The Ernie Els #GameON Autism™ Golf Program for Young People with Autism: An Interpretative Phenomenological Analysis

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Master of Science by Research
The Ernie Els #GameON Autism™ Golf Program for Young People with Autism: An Interpretative Phenomenological Analysis

By

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A Thesis Submitted in Fulfilment of the Requirements for The Degree of Masters of Science by Research

Research Supervisors

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Dr. Jackie Gallagher

INSTITUTE OF TECHNOLOGY TRALEE

Submitted to Quality and Qualifications Ireland, April 2018
Dedicated to the late Mr. Liam Duggan

whose efforts and intellectual input were instrumental in bringing the #GameON Autism™ Golf Program to Ireland

and

for his ceaseless efforts and his profound contributions towards making the game of golf accessible for all
Abstract

The Ernie Els #GameON Autism™ Golf Program for Young People with Autism: An Interpretative Phenomenological Analysis

By
Jerrome Suganthy Selvaraj

The first evaluation of the #GameON Autism™ Golf Program was conducted outside of the USA by the UNESCO Chair, I.T. Tralee in conjunction with the Els for Autism Foundation in partnership with LD Golf Ltd. The central aim of this research study was to evaluate the efficacy of the #GameON Autism™ Golf Program on young people with autism (ASD), their families, PGA golf coach, and volunteers. The two main objectives of the research were to analyse the impact of the program on the social/communication, motor, and golf skills of individuals with autism and to assess the potential for the #GameON Autism™ Golf Program to impart flourishing amongst the stakeholders. Autism prevalence has increased by 30 percent in the US to 1 in 68 in 2014 (CDC, 2014). Research also points out that motor deficit affects sport participation and is likely to cause aggregation of social and communicational difficulties (Alexander and Leather, 2013).

This research embraced an Interpretative Phenomenological Analysis (IPA) model and employed a mixed methods design. Els for Autism Foundation protocol was used to collect the quantitative data and semi-structured interviews and field observations were conducted to collect qualitative data. The quantitative data were analysed using statistical models such as the Wilcoxon signed-rank test and McNemar’s Statistics in SPSS 21 and the qualitative data were analysed based on the systematic process of data analysis recommended by Smith et al., (2010). The research shows that the golf program has improved some elements of athletic skills and golf skills. The program also imparted improvement in the social/communication skills of the participants; however, it was not statistically significant. Moreover, the improvement in the social/communication elements were evident from the qualitative data retrieved from the participants, their parents, golf coach and volunteers. In exploring the lived experience of the participants, the analysis revealed evidence of flourishing evidenced through the presence of the entire facets of the Seligman’s (2011) PERMA model.

Key Words: Autism, Physical Activity, Interpretative Phenomenology, Flourishing, Golf.
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Chapter 1

Introduction
Research Overview

1.1 Introduction

Autism is a neurodevelopmental disorder that leads to lifelong disability, which highly influences an individual’s ability to communicate with people and the world around them (Simpson, 2014). The American Psychiatric Association (2000) defines autism as a “pervasive developmental disorder, which is characterised by qualitative impairment in social interaction, communication, and restrictive repetitive and stereotyped patterns of behaviour” (cited in Burbidge, 2007, p.1).

In 1943, Leo Kanner, a physician and psychiatrist at John Hopkins University in Baltimore, reported the first official description of Infantile Autism (Mubaiwa, 2008; Weintraub, 2011). Burbidge (2007) explains that Autism Spectrum Disorder (ASD) encapsulates an array of abilities and difficulties, and further reports that

“At one end of the spectrum, is the severely affected child with no language, that may spend hours on end staring along straight edges or flapping a piece of string. At the other end is the mad professor who is highly skilled in his specialist subject but lacks ‘common sense’, is not able to have a meaningful conversation or make and maintain friendships” (2007, p.2).

Once perceived as rare, ASD prevalence has increased 15 times since the wake of the 21st century (Ritsner, 2009), and recently it has been estimated that more children are diagnosed with ASD than AIDS, diabetes and cancer combined (Tchaconas and Adesman, 2013). A recent publication from the Centers for Disease Control and Prevention (CDC) has concluded that the prevalence rate for 2014 is 1 in 68, which is a significant increase of 30 percent from 2012 (CDC, 2014). Frith and Happé (2005) state that even though the causes of ASD are still unclear, the findings of the past research indicate that, compared to the general population, the risk of ASD is 50 times higher for the siblings of a person affected with autism. And they further state that the susceptibility is 60 to 90 percent for identical twins, whereas for their fraternal counterparts the concordance is only 0 to 5 percent (Frith and Happé, 2005).

Research into the promotion of physical activity as a potential therapeutic intervention for individuals with ASD have revealed significant improvement in behavioural skills (Burns and Ault, 2009; Rosenthal-Malek and Mitchell, 1997), motor skills (Brand et al., 2015; Keyhani et al., 2014) and social skills (Ward et al., 2013; Ghorban et al., 2013). A
recent research study has acknowledged that almost 50% of children with autism have pervasive motor deficits (Srinivasan, Pescatello and Bhat, 2014). Moreover, the inability to perform gross and fine motor skills discourages an individual with autism to participate in peer sport, and this could likely be the reason for the aggregation of social and communicational deficits (Alexander and Leather, 2013).

The current evaluation of the #GameON Autism™ Golf Program explored the lived experiences of the stakeholders involved, namely, young people with autism, their parents, the golf coach, and volunteers. This research employed a mixed methods approach with interpretative phenomenological analysis, that is, the qualitative element as the core component and the quantitative element as a supplementary component. The quantitative data were collected to monitor the participants’ improvement in athletic skills, golf skills and social communication skills. The qualitative interviews were conducted with all the stakeholders to document the potential of the #GameON Autism™ Golf Program to help the participants, their parents, volunteers and the golf coach to flourish. In documenting the evaluation of the #GameON Autism™ Golf Program, the current study explored the efficacy of the program on the stakeholders.

1.2 Rationale for the Study: Autism and Physical Activity

The current research is at the heart of the UNESCO Chair, Institute of Technology, Tralee’s mission of

"Transforming the lives of people with disabilities, their families and communities, through physical education, sport, recreation and fitness" (UNESCO, 2017)

Consistent with the mission statement the current research strives to include individuals with autism, by providing them with the opportunity to participate in the #GameON Autism™ Golf Program, thereby encouraging the individuals with autism to lead physically active lifestyles and achieve enhanced well being. Available research findings on the fine motor skills of individuals with autism as well as internationally accepted standardised motor tests suggest the scores were in the category of either poor or very poor comparing to their typically developing (TD) peers (Todd and Reid, 2006). Autism diagnosis often co-occurs with the additional non-diagnostic symptoms such as intellectual disability (ID) (Haker, Schneebeli and Stephan, 2016). Literature asserts that children with autism may have some degree of ID (Engel, 2011) and Waterhouse (2013)
further states that 55-70% of individuals with autism have ID. The significant issues faced by individuals with autism on their motor skills and coordination domains could possibly be ascribed to ID (Bremer, Crozier and Lloyd, 2016).

Lack of physical activity among children with ASD has led to the prevalence of obesity among 30.4% of children diagnosed with ASD (Srinivasan, Pescatello and Bhat, 2014). Four significant factors accountable for prevalence of obesity among individuals with autism are: ‘low physical activity levels, poor nutrition, medication use and metabolic abnormalities’ (Srinivasan, Pescatello and Bhat 2014, p.876). It has been well established that promoting physical activities for individuals with autism reduces self-stimulatory behaviours (Srinivasan, Pescatello and Bhat, 2014), reduces obesity (Todd, 2012), increases social skills (Stanish et al., 2015), improves engagement level (Todd and Reid, 2006; Ayvazo and Ward, 2010) and improves physical fitness (Tyler, Macdonald and Menear, 2014). However, research and interventions pertaining to motor functioning difficulties of individuals with autism are scarce.

