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	24	7	11	9.08	1.10
Grade Level	24	2	5	3.79	1.06
Gender	24	1	2	1.42	0.50
Golf Experience	24	3	42	15.62	11.07
Perceived Competence	24	1.83	3.67	2.46	0.49
Enjoyment	24	2.00	5.00	4.04	0.88
Intention	24	1.00	5.00	4.12	0.89

Note. 1 = Female, 2 = Male

Table 9

*Descriptive Statistics for Scaled (SNAG) Equipment Usage (2<sup>nd</sup>-5<sup>th</sup> Grades)*

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	75	8	10	9.07	0.58
Grade Level	75	3	4	3.71	0.46
Gender	75	1	2	1.49	0.5
Golf Experience	75	1	7	5.15	2.58
Perceived Competence	75	1	4	2.67	0.67
Enjoyment	75	1	5	3.94	0.94
Intention	75	1	5	3.63	1.15

Note. 1 = Female, 2 = Male

Table 10

*MANOVA Summary of Enjoyment and Perceived Competence (2<sup>nd</sup>-5<sup>th</sup> Grades)*

Variable		SS	df	MS	F	Sig.
Perceived Competence	Between Groups	0.787	1	0.787	1.962	0.164
	Within Groups	38.906	97	0.401		
	Total	39.693	98			
Enjoyment	Between Groups	.196	1	0.196	.230	0.633
	Within Groups	82.922	97	0.855		
	Total	83.118	98			

Note. Dependent Variable= Perceived Competence and Enjoyment, Independent Variable= Traditional Equipment and Modified Equipment

Table 11

*ANOVA Summary of Intention to Participate (2<sup>nd</sup>-5<sup>th</sup> Grades)*

	SS	df	MS	F	Sig.
Between Groups	4.299	1	4.299	3.585	0.061
Within Groups	116.313	97	1.199		
Total	120.612	98			

Note. Dependent Variable= Intention to Participate, Independent Variable= Traditional Equipment or Modified Equipment

The second research question addressed how children's enjoyment, perceived competence and intention to participate, when learning golf, were affected by gender, grade level, age, equipment type and golf experience. The variable "lesson type" was omitted due to lack of sufficient data. To avoid multicollinearity, a correlation matrix exposed relationships between independent variables (age and grade) resulting in the omission of grade level ( $r = .96$ ) for the multiple regression analysis. Each of the dependent variables (enjoyment, perceived competence, intention) were analyzed with each of the demographic measures as predictors and one of the dependent variables witnessed a significant impact from the predictors (see Tables 12, 13 and 14). Specifically, the regression equation measuring predictors of intention was found to be significant,  $F(4, 118) = 3.75, p < .05, R^2 = .113$  (see Table 14). Equipment type, accounting for 9% of the variance, was the only variable that made a significant contribution to the prediction equation,  $t(121) = -2.784, p < .05$ .

Table 12

*Predictors of Golf Enjoyment*

	B	Std. Error	<i>t</i>	Sig.
Age	0.058	0.064	0.899	0.37
Gender	-0.153	0.164	-0.931	0.354
Golf Experience	0	0.007	0.032	0.975
Equipment Type	-0.245	0.21	-1.166	0.246

Table 13

*Predictors of Perceived Competence*

	B	Std. Error	<i>t</i>	Sig.
Age	-0.061	0.045	-1.338	0.184
Gender	0.198	0.116	1.712	0.089
Golf Experience	0.004	0.005	0.843	0.401
Equipment Type	0.144	0.148	0.968	0.335

Table 14

*Predictors of Intention to Participate*

	B	Std. Error	<i>t</i>	Sig.
Age	0.082	0.08	1.091	0.277
Gender	-0.181	0.193	-0.937	0.351
Golf Experience	-0.007	0.009	-0.808	0.421
Equipment Type	-0.688	0.247	-2.784	0.006