Previous research studies strongly suggest that any sport which involves complex techniques (Todd and Reid, 2006) or team participation does not suit children with autism (Stanish et al., 2015). When describing the practical strategies that would facilitate sports participation of individuals with mental health problems, Carless and Douglas (2004, p.27) advise to ‘provide supportive group environment; provide opportunities for personal achievement, success, and progression; and provide an opportunity for social interaction and exchange’. One such “physical activity that exactly fits the above-mentioned description is golf”. Additionally, golf may also be a suitable personal sport for “some” individuals with autism, research pertaining to the benefits of participating in the game of golf reveals both physiological benefits (Green, et.al, 2015; Simon, 2004) and psychological benefits (Richardson, 2012; Lane and Jarrett, 2005). These indicate “the necessity of structured, inclusive, and community-oriented physical activity programs for children with autism”.

Acknowledging the need for inclusive physical activity initiatives for children with autism, the UNESCO Chair, I.T. Tralee, initiated the evaluation of the #GameON Autism™ Golf Program in Ireland, in conjunction with the Els for Autism Foundation and in partnership with LD Golf Ltd. The current research employs a constructivist ontology and an interpretative epistemology which has its origin in the theoretical perspectives of hermeneutics and phenomenology (Mertens, 2015; Mack, 2010).
Therefore, the methodology of the current research incorporates Interpretative Phenomenological Analysis (IPA) as the overarching theoretical perspective. The rationale of IPA is to provide an in-depth, deep, rich and ideographic explanation of ‘how participants make sense of their experience in their personal and social worlds’ (Borisov and Reid, 2010, p.296). Further, the PERMA model of well-being theory is employed in the analysis of qualitative data collected from the stakeholders to understand whether the #GameON Autism™ Golf Program can promote happiness and flourishing. Seligman (2011) in his seminal publication *Flourish: A Visionary New Understanding of Happiness and Well-being* described his multidimensional theoretical construct of flourishing as comprising of five key elements: ‘Positive emotion, Engagement, Positive relationships, Meaning and Accomplishment’ the acronym being PERMA. It is hoped that the current investigation will capture the efficacy of the golf program on young people with autism, and the findings will add to the available literature on the effectiveness of golf as a therapeutic physical activity for individuals with autism. It will also be established through the lens of PERMA theory whether golf can promote flourishing among young people with autism, their parents, golf coaches and volunteers.

1.3 Aim & Objectives
The central aim of this research study is to evaluate the efficacy of the #GameON Autism™ Golf Program on young people with ASD, their families, the PGA golf coach and the volunteers. As such, this research study addresses the following research objectives,

1. To analyse the impact of the #GameON Autism™ Golf Program on the social/communication, motor and golf skills of individuals with ASD.
2. To assess the potential for the #GameON Autism™ Golf intervention program to impart flourishing among the stakeholders.
3. To undertake a comprehensive review of the literature pertaining to autism and golf as a therapeutic intervention.
4. To explore the opportunity to utilise golf as a therapeutic physical activity intervention for individuals with autism.
5. To assess the changes in the attitude towards individuals with autism among the coach and the volunteers vis-à-vis pre and post participation in the #GameON Autism™ Golf Program.
In order to achieve the aforementioned objectives, the research is set forth to address the following research questions. Does participating in the #GameON Autism™ Golf Program:

- Influence the athletic skills, golf skills and social/communication skills of young people with autism?
- Elicit potential for flourishing among the young people with autism, their parents, golf coach, and volunteers?

1.4 Hypothesis
The current research used the following hypotheses to identify the impact of the GAMEON Autism™ Golf Program on the athletic skills, golf skills and social communication skills of young individuals with autism.

1. Athletic Skills
It was hypothesised that for the variables - long jump, lateral jump, ball throw and plank in the athletic assessment, the mean difference between the pre-intervention and the post-intervention is equal to zero.

2. Golf Skills
It was hypothesised that the pre-training and the post-training proportions of the variables in all parameters namely - did the participant use two hand grip; did the participant have two hands touching each other while gripping; did the participant use one hand to grip; and did the participant use a reverse grip of golf skill assessments are equal to zero.

3. Social/Communication skills
It was hypothesised that for each of the variables in the social and communication skills - communication skills (receptive and expressive), social skills, regulatory skills and motor skills, the mean difference between the pre-training and the post-training is equal to zero.

1.5 Delimitations
The study delimitations include:
- The term autism included in the study connotes to the Autism Spectrum Disorder (ASD), and both terms are used interchangeably.
Recruitment of participants for the program employed convenience sampling, and the recruitment of participants for the stakeholder interviews (children with autism, their parents, golf coach, and volunteers) used purposive sampling.

Invitations for participating in the research investigation were disseminated through schools with an autism unit in County Kerry and through the Facebook page of Kerry Autism Action.

The study used the before and after model and used no control group for the process of evaluation.

Informed consent was collected from all of the participants and assent was collected from the children. The assent form was designed to be similar to the social stories with easily readable text and pictures.

As this research study employed a mixed methods research methodology, qualitative and quantitative data were collected using different data collection instruments. The quantitative data were collected using Ernie Els for Autism foundation protocol, and the qualitative data were collected using semi-structured interviews and field observation.

Quantitative data collected were analysed and tested for the hypothesis that the difference between the pre-training and the post-training is zero using the Wilcoxon signed ranks test and McNemar’s statistics.

Qualitative data were analysed using the Interpretative Phenomenological Analysis (IPA) and Martin Seligman’s PERMA theory of flourishing.

1.6 Limitations
The limitation of the study includes,

- The study did not use a control group and therefore could not establish that the changes observed are solely due to the intervention.
- The study recognises that ASD is not a homogeneous disorder and acknowledges that symptoms differ from one individual to the other. Therefore, generalisation of results becomes difficult.
- The total number of participants that attended the golf programme was 14, and therefore quantitative results lack the robustness to be generalised for the wider population of individuals with autism.
• The quantitative data were collected using non-standardised tools that were not tested for validity and inter-rater reliability.
• The qualitative findings from the Interpretative Phenomenological Analysis (IPA) cannot be extended to the wider population, which is the limitation of any qualitative enquiry in general.

1.7 Thesis Structure
This thesis is divided into five major chapters as follows;

Chapter One:
This chapter introduced the research overview for the reader. It was followed by the research question, and the objectives to achieve the solution for the research question.

Chapter Two:
This chapter examines the available literature on the various aspects of autism, such as the definition, epidemiology, theories of autism and experiences of families of children with autism. Furthermore, it elucidates the topics on physical activity as an intervention for autism and golf as a therapeutic alternative. It also presents the specifics about the Els for Autism Foundation and their flagship initiative, the #GameON Autism™ Golf Program. Further discussions in the review pertain to the PERMA theory of human flourishing. The gap in the literature is identified and the need for the current research is established.

Chapter Three:
Here the research methodology employed in the current investigation is presented. This section begins with the explanation of the research paradigm, that is, the ontological and epistemological standpoint of the researcher, namely constructivist ontology and interpretivist epistemology. Subsequent to the research paradigm, the discussion addresses the rationale for the choice of Interpretative Phenomenological Analysis (IPA) and the Mixed Methods approach. Furthermore, the research context and settings, and the components of data collection and data analysis techniques are presented. The final section delineates the issues of validity, reliability, and reflexivity, and includes consideration of ethical issues that could arise during the course of the research.
Chapter Four:

This chapter enunciates the findings and discussion of the research. Both the qualitative and the quantitative findings are presented separately with discussion through both sections. Section one will explore the findings and discussion of the quantitative data, which is presented based on three topics, namely: 1. athletic assessment; 2. golf assessment; and 3. Social/communication assessment. The second section will deliberate on the findings and discussions pertaining to the qualitative data and it is presented based on the key elements/complements of the PERMA model, namely Positive Emotions, Engagement, Relationship, Meaning, and Achievement.

Chapter Five:

This chapter presents the concluding remarks about the research outcomes based on the research objectives. In addition, the section also includes the suggestions that emerged from the experience of participating in the research and recommendations for further research.

The bibliography and appendices follow the final chapter.

Before going into detail about the implementation of the #GameON Autism™ Golf Program, the following section will review the various topics in the literature that are pertinent to the present research. It will establish that the gap in the current knowledge is the rationale for the current investigation.
Chapter 2

Literature Review
Literature Review

2.0 Introduction
This chapter will deliberate on the existing literature that is available on the topics that will facilitate understanding of the scholarships and lacunas pertaining to Autism Spectrum Disorder (ASD). The chapter is divided into three divisions; the first division will deal with the topic ‘Understanding Autism Spectrum Disorder (ASD)’. This section will introduce what autism is along with its prevalence, its epidemiology, difficulties faced by individuals with autism, and autism theories, and finally it will explain the impact of autism on a family. The second division introduces the topic ‘Autism and Physical Activity’. The impact of physical activity on autistic traits like motor skills and social communicational skills is discussed, and golf is introduced as a therapeutic alternative. An important component of this section is to summarise opportunities rendered by exercise and physical activities as an alternative therapeutic proposition in addressing the congenital and idiosyncratic discrepancies experienced by individuals with autism. The final division deals with the theory of human flourishing, especially the PERMA theory introduced by Seligman (2011).

2.1 Understanding Autism Spectrum Disorder (ASD)
2.1.1 Autism: An Introduction
In 1943, Leo Kanner, a physician and psychiatrist at John Hopkins University in Baltimore, reported the first official description of Infantile Autism (Weintraub, 2011; Mubaiwa, 2008). Autism is a neurodevelopmental disorder that leads to lifelong disability, which highly influences an individual’s ability to communicate with people and the world around them (Simpson, 2014). The diagnostic distinction of autism is hinged on three distinct symptoms: ‘qualitative impairment of social interaction, qualitative impairment in communication abilities, and restricted repetitive and stereotyped behaviour pattern, interest and activities (Mubaiwa 2008, p.6). Moreover, the symptoms and its manifestations differ with age from one individual to the other, which therefore led to the introduction of the umbrella term ‘Autism Spectrum Disorder (ASD)’ to acknowledge the existing heterogeneity (Frith and Happé, 2005a).

Dr. Kanner also acknowledged that the prevalence could be unprecedented as there is a huge possibility of unnoticed cases (Weintraub, 2011). His fear pertaining to the
epidemiology of autism was well-founded. A study conducted among children aged eight to ten in Middlesex - U.K in 1966 concluded that out of 10,000 children only 4.5 were autistic. In 1992, a similar study conducted in the U.S among six-year-old children estimated a prevalence of 19 per 10,000 (Weintraub, 2011). The US Centres for Disease Control and Prevention also assessed the prevalence of autism in 2006 and the findings concurred with the general fear of autism reaching an epidemic level in the U.S. They determined that Autism Spectrum Disorder affects 1 in 110 children (Weintraub, 2011). Autism research has shed light on the exponential increase in the diagnosed cases of autism. Until the first decade of the twenty-first century, the reason for the increase was predominantly ascribed to ‘increased awareness, the wider diagnostic criteria for ASD, and more frequent diagnosis of children with mental retardation (intellectual disability) as also having autism and diagnosed at a younger stage’ (Weintraub 2011, p.22).

After careful examination and observation of 11 children, Kanner presented his initial description of autistic features as being ‘acute communication difficulties, repetitive behaviours like rocking and jumping, and stereotyped and restricted social interaction’. Further, Frith and Happé (2005) list a comprehensive description of symptoms based on one case history (Paul), which include constant gazing, remaining oblivious, echoing back instead of speaking, tantrums and hyperactivity for no reason - but silenced by music. Additional symptoms include being unaware of others, not showing interest in make-believe games, maintaining strong obsession over one particular object (in this case locks), and disapproving of alterations in daily routine. Paul, even after becoming an adult, still does not have friends and prefers to stay isolated. He strikes conversations filled with technicalities, which has made it impossible for him to have a girlfriend.

The subsequent sections describe the epidemiology and the core symptoms ascribed to ASD, like ‘communication impairments’, ‘social and behavioural challenges’, and ‘motor and sensory difficulties’. One addition to the conventional list is discrepancies in motor function, and there is a self-explanatory section with concrete arguments for reasons why it should be added. Finally, savant qualities are present in some of the individuals with autism and debates around the same are presented.

2.1.2 Epidemiology

Once considered uncommon, autism prevalence has increased by 50% to 2000% in the last decade (Raina et al., 2015; Zylstra, Prater, Walthour and Aponte, 2014; Chez, Chin and...
Hung, 2004). The US Centres for Disease Control and Prevention (CDC) reported that autism prevalence has ascended by 78% since 2002. When broken down by race, prevalence among black children increased by 91%, Hispanics by 110% and white children by 70% (Kuehn, 2012). A recent publication from the CDC has concluded that the prevalence rate for 2014 is 1 in 68, which is a significant increase from 1 in 80 for the period of 2011-2013 (Zablotsky et al., 2015). The report acknowledged that the increase in the prevalence is due to the modification of questions in the survey. The modifications incorporated in the present CDC survey were made in order to be consistent with other surveys such as the National Survey of Children's Health (NSCH). Prevalence rates vary considerably outside of the U.S and Europe; for instance, Zaroff and Uhm (2012) indicate rates much lower for 10,000 people in Japan (27.2), Oman (1.4), China (11) and Hong Kong (16.1). The previously reported prevalence for Israel is 0.2%, and in 2012, it increased to 0.48%. This is only half of the estimated global rate of 1%. Research has shown prevalence rates in different countries, including India at 0.9% (Raina et al., 2015), Iran at 1.9% (Ghanizadeh, 2008), Taiwan at 4.4% (Chien, Lin, Chou and Chou, 2011) and South Korea at 2.64% (Baird, 2012). This shows that there is varied incidence and prevalence in the developing world. According to Autism Ireland, the prevalence in the Republic of Ireland is 1 in 150 with a boy-girl ratio of 4:1 (Robertson, 2013).

A population study conducted in 2002 revealed that 0.56% of children were autistic in the Faroe Islands. Nevertheless, the calibrated gender ratio (male: female) was 6:1, which is a little above the average (5:1). However, it must be acknowledged that the difference in gender ratio could be due to the small population size of the Island. A follow-up study conducted in 2009 shows that the prevalence rate has almost doubled to 0.94% since 2002. Both the rates resemble the prevalence rate in Europe and the West (Kočovská et al., 2012; Ellefsen et al., 2007). Though similarities and differences exist in the prevalence rate, data also exemplifies the multiplied increase in the prevalence. Definitive arguments explaining the unprecedented increase do not exist. Furthermore, few have raised serious doubts about the staggering increase (Waterhouse, 2008; Frith and Happé, 2005a).