The third research question addressed whether enjoyment and perceived competence individually or collectively predict intention to participate for children who learn with traditional equipment and for children who learn with modified equipment. A multiple regression analysis was conducted for each equipment type to determine predictors of intention to participate. The independent variables in each analysis were participant's enjoyment and perceived competence. Enjoyment had a significant impact on intention in the traditional equipment group (see Table 15), and resulted in a predictor equation accounting for 29% of the variance  $F(2,45)= 9.325, p <.05, R^2= .293$ . Specifically, enjoyment accounted for 28% of the variance and perceived competence accounted for less than 1%. Enjoyment also significantly impacted intention in the modified equipment group (see Table 16), resulting in a predictor equation accounting for 61% of the variance  $F(2, 72) = 56.804, p < .05, R^2 = .612$ . Again, enjoyment accounted for most of the variance with 55% and perceived competence contributed less than 1%.

Table 15

*Intention of Participation Predictors for Children Using Traditional Equipment*

	B	Std. Error	t	Sig.
Perceived Competence	0.039	0.187	0.206	0.832
Enjoyment of Golf	0.559	0.132	4.228	0.000

Table 16

*Intention of Participation Predictors for Children Using Modified Equipment*

	B	Std. Error	t	Sig.
Perceived Competence	0.131	0.142	0.919	0.361
Enjoyment of Golf	0.912	0.102	8.977	0.000

## **Chapter Five**

### **Discussion**

The purpose of this study was to create foundational golf research exposing any psychological differences children experience when learning to play golf with traditional or modified equipment. If indeed these specific psychological factors were impacted by the equipment utilized, the study aimed to illustrate which had the most impact and if that difference was significant. This outcome was meant to instigate and guide future research involving sport pedagogy relative to golf, in an effort to better target influential factors that could contribute to a uniform introduction to the game and increase retention.

Research in sport psychology has exposed numerous psychological factors related to participants' experiences and the influences those factors have on participation behaviors. Enjoyment, perceived competence and intention have been related to continued and future participation in sports and physical education (Hein, Muur & Koka, 2004; Weiss & Ferrer-Caja, 2002; Scanlan & Lewthwaite, 1986). However, there is little empirical research that focuses on the influence these factors have on learning to play golf, which is a life time sport struggling with participation rates.

It was hypothesized that there would be a difference between self-reported enjoyment, perceived competence and intention to participate from children using modified equipment and children using traditional equipment. This hypothesis stemmed from thorough review of research examining scaled equipment usage in other sports and its positive relationship with enjoyment and perceived competence. This study had limitations pertinent to the sample construction utilizing convenience methodologies, which rendered differing experience levels between the two equipment groups as well as instructor backgrounds and environments.

The following research questions were developed to identify differences in experiences of children learning with traditional equipment and children learning with scaled (SNAG) equipment.

1. Do children using either traditional or modified (scaled) golf equipment differ significantly in self-reported:
  - a. enjoyment
  - b. perceived competence
  - c. intention to participate
2. For children learning to play golf, how are enjoyment, perceived competence and intention to participate affected by:
  - a. age
  - b. gender
  - c. equipment type
3. Do enjoyment and perceived competence individually or collectively predict intention to participate for:
  - a. children learning with traditional equipment
  - b. children learning with modified (SNAG) equipment

### **Findings and Interpretations**

This section highlights outcomes resulting from each of the three research questions posed in this study. Reference chapter four for table output, as this section is primarily concerned with interpreting the findings.

Relative to the first research question, results indicated that children who used traditional equipment reported significantly higher experiences of enjoyment as well as intention to

participate. This initial analysis showed that children using traditional equipment reported a mean of 4.29 compared to children using modified equipment reporting a mean of 3.94 for enjoyment. Reports of intention revealed a slightly larger gap with children using traditional equipment reporting a mean of 4.32 and children using modified equipment reporting a mean of 3.63. Perceived competence reports indicated children using modified equipment had a slightly larger mean (2.67) than did children using traditional equipment (2.50). However, the age span for children using traditional equipment was much larger than that of the modified group. Traditional equipment users spanned from 7 to 17 years while modified users represented a smaller gap of 8 to 10 years. The prevalence of such age differences, between the two groups, could have had a confounding effect and distorted the comparisons measured between them.