However, some of the widely debated causes for the increase are an intake of folate supplements by pregnant women (Rogers, 2008), watching cable TV and working on the internet (Waterhouse, 2013), and the famous vaccine hypothesis fuelled by a controversial publication by Wakefield (Waterhouse, 2008). Wakefield’s research was criticised by many (Hornig et al., 2008; Chez, Chin and Hung, 2004; Hviid, Stellfeld, Wohlfahrt and
Melbye, 2003; Taylor et al., 1999), and there are scientists still trying with little success to prove the hypothesis (Deisher et al., 2014; Tomljenovic and Shaw, 2011). Recent research has successfully proven a high correlation between prenatal & perinatal exposure to paracetamol (Bauer and Kriebel, 2013). Etiological discussions on autism cannot negate environmental factors such as the parent’s exposure to air pollution, insecticides and pesticides like organophosphates, and the consequence of foetal exposure to heavy metals like mercury (Hg) and lead (Pb) through the placenta can result in impairment in intellectual development (Persico and Merelli, 2014; Blaurock-Busch, Amin, Dessoki and Rabah, 2012; Desoto and Hitlan, 2010).

The evolution of the diagnostic criterion is arguably one of the reasons for the increase in the prevalence (Rice et al., 2013; Fombonne, 2001). Frith and Happé (2005) argue that if scrutinized through the original robust assessment measures, only a fraction of the present estimates will qualify as autism. Zylstra et al. (2014) state that since its first edition was published in 1952, the Diagnostic and Statistical Manual of Mental Disorders (DSM) has incorporated the term autism. The first edition used the term only once to denote aberrant reactions related to schizophrenia. In the second edition published in 1968, the mention of autism pertains only to childhood schizophrenia. Infantile autism and the pervasive disorder emerged for the first time in the third edition (1980) with diagnostic criteria. Yet they were treated as symptomatic criteria to identify unresponsive children with schizophrenia. In 1987, the publication of a revised version of the third edition incorporated a distinct classification congruent to the latest standards. They are: 1. qualitative impairments in social communication; 2. qualitative impairments in communication skills; and 3. stereotypic activities/interests. Both DSM-IV (1994) and the DSM-IV text revision (2000) introduced explicit criteria for diagnosing Asperger syndrome, Rett syndrome, and childhood disintegrative disorders. The latest edition, the DSM-5, has brought all of these under the unifying diagnostic umbrella of Autism Spectrum Disorder (Waterhouse, 2013).

After all these advancements in medical science, it is highly unfortunate that biological diagnostic tests to identify and confirm autism are unavailable. Uncertainty in the diagnosis and causes harkens back to traditionally misconceived notions such as ‘cold and unloving refrigerator mothers’ are responsible for the distressed state of their children as well as to the discredited link between vaccines and autism, and misconceptions such as children diagnosed with ASD inherently have immune dysfunction (Weintraub, 2011; Mubaiwa,
2008). In 2011, another research study conducted involved analysing 5 million California birth record data to determine the reason for the increase in the prevalence. Even with such rich data, the team was not able to explain 46 percent of the increase. Among the rest, diagnostic accretion or change in the definition accounts for 25%. Great awareness, parental age, and geographical clustering represent 15%, 10% and 4% of the observed increase respectively (Weintraub, 2011b). It is high time to ascertain that the causes are not just exclusively genetic since less than half of the increase in the prevalence of autism still warrants explanation. “It is reasonable” to ascribe the recent assertion of an increase in prevalence to environmental factors.

2.1.3 Communication Impairment

Communication impairment is present among individuals with ASD. However, scholars argue that relatively 30% to 59% (Fodstad, Matson, Hess and Neal, 2009; Chiang and Lin, 2008) of those could not functionally speak. There is an increase in the number of children diagnosed with autism that present with chronic difficulties in social communication. Observed difficulties in speech and communication symptomatology are important because they determine the success of peer relationships and quality of life (Gibson, Adams, Lockton and Green, 2013). The idea of comfortable and efficient communication does not rely completely on the usage of words. Rather it incorporates an individual’s ability to introspectively manoeuvre and extract past knowledge and experiences to establish meaning. Hence, successful communication depends on how appropriately an individual can intelligently use linguistic context (pragmatics) and social context (social communication). It is generally accepted that an atypical trend persists among autistic children either in social communication or in pragmatic language development (Norbury, 2014).

Chiang and Carter (2008) suggest that difficulties in initiation of social interaction are prevalent in individuals with autism. Earlier literature has expressed the presence of discrepancies in spontaneous sentence formation, unnatural speech, unexpressed verbal affections and initiations prompted by partners. An important construct is that there may be a strong relation between impaired social relation (peer play) and consequent failure in spontaneity. A subsequent critical aspect in the debate is to acknowledge that the more children with autism respond naturally and spontaneously to environmental stimulants, ‘the more their behaviour approximates to their typically developing peers’ (Chiang and Carter 2008, p.694).
Tager-Flusberg et al. (2005) noted that rigorous examination of language impairments in autism pertaining to spontaneity highlighted the presence of an abnormality in word usage, repetition of what they have heard (echolalia), pronoun reversal, and intonation peculiarities (cited in Chiang and Carter, 2008, p.694). Numerous studies reiterated joint attention as a prominent impairment in describing the psychopathology of autism. These studies recorded some salient features like children with ASD have difficulties in initiating and responding to joint attention, and the different aspects of joint attention may be responsible for high IQ and low mental age. Also, attention difficulties are even observed among infants with autism, and finally the skills associated with joint attention are related to language and acquiring the skills leads to expressive language abilities (Chiang, Soong, Lin and Rogers, 2008).

Chen and colleagues (2006) in their analysis of nonverbal communication (NVC) in ASD using the qualitative trait locus (QTL) technique of gene sequencing found that NVC impairments are core characteristics (Donnelly and Altman, 1994) of ASD. It also exhibits familiarity and has a positive correlation with other aspects of ASD (Chen, Kono, Geschwind and Cantor, 2006). Young children communicate with others through different methods, ‘communicative non-word vocalization (CNWVs), gesture and words’. During preverbal interactions, joint attention demands the focus and attention of both the child and their social partners. CNWVs are an integral component of assessment for communication among typically developing infants, and surprisingly there is minimal literature available assessing CNWVs among autistic children (Winder, Wozniak, Parladé and Iverson, 2013).

Since ASD prevalence has increased, so has enthusiasm among parents and practitioners for early assessment and treatment. Suspicious developmental cues in communication are observed and reported by parents on average around 18 months (Horovitz and Matson, 2010). Approximately 30% report abnormality by the 12th month and almost 80% raised concerns about developments by 24 months. Although 80% of the developmental anomalies are reported at 2 years, the typical diagnosis is provided during 3-4 years of age (Kuehn, 2012). Presently researchers assess children at 12 months (for “gestures, comprehension of phrases, use of joint attention, use of a social smile, facial expression and babbling”), 18 to 24 months (for “vocabulary comprehension, vocabulary production, use of words and orientation to name”), and 36 months (for “use of gestures, eye gaze, expressive and receptive abilities, commenting and pattern of language development”). The entire research outcome directs towards a correlation between assessed variables and
communication. Only more research and repetitive outcomes will consolidate the effort to materialize early identification (Horovitz and Matson, 2010, p.391). As Kuehn (2012) noted, more research outcomes suggest that early identification of autism leads to quick absorption into services, and therefore the child can assimilate most from the interventions.

2.1.4 Social and Behavioural challenges

Social impairment represents one of the most important discrepancies in ASD (Macdonald, Lord and Ulrich, 2014; 2013) that affects a person’s relationship throughout all life domains such as ‘communication, school, friendships, relationships, work, and community’. In spite of its social susceptibility and biological consequences, the transition of the impact through age increases convolution (Jamison and Schuttler, 2015). Routine and daily rituals are both inescapable and confounding realities for children with autism, for instance, being desirous of using the same juice cup, needing one parent to tuck them into bed, and having scheduled morning duties. Any alterations may be met by ‘aggression, self-hitting and tantrums’ (Church, Alisanski and Amanullah, 2000, p.14). Social impairment causes a significant increase in ‘social withdrawal and irritability’, naturally leading to psychiatric conditions (depression and anxiety disorders) and eventually infringing on their quality of life (Baghdadli et al., 2013). Aberrations in qualitative mutual social interactions potentially lead to rejection or neglect by peers, abbreviating the social skill learning prospects and leading to aggregated ‘psychiatric vulnerabilities ‘ amidst conflicting life circumstances (Liddle, Batty and Goodman, 2009). Liddle and his associates emphasize the importance of the distinction between social inclusion (friendship, popularity, victimization, etc.) and social skills. Their argument for dismissing the allusive notion of ‘adequacy of good or poor peer relationships as a definitive indication of malleable social skills’ enunciates palpability.

Bierman and Welsh (1997) defines social competence as the “social, emotional, cognitive skills and behaviours that children (people) need for successful social adaptation” (cited in Jamison and Schuttler, 2015, p.54). In order to appease the adverse consequences of ASD, a necessary emphasis is placed on the systematic achievements of the core components of social competencies and socialisation. The success of the process hinges on the individual’s ability to perform behaviours that are conceivable and positioned on a mature social cognition that understands the time, place, and context of the social interaction. Difficulty in understanding or inability to adhere to such seasoned understanding of others poses an innate divergence in negotiating the social world for individuals with ASD
When it comes to social competence, it is a well-established fact that kids, and individuals with autism are more comfortable being around their families, especially mothers. Beyond family, they much rather prefer to spend time with adults and teachers rather than with their peers. Because of such preference, inevitably it becomes an inherent and strenuous challenge for them to initiate, sustain, and/or maintain a friendship with fellow children. Misreading or not reading social circumstances and social cues construed ASD children as ‘inappropriately silly, loud, aggressive and completely withdrawn’ (Church, Alisanski and Amanullah, 2000, p. 13).

Ventola et al. (2014) argue that it is an imperative to address the gaps in social motivation or pivotal responses that concentrate on addressing naturalistic and functional competencies in order to enhance the social skills of individuals with autism. ‘Social skills’ is a highly convoluted concept that is difficult to define; therefore, holistic and precise indicators of social skill constructs are crucial. However, while assessing social skills, both social knowledge (i.e., knowing social skills cognitively) and social performance (i.e., application of the knowledge to life situations) becomes the prerequisite parameters, even though the former is a mandatory component in evaluating the latter. Conversely, exclusive monitoring of social knowledge does not provide details about how knowledge can be translated into action. Thus, researchers have acknowledged the fact that while assessing social skills, both social knowledge and social performance should be evaluated (McMahon, Vismara and Solomon, 2013).

2.1.5 Restricted and Repetitive Behaviours

The manifestation of restricted and repetitive behaviour (RRB) is one of the core criterion in the autism symptomology and diagnosis (Uljarevic and Evans, 2017; Garcia-Villamisar and Rojahn, 2015). Repetitive behaviour is commonly defined as ‘behaviour with no obvious goal or function’ (Turner, 1999, p.839) and further RRB is characterised by a broad set of behaviours that are connected by ‘sameness, rigidity, repetitiveness’ (Honey, et.al 2007, p.1107). Turner (1999) further divided these broad set of behaviours into lower-level and higher-level behaviours. The former is categorised by simple repetition in the movement such as ‘dyskinesias, tics, stereotyped movements, repetitive manipulation of objects, and repetitive forms of self-injurious behaviour’, and the later characterises multiplex of behaviours such as ‘object attachments, insistence on the maintenance of sameness, repetitive language, and circumscribed interests’ (Joosten, Bundy and Einfeld, 2012; Patterson, Smith and Jelen, 2010; Turner 1999, p.839).
Although RRB is a core impairment related to children with autism, literature recognises that it is also common among typically developing children and children with neuropsychiatric and neurodevelopmental disorders such as schizophrenia, Tourette’s syndrome, obsessive-compulsive disorders (OCD) and intellectual disabilities (ID) (Uljarevic and Evans, 2017; García-Villamisar and Rojahn, 2015; Honey, Rodgers and McConachie, 2012; Joosten, Bundy and Einfeld, 2012; Joosten and Bundy, 2010). Investigations on the RRB among typically developing children revealed that the behaviour exists until the age of 4 years and it gradually fades as the child matures in expressing emotions and in social communication. However, among children with autism RRB becomes a persistent and prominent feature sustained with age (Joosten, Bundy and Einfeld, 2012; Patterson, Smith and Jelen, 2010; Honey et al., 2007). Despite being central to autism diagnosis, Honey, Rodgers and McConachie (2012) argues that the knowledge about the aetiology of RRB is relatively little. Also, RRB in autism received less attention since it was conceived as the derivative of the social communicational deficits (Richler, et.al 2010). García-Villamisar and Rojahn (2015) state that the existing comorbid disorders in autism may regulate the relationship between autism and RRB. Regardless of its cause, addressing RRB should be prioritized since various literature suggests that if unmanaged RRB impedes on the individual’s ability to learn skills and communicate (Joosten and Bundy, 2010).

2.1.6 Motor Impairments

Autism discussions consider social and communicational difficulties as core symptoms; however, many studies have proved that motor difficulties are very common among ASD children. Acknowledging the same as the core feature of ASD is crucial as it disrupts acquiring skills for daily living and affects quality of life and social development (Hanaie et al., 2014; Gowen and Hamilton, 2013). Difficulties in motor abilities will jeopardise an individual’s competencies towards achieving independence in mastering even daily activities. However, the secondary effects it establishes over social functioning, such as group play with peers, makes motor complications even more alarming (Sacrey, Germani, Bryson and Zwaigenbaum, 2014). Autism debates pertaining to motor difficulties have traditionally incorporated discussions only on stereotypes and imitations, but various research expound that motor skill impairments among children with ASD ‘range in nature and across tasks’ (MacDonald, Lord and Ulrich, 2014, p.96).
In their initial description of autism, Kanner (1943) and Asperger (1991) commented about references to motor difficulties, but a few characterizations like motor milestones that were ‘within normal limits’ and fine motor coordination that was ‘very skillful’ made it trivial (Whyatt and Craig, 2012). Earlier research in autism symptomatology stressed that children with ASD may have motor abilities development that is very similar to their peers or could appear to have more improved motor skills (Fournier, et al., 2010). Nonetheless, the latest investigations opine otherwise; for instance, Sacrey and associates (2014, p.1) in their review establish that ‘gross and fine motor difficulties exist in ASD’, and they ascertained the predominance of complications and aberrations in ‘basic motor control, motor learning, gait, postural control, and reach and grab movement’ (Gowen and Hamilton, 2013; Macdonald, Lord and Ulrich, 2013).

Further evaluations on ASD children against standardized motor function tests revealed poor accomplishments leading to ‘greater clumsiness, motor coordination abnormalities and postural instabilities’ (Fournier et al., 2010, p.1227). There exists strong evidence for a correlation between autism and decreased motor abilities (Abdel Karim and Mohammed, 2015; Fournier, et al., 2010; Honey et al., 2007), like early motor development, motor planning and execution, and motor correction. Children as very young as toddlers exhibit motor difficulties (Macdonald, Lord and Ulrich, 2014) such as unusual toy plays or preferring not to play with toys and strange explorations of objects visually. As the children grow, so do the desynchronized anomalies in movement initiation, planning, execution and correction (Sacrey, Germani, Bryson and Zwaigenbaum, 2014, p.7).