Therefore, secondary analyses were conducted to counter a possible age confound. The dataset was limited to children in grades 2<sup>nd</sup> to 5<sup>th</sup> and these results revealed that no significant differences in children's reports of enjoyment, perceived competence or intention existed between the traditional and modified groups. Though these findings did not indicate significant differences among the groups, they rendered interesting implications. The traditional group, before limiting the grade levels, averaged nearly 25 golf lessons. This average went down in the secondary analysis. Interestingly, even with the drop, the traditional group still had significantly more lessons on average (15.62) than the modified group (5.15), but did not have significantly higher perceptions of competence or enjoyment. Research done by the BCG showed that the number one reason individuals discontinued or did not attempt golf participation was due to an unwelcoming experience and a lack of understanding. Modified equipment that can help foster an immediate level of perceived competence and enjoyment, such as the results in this study

demonstrate, provides an extremely appealing option for how this game is introduced to beginners.

It is equally important to acknowledge other parameters that limited this study. A few of these limitations were unequal numbers in each equipment group, along with experience levels and age. When interpreting the results, it was important to take these factors into consideration. Even with the experience gap, which indicated more beginners were using the modified equipment and more experienced players were using traditional equipment, ratings of perceived competence were close to identical and slightly higher for modified equipment users. Compared to studies examining athletic perceived competence, these averages were slightly lower but similar (Weiss & Stuntz, 2009; Weiss, 2002; Harter, 1982). However, golf is a difficult and complex sport to learn and these results illustrate that a scaled introduction to golf could provide an easier and quicker learning process resulting in almost immediate feelings of success and competency.

Experience level, potentially having an effect on developed skill sets, also provides a reason for higher levels of enjoyment and increased intention to participate. Numerous studies have reported a positive relationship between enjoyment, perceived competence and intention as they relate to participatory behaviors (Weiss & Ferrer-Caja, 2002; Goudas et al., 1995). It is reasonable then, to interpret higher means reported for enjoyment and intention, in the traditional equipment group, as indicative of their experience levels and possibly heightened skill levels. Children who are more skilled could potentially find more enjoyment through their success and likely continue participation. Though the ratings of perceived competence were not significantly different between the two groups, skill level was not measured in this study and could have possibly had an effect on the difference in response, especially in relation to the older (and more

experienced) participants initially included. Research examining enjoyment and intention has primarily resulted in findings that illustrate significantly higher ratings for groups using scaled equipment; therefore, implications can be made regarding the impact experience and skill level have on the results in this study. The more experienced group, using traditional equipment, reported an average of about 15 lessons and a mean age of 9.1, which is close to the peak age children are most likely to participate before dropping out of a sport. Their continued participation could be indicative of being better skilled players and/or attributed to a developed love of the game. Alternatively, the modified equipment group, being primarily composed of beginners, may not have had the same opportunity to have developed those skill sets, experienced similar success, nor a similar connection to the sport. Given the experience differences and potentially differing skill levels, it would be interesting to examine the beginners' reports of perceived competence and enjoyment, in the modified group, once they have become more experienced/skilled with the game. It would also be important to track skill development and the time frame it takes certain skill sets to reach a mature state for children learning with modified equipment, as well as traditional equipment.

The traditional sample's age span allowed for an analysis between the older (6<sup>th</sup> to 12<sup>th</sup> grade) and younger (2<sup>nd</sup> to 5<sup>th</sup> grade) groups. This revealed that the older group reported significantly higher feelings of enjoyment (4.53) compared to the younger group (4.04). Traditional equipment users, in this study, were older and more experienced, which could imply that instead of dropping out they have chosen to specialize in the sport and developed a commitment to it.