In a large sample (n=101: 89 males and 12 females) investigation (Green, et al., 2009) conducted among children with autism from 10 to 14 years of age, 79% of the children were identified as having motor skill difficulties. Motor skills and cognitive abilities are positively associated; for instance, children with autism and with lower intellectual abilities tend to possess weaker motor skills. MacDonald and colleagues (2013) assessed locomotor skills like running, galloping, hopping, sliding, leaping and jumping (Pan, Tsai and Chu, 2009) among school children with ASD. They reemphasized that children with weak motor skills have recorded very high-calibrated severity scores, and hence this provides sufficient evidence that social communicative skills and the motor skills are associated.
Among school-aged children with ASD, interventions in social communication difficulties incorporate predominantly peer play and ground activities, and to ensure successful participation in such activities children must possess adroit motor skills. There is much evidence available to establish the association between movement difficulties and anomalies in cognitive functions. Therefore, it is high time that the interventions focus on “motor cognition” prospects that emphasize the inclusion of both social and motor elements. “As such, incorporating motor training into intervention programs could boost confidence in action capabilities and promote socialization and communication” (Sacrey, Germani, Bryson and Zwaigenbaum, 2014, p.9).

One investigation establishes the demonstrable significance of motor control difficulties in children with autism and goes on further to state that motor skill difficulties are very important for the diagnosis of ASD and that it should be the preliminary diagnostic marker of ASD (Landa, et al., 2012). Medically speaking, it is postulated that “mirror neurons” are situated in the frontal lobes and are responsible for movement execution such as socially related gestures and facial expressions. During the early developmental stages of children, discrepancies in mirror neurons could conceivably be one of the contributing factors for impairments in ‘language development, joint attention and mentalising’ (Biscaldi, et al., 2014, p.600). Motor difficulties are notable in children from a very early age, and compiling precise motor sensory complications associated with ASD will further the present understanding of the disorder. Moreover, this may also explicate the neural integrity underpinning the biomarkers of ASD and furthermore will facilitate early diagnosis that is non-invasive (Whyatt and Craig, 2012; Landa, et al., 2012).

2.1.7 Savant Characteristics

Individuals with autism exhibit a peculiar intellectual arrangement characterized by being proficient in particular aspects but articulating marked gross deficiency in others. Besides this, one other prodigious quality observed among some of the individuals with autism is savant capabilities. These exceptional talents are idiosyncratic to expectations that are congruent or inconsistent to their IQ level (Iavarone et al., 2007; Mottron, Belleville, Stip and Morasse, 1998). The autistic savant character called Raymond in Rain Man, a feature film released in 1988, popularized the term and it became a household word (Treffert, 2014; Donnelly and Altman, 1994). Enthralled by such abilities, sometimes parents admit these extremely talented individuals in remediation classes to address functional difficulties. Emphasizing deficiencies without considering an individual’s natural
proficiency results in 'poor self-esteem, lack of motivation, depression, stress' (Donnelly and Altman, 1994) and/or may lead to the Nadia effect, the disappearance of savant qualities (Treffert, 2014, p.567).

Among people with autism, the estimated figure of autistic savants is 10%, and many researchers opine that the statistic is a gross misrepresentation (Donnelly and Altman, 1994). Carrying assertive capabilities does not relegate an autistic savant from being vulnerable to social and communication difficulties. Such deformity is an inherent quality of autism and the following words capture the expression of an individual with autism,

“What use is my intelligence when I heard the rubbish from the experts on Autism and yet all I could do was flap my hands, which is believed to be one of my traits? And what use is my intelligence when I hear that I am one of those idiot-savants and cannot say my words? So I have renamed myself as an intelligent junk” (Quirici, 2015, p.77).

Earlier anecdotal descriptions and even academic literature confined the abilities among autistic savants only to ‘music, the memorization list, 3D drawing and mental calculation’ (Bennett and Heaton, 2012; Mottron et al., 2006, 1998). However, recent research advancements in autism provide concrete empirical arguments dismissing the fictive narratives (Quirici, 2015; Treffert, 2014). Other savant abilities reported in the review by Donnelly and Altman (1994) are ‘hyperlexia’, which is the ability to read as early as two years old (O’Connor and Hermelin, 1994), incomprehensible talents in spelling, typing complex text error free, and meticulous writing in multiple languages. Although much of the literature comments about clumsiness and posture defects (Fournier et al., 2010), some individuals with autism can display remarkable qualities in coordination and balance. For example, Rimland and Fein (1988, cited in Donnelly and Altman, 1994) describe ‘how a baby balanced on the rails of his crib’ or ‘about a boy who can defy gravity with his exquisite talent in balancing objects’. Extraordinary talents in assembling complex mechanical and electrical gadgets, and having an impeccable sense and ability to estimate directions and time were also reported. Two of the most well-known individuals who are autistic savants and have excelled in their own fields are Dr. Temple Grandin and Mr. Moe Norman. The former is a woman with autism with an impeccable career in livestock equipment design, and she works as an Assistant Professor at Colorado State University (Grandin, 1992). Moe Norman was famously called Canada’s savant of the fairways. Norman possessed supernatural capacity in golf; he must be the only player who played
amateur and competitive golf for 11 years and never hit the ball out of bounds. More than that, Norman has won 50 tournaments and has set 30-course records (Selcraig, 2004).

2.1.8 Theories of Autism

Autism research to manifest the biological and genetic heritability as a cause has been firmly established. However, Best, et al. (2008) express that the existing uncertainties surrounding the biological markers are due to the absence of knowing the exact mechanisms through which autism is developed. The investigation into the behavioural markers of autism reveals that autism is a spectral disorder (ASD) with a subjective difference across numerous dimensions. With such diversity across the spectrum, a constant attempt has been made by the scientific community to devise a theory that would explain the psychological causes for ASD. Different theories have been proposed since Kanner first described autism as a disorder (Mubaiwa, 2008; Weintraub, 2011); however, three theories that have received prominent attention in the literature are: Theory of Mind (ToM), Executive Dysfunction (EF) and Weak Central Coherence Hypothesis (WCC) (Chown, 2015; Brunsdon and Happé, 2014; White, 2013; Pellicano, 2010; Best et al., 2008; Rajendran and Mitchell, 2007). Despite the fact that no authentic theoretical framework exists to explain neither the cause of autism nor its symptomology, these three theories have been credited within academia and autism training as influential because of their extensive evidence base and due to their potential to capture various elements and characteristics associated with autism (Chown, 2015). The following section briefly discusses the three theories.

2.1.8.1 Theory of Mind (ToM)

Theory of Mind states that individuals with ASD exhibit poor judgement in imputing mental states such as intention, desire, belief and emotions about themselves and others (Hoddenbach et al., 2012; Rajendran and Mitchell, 2007; Hale and Tager-Flusberg, 2005). ToM denotes one of the cognitive competencies in humans to realise that in communicating with a person, they possess distinctive thoughts and feelings on their own and are competent to understand, appreciate and anticipate others' feelings (Peterson, et al., 2016). Hale and Tager-Flusberg (2005) argue that because children with ASD have issues pertaining to mentalizing, this makes it difficult for the child to engage in a meaningful conversation. Bennett, et al. (2013, p.14) state that ToM could possibly be an influential arbiter that could explain the correlation between the early language abilities and later developmental outcomes in the ASD population. This association with early
language abilities in turn influence the learning of social and communicational skills among individuals with autism. It is further argued that across different age groups among individuals with and without ASD, there exists a strong association between ToM and language competencies (Tsang, Gillespie-Lynch and Hutman, 2016). The initial argumentation defended that the difficulties associated with ToM are the sole explanation for ASD (Rajendran and Mitchell, 2007). However, recent findings in the literature suggest that ToM accounts for only a part of the cognitive variation among individuals with ASD and their typically developing peers (Schroeder, et al., 2010; Rajendran and Mitchell, 2007).