The modified group had a higher number of participants, especially within a targeted age group, and showed no significant differences between the traditional group in reports of

perceived competence and enjoyment. This evidence, along with the fact that a significant increase in enjoyment was witnessed within the traditional group, could imply that the same would occur for the modified group but result in more children experiencing these positive affects because of reaching more children. In short, if the modified equipment can elicit the same perceptual experiences as the traditional but with more children being exposed, strong implications could exist to defend the adoption of this introductory method to the sport. Given perceived competence and enjoyment's demonstrated relation to intention, implications could also extend to more children acquiring intent to continue participating in the sport. This again promotes the necessity of further examining modified learners from various ages and increasing experience levels, in addition to investigating how many children who learn with modified methods develop a commitment to the game.

The second research question focused on identifying relationships between age, gender, golf experience and equipment type and their individual or combined affect on intention, enjoyment and perceived competence. Only one of the dependent variables was significantly associated with a predictor variable; equipment type was found to significantly predict reported intention. Children using traditional equipment reported significantly higher ratings of intent to continue participation. With an average of nearly 25 lessons, this intent to participate could have been established through experience for these players.

These findings could also reinforce positive implications for the golf industry targeting certain demographics. Gender was not found to significantly predict intention, perceived competence or enjoyment. Yet, golf is a sport that has predominantly comprised of male participants. Interestingly, the gender percentages of traditional equipment users more closely resembled an even split, with females slightly higher. This was also reflective of the modified

equipment users which displayed an almost even spread with females slightly higher (51% female, 49% male). The golf industry had attempted to target minority populations in recent years, women being one of those groups, in order to grow the game's participation rates. The fact that a modified entrance to the sport elicited an even higher percentage of girls than boys could be a significant finding unto itself, especially when considering initiatives and their targeted development by the industry.

Age and experience did not significantly predict intention, enjoyment or perceived competence. Given the experience levels were much higher for traditional equipment users as was age, it was interesting that these two variables did not display a more predicative relationship. This study was based on a convenience sampling method, which was a limitation. It would be beneficial to re-examine this relationship with a balanced sample size and experience levels consistent with beginner level introductions to the sport.

The last research question focused on examining perceived competence and enjoyment's relationship with intention for each group of equipment usage. In congruence with current literature, enjoyment was found to be a significant predictor of player's intent to continue participating for both children learning with modified equipment and traditional. Considering that the traditional equipment users averaged nearly five times the lessons of the modified group, and enjoyment was a predictor of intention for both groups, modified equipment demonstrates a promising ability to create a golf environment with an immediate positive affect.

The implications surrounding these findings could be valuable for the game, two-fold. First, in aiding the development of a systematic way to not only provide a uniform pedagogical approach to learning the game, but also as a method of measurement in tracking and predicting future participation levels. More research needs to be conducted in determining accuracy and

obtaining actual participation rates, but this research proposes a potentially effective approach to growing the game that could render results the industry has yet to accomplish.

This study aimed to provide foundational research and instigate the further examination of golf's introductory teaching methodologies. Future research recommendations range from improvements in the current research design to expansive approaches to the topic.

To improve the current research design, a random sample of beginner, first-touch learners should be placed into two groups. The first group, labeled traditional equipment, would complete an eight-week golf program based on the use of traditional methods and equipment. The second group, labeled modified equipment, would complete an eight-week golf program based on the use of modified methods and equipment. Two golf instructors of equal backgrounds would be assigned to lead instruction for each of the two groups. The principal researcher would administer all assessments.

Expansive approaches to this research could be infinite. With the particular design discussed above, progressive skill development assessments could be exercised along with knowledge of the game's rules and tactical/strategic concepts. SNAG Golf is capable of providing the ability to "play" the game immediately, which enables research to examine if a learning curve exists between the two methodologies. Methodical comparisons should not cease in just approaching the traditional and modified usages. Other modified initiatives the golf industry has invested in, such as Tee It Forward, should be investigated alongside SNAG and any other scaled forms in order to shed light on the most comprehensive and effective introductory system.

The simplification and adaptability of the SNAG program also facilitates the examination of teaching effectiveness from the instructor perspective. Specifically, by enabling physical

educators, who are qualified teaching professionals, to introduce this sport to children without having a strong background in golf, personally. This research concept could potentially lead to a comparison between physical educators' and golf professionals' teaching effectiveness when introducing golf to new learners, both from an objective and subjective point of view, and in relation to how many new players are learning the sport from each instructor group. Long-term, an assessment of how tour players, high performing golfers and frequent golfers were introduced to the game could render insightful results on how the inception of a uniform entry level program progresses.

Much of the research attributed to golf resides in the product development side of player development as opposed to the pedagogical side. A large portion of that being technological and related to income generation, the industry could benefit from a shift in the interest on improving average handicaps that have remained relatively stagnant for nearly 30 years at 19 for men and 33 for women. Tees have moved forward, but still, a fourteen shot difference remains. Research examining improved introductory and learning experiences should be compared to any fluctuations in handicap averages. The research possibilities stemming from this area are endless and would be relatively new to the industry, which has not actively pursued this knowledge.

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## Appendix A

### Perceived Competence Questionnaire

#### What I Am Like

Age \_\_\_\_\_ Grade \_\_\_\_\_  Boy  Girl  
(check one)

I have golf lessons  by myself  in a group (Check one) How many golf lessons have you had? List the total number of golf lessons. \_\_\_\_\_

	Really True For Me	Sort of True For me		Sort of True For Me	Really True For Me
<b>Sample Sentence</b>					
a.	<input type="checkbox"/>	<input type="checkbox"/>	Some kids would rather play outdoors in their free time <b>BUT</b> Other kids would rather watch T.V.	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	Some kids do very <i>well</i> at golf <b>BUT</b> Other kids <i>don't</i> feel that they are very good when it comes to golf.	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think they could do well at just about any new golf activity they haven't tried before <b>BUT</b> Other kids are afraid they might <i>not</i> do well at golf activities they haven't ever tried.	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	Some kids feel that they are <i>better</i> than others their age at golf <b>BUT</b> Other kids <i>don't</i> feel they can play golf as well.	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	In golf some kids usually <i>watch</i> instead of play <b>BUT</b> Other kids usually <i>play</i> rather than just watch.	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	Some kids <i>don't</i> do well at new golf games <b>BUT</b> Other kids are <i>good</i> at new golf games right away.	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	Some kids wish they could be a lot better at golf <b>BUT</b> Other kids feel they are good enough at golf.	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix B

### Enjoyment and Intention Questionnaire

**When I'm playing golf...**

	1 Disagree A Lot	2 Disagree A Little	3 Not Sure	4 Agree A Little	5 Agree A Lot
7. I enjoy it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I feel bored	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I dislike it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. It makes me feel good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. It's no fun at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. It gives me energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. It makes me sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I have a good time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. My body feels good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I get something out of it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. It's very exciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. It makes me mad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. It's not very interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I feel successful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. It feels good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I feel like I would rather be doing something else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Answer these statements  
using the same scale...**

23. I'm interested in getting better at my golf skills	<input type="radio"/>				
24. I like to play golf outside of golf lessons	<input type="radio"/>				
25. After I finish taking golf lessons this year, I would like to take lessons again next year	<input type="radio"/>				
26. After golf lessons I would like to be a golfer	<input type="radio"/>				

## Appendix C

### Institutional Review Board Approval



Office of Research Compliance  
Institutional Review Board

July 3, 2014

#### MEMORANDUM

TO: Lindsey Sams  
Dean Gorman

FROM: Ro Windwalker  
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 14-06-788

Protocol Title: *Perceptual Differences in Children Learning to Play Golf with Traditional or Scaled (Modified) Equipment*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 06/30/2014 Expiration Date: 06/29/2015

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Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

**This protocol has been approved for 200 participants.** If you wish to make any modifications in the approved protocol, including enrolling more than this number, you must seek approval prior to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).