2.1.8.2 Executive Dysfunction (EDF)

Research into autism symptomology to explain the cognitive difficulties among individuals with autism has focused primarily on the difficulties that are responsible for the idiosyncratic characteristics observed among individuals with autism (Barnard et al., 2008). Contrary to the general focus on social functioning, Barnard and colleagues (2008) contend that individuals with ASD also exhibit difficulties in non-social domains that are explicitly in conformity with a deficiency in Executive Functions (EF). Generally, deficiency in EF leads to 'difficulty in initiating action, planning ahead and inhibiting inappropriate responses (where inflexible thinking results in perseveration with those inappropriate responses), and the absence of strategy monitoring' (Barnard et al., 2008, p.126). EF deficiency could arise due to neurodevelopmental disorders that are associated with the frontostriatal dysfunction, including attention deficit hyperactivity disorder (ADHD), ASD, obsessive-compulsive disorder, Tourette's syndrome, phenylketonuria, and schizophrenia (Zandt, Prior and Kyrios, 2009; Hill, 2004a; Hill, 2004b). EF theories on ASD add to the existing scholarship with its ability to explain difficulties in EF as one of the causal factors that are responsible for core autistic symptoms such as restricted and repetitive behaviours and difficulties in social communication (White, 2013). Some of the salient characteristics of executive dysfunction observed in the research findings are planning, inhibition, set-shifting, generativity and action monitoring (Brady et al., 2015; Maes et al., 2012; Hill, 2004a; Hill, 2004b).

2.1.8.3 Weak Central Coherence Theory (WCC)

In 1989, in her famous book *Autism: Explaining the Enigma*, Uta Firth first introduced her weak central coherence hypothesis, which has become one of the predominant theories about autism (Aljunied and Frederickson, 2013; Happé, 1997). According to Happé
(1997), Uta Firth formulated the theory of weak central coherence because of two reasons. One, the knowledge gap that existed due to the inability of the theory of mind to explain autistic traits like savant characteristics and stereotypical and repetitive behaviours (Happe and Frith, 2006). The second reason sprung from her own research trying to understand the usefulness of employing patterns among individuals with autism for problem-solving tasks. Firth argued that for children with autism this capacity of coherence is less or weak. Therefore, it is very difficult for children with autism to process information because the capacity to perceive connections and meaningful links with others is diminished, subsequently inducing them to detach their ideas and thought from understanding the context and the meaning (Burnette et al., 2005; Happé, 1997). A salient feature of the central coherence theory is that the individuals with autism have special perceptual and cognitive abilities where the ascribed importance hinges on the treatment of information that is local and detailed (Crawford, 2013), whereas no priority is ascribed toward dealing with information that is global (gestalt) and contextual (Beaumont and Newcombe, 2006). Happé (1997) argues that the initial formulation of central coherence theory posited that discrepancies exhibited in the theory of mind domain by individuals with autism could possibly be one of the demonstrations of weak coherence (Chown, 2015).

2.1.9 Autism and Family

Understanding the experiences of a family with a child with ASD begins in understanding the experiences of parents when the fateful and earth-shaking information that their child is diagnosed with ASD is shared with them (Abbott, Bernard and Forge, 2013; Banach et al. 2010). Irrespective of the delay or the age at which an individual receives an ASD diagnosis, the impact on a family is momentous because an ASD diagnosis implies there will be lifelong consequences for both the child and the family (Abbott, Bernard and Forge, 2013). Generally, parents have expressed that undergoing the process of diagnosis in itself is a very stressful experience, along with the stress associated with the behaviour of the child, ‘prolonged tantrums, physical aggression and self-injury’ (DeGrace et al. 2014, p.309; Bitsika, Sharpley and Bell, 2013). Other concerns raised by parents are the feel of walking into an uncharted territory without knowing what to expect, the fear of unwarranted life changes that a family has to undergo, and the uncertainty surrounding the possible step forward with a choice of intervention (Hebert, 2014; Banach et al., 2010). Parents have perceived that receiving the ASD diagnosis has changed their lives
completely, and the immediate feelings associated with the diagnosis described by the parents are shock, guilt, anger and relief (Banach et al., 2010).

Following the diagnosis, the family situation was described as disrupted and abnormal, and that in turn has inflicted a great deal of stress, anxiety and depression among the parents of the child with ASD (Bitsika, Sharpley and Bell, 2013; Harper et al., 2013; Naseef and Freedman, 2012; Johnson et al., 2011; Hastings, 2005). After receiving the diagnosis, to raise and to provide care for an individual with autism, DeGrace et al. (2014) note that it enforces inexorable obligations and demands on the families. One such is structuring the daily activities based on the predilection of the individual with ASD, resulting in self-isolation of parents from social and family gatherings, further causing a depletion in physical and mental health (DePape and Lindsay, 2015; Ou et al., 2015; Poslawsky et al., 2014; Bitsika, Sharpley and Bell, 2013; Parish et al., 2012b). Withstanding the pressure and demands of raising a child with autism demands strong family resilience. ‘Resilience has been described as the ability to withstand hardship and rebound from adversity, becoming more strengthened and resourceful’ (Bayat, 2007, p.702). In his research pertaining to resilience among families with children with autism, Bayat (2007) has observed that participating families referred to extracting meaning out of adversity (63%), staying positive (39%) and resorting to faith (45%).

The extant literature available on marital quality in spousal relations reveals that there is a general downturn in the marital quality of parents with children with ASD (Harper et al., 2013; Freedman et al., 2012; Naseef and Freedman, 2012). The major reason mentioned for such an outcome is the personal and functional crisis (exhaustive childcare requirements), a predecessor for stress and fatigue, that generally permeates conflict and issues in communication, psychological alignment, difference of opinion, well-being and self-efficacy (Doron and Sharabany, 2013; Benson and Kersh, 2011; Johnson et al., 2011). Such issues pertaining to marital quality and quality of life, the literature unanimously agrees, affects the mother of a child with autism more than the mothers of typically developing children or children with other disabilities (Vasilopoulou and Nisbet, 2016; Doron and Sharabany, 2013; Harper et al., 2013; Freedman et al., 2012; Benson and Kersh, 2011). Research suggests that an increase in the marital quality is indirectly proportional to stress, fatigue, issues in communication and psychological adjustments, and directly propositional to self-efficacy (Benson and Kersh, 2011).
Research has shown that raising a child with ASD incurs high economic costs and it exerts a burden on parents by imposing changes in parents’ employment (DePape and Lindsay, 2015). Literature suggests three reasons for the high estimated cost of $17000 per year more for raising a child with ASD compared to caring for children without disabilities (Ou et al., 2015; Thompson, 2014). One, insurance companies do not generally cover charges for therapies and behavioural interventions (Parish et al., 2012a; 2012b). Two, because health and education services for children with autism are usually made available by different organisations, which means the time and money spent on travel are greater (Cidav, Marcus and Mandell, 2012). Finally, unpredictable behavioural changes in a child would warrant a parent to stay home, causing interruptions in parental employment status and leading to reduced working hours (Ou et al., 2015). Therefore, research shows that parents of children with ASD are expected to have difficulty staying in a job and that there is more possibility that they will quit, change jobs or work fewer hours than the parents of typically developing children (Ou et al., 2015; DeGrace et al., 2014; Thompson, 2014).

2.2 Autism and Physical Activity

Autism is a brain disorder that affects multiple systems in the human body with professed impairments in physical, social, and psychological domains. In addition to these, a recent research study has acknowledged that almost 50% of children with autism have pervasive motor difficulties (Srinivasan, Pescatello and Bhat, 2014). The inability to perform gross and fine motor skills discourages an individual with autism to participate in peer sport, and this could likely be the reason for the aggregation of social and communicational difficulties (Alexander and Leather, 2013). Lack of physical activity among children with ASD has contributed to the prevalence of obesity among 30.4% of children diagnosed with ASD (Srinivasan, Pescatello and Bhat, 2014). Obesity has become a coexisting condition among individuals with autism; therefore, Srinivasan, Pescatello and Bhat (2014, p.876) strongly advocate for four significant factors accountable for the prevalence of obesity among individuals with autism: ‘low physical activity levels, poor nutrition, medication use and metabolic abnormalities’.

Burns and Ault (2009) argue that exercise gained prominence as an intervention strategy to subdue self-stimulatory behaviours (stereotypical activities and repetitive vocalization) of individuals with autism in the 1980’s. Early reports of special education teachers revealed that the children showed more interest and became obedient and congenial after their ‘gym class, field trips or outdoor excursions’ (Burns and Ault, 2009). The prominence
and usefulness of physical activity for individuals with autism is well established (Tyler, Macdonald and Menear, 2014; Srinivasan, Pescatello and Bhat, 2014), and more recently due to an unprecedented increase in autism incidence (Zablotsky et al., 2015; Deisher et al., 2014; Neggers, 2014), research to establish the aetiology of autism has increased (Dietert, Dietert and DeWitt, 2011). Even though it is well established that participation in physical activity reduces self-stimulatory behaviours for individuals with autism (Srinivasan, Pescatello and Bhat, 2014), reduces obesity (Todd, 2012), increases social skills (Stanish et al., 2015), improves engagement levels (Ayvazo and Ward, 2010; Todd and Reid, 2006) and improves physical fitness (Tyler, Macdonald and Menear, 2014), research into motor functioning difficulties of individuals with autism is scarce.

In their review, comparing the motor skills and physical fitness of children with ASD to their typically developing (TD) counterparts, Tyler and colleagues (2014) documented that children with ASD displayed delayed performance level, lower scores in motor proficiency and fitness measures, and poor motor skill performance. Two very important inferences are made; one, individuals with ASD can achieve physical fitness comparable to their TD peers, and two, when presented with appropriate opportunities through physical education (PE) and community-oriented initiatives, health and fitness disparities could be minimized between children and youths with and without ASD (Tyler, Macdonald and Menear, 2014).

Available research findings on motor skills of individuals with autism against internationally accepted standardized motor tests such as the Test of Gross Motor Development and the Bruininks-Osertesky Test of Motor Proficiency reveal the scores were in the category of either poor or very poor compared to their TD peers (Todd and Reid, 2006).

A research study investigating the potential barriers and facilitators of physical activity among children with autism within the age group of 8-14 years found that,

“time spent engaging in sedentary activities (i.e., playing video games, watching television), feeling tired, feeling bored with physical activity, lack of a peer partner, lack of parent time, inclement weather, lack of transportation, and lack of equipment or unsafe equipment. Parent-reported barriers for children with ASD include child’s lack of motivation/interest, lack of time, engagement in sedentary activities, parent lack of time, lack of peers with whom to engage, lack of community programs available, and inclement weather” (Stanish et al., 2015, p.303).
There is the need for structured, inclusive and community oriented programs for children with autism. However, the coexisting challenges present in such a physical activity initiative for individuals with ASD reported by Todd and Reid (2006) are ‘poor motor functioning and low motivation’, ‘difficulty in planning and generalization’, and ‘difficulty in self-monitoring’.

2.2.1 Physical Activity as an Intervention for Autism

The difficulties in psychomotor abilities and cognitive skills among children with autism compared to their TD peers made intervention strategies targeted towards the inclusion of these children into mainstream physical education an improbable endeavour in the past. However, a recent study (Ayvazo and Ward, 2010) assessed the effectiveness of peer tutoring (PT) to facilitate the engagement level of children with autism. The research employed various strategies like external reinforcement, self-monitoring, and verbal cues (Todd and Reid, 2006) as a tool for improving engagement. Results show that the engagement levels of the participants have increased steeply after intervention (Ayvazo and Ward, 2010). Physical activity intervention improved the cooperative behaviour among individuals with autism. One explanation for such an impact is because the individual becomes exhausted after strenuous exercise and becomes too tired to engage in disruptive behaviours. Such an explanation only created fear among parents that exercise would devitalize the positive behaviours also. Later research findings disproved this ‘fatigue effect’, and the only accepted explanation is physical activities induce physiological excitement and sensory reinforcements that are equivalent to self-stimulation (Burns and Ault, 2009).

In designing a physical activity program for individuals with autism, Todd and Reid (2006) propose that an effective strategy for improving the participation of individuals with autism is to encourage programs that effectively incorporate ‘external reinforcement, self-monitoring and verbal cues’. The importance of parents feeling comfortable in sending their children to any program is imperative to the success of any well thought out initiatives. Alexander and Leather (2013) study factors that determine the parents’ perspectives on enrolling their children for any sports initiative. The results show that on average parents preferred four hours of physical training for their children in a week. Parents also mentioned the sports of swimming, soccer, baseball, basketball, and gymnastics as the most preferred sports for their children. However, previous research investigations strongly suggest that any sport which involves complex techniques (Todd
and Reid, 2006) or team participation does not suit children with autism (Stanish et al., 2015). Therefore, by participating in an activity that suits the requirements of the children with ASD, they get the opportunity to improve in different autism learning concepts in the domain of social skills, communicational skills and motor skills. The preceding section contains the discussion pertaining to the research findings of physical activity interventions for children with autism.

2.2.2 Physical Activity and Motor Skills

Children with autism, besides their major symptoms that make them unique from their peers, also exhibit 'greater clumsiness, motor coordination abnormalities and postural instabilities' when evaluated against standardized motor function tests (Fournier et al., 2010, p.1227). Furthermore, motor problems reflected in literature are lower-than-typical muscle tone, severe motor planning difficulties, and inconveniences in bilateral coordination activities (Ennis, 2011). Success in acquiring competency in fundamental motor skills determines a child’s ability to participate in the different types of peer play and augments the plausibility of them being physically active when she/he gets older. Numerous repositories of advanced motor functions that an individual enjoys in the later stage of life originate from the fundamental motor skills. However, achieving and acquiring such advanced skills does not happen naturally and has to be taught deliberately to an individual, allowing him/her the opportunity to adapt those skills to different learning environments (Lee and Porretta, 2013).

'The process and product of acquiring motor skills depend on the environment in which learning takes place, the type of task, and how the tasks interact with the physical (e.g., height, limb length), physiological (e.g., strength), and cognitive features of the individual' (Lee and Porretta, 2013, p.42).

Besides the constraints in the motor functions acting as a delimiter, the competitive nature of the peer community-based physical activities and games, and the lack of interest and motivation toward physical activity among children with autism are the main reasons for decreased participation of children with autism in physical activities (Alexander and Leather, 2013). One other reason is the lack of sensitivity in designing an intervention strategy taking into consideration the 'unique ways of learning, paying attention and reacting to sensory inputs' of the children with autism. Existing evidence suggests that the inability to participate in community-based physical activities further restricts their
opportunity in the domain of social communication (Fragala-Pinkham, Haley and O’Neil, 2011).

Ennis (2011) states that integrated intervention strategies to enhance both the physical and social/communicational skills of individuals with autism have increased in recent years. Teaching a game as an intervention strategy has gained prominence. Smith (2001) describes the game as ‘something that happens voluntarily, often spontaneously, offering internal reinforcements and reward’ for children (cited in Yilmaz et.al. 2005, p.171). One of the salient features of participating in games is it provides the children with a disability the opportunity to interact with others like peers and instructors. Consecutively, playing games also presents the children with the opportunity to learn verbal and nonverbal communication skills in an ideal and natural environment (Yilmaz, Birkan, Konukman and Erkan, 2005). A similar argument posited by Wuang et.al. (2010), acknowledging that physical activity like horse riding promotes ‘weight shift and postural control’, and helps children learn critical modalities such as ‘integration of kinesthetic, proprioceptive, and vestibular inputs’ that are imperative for the development of adaptive responses and motor skills as well.

In the study conducted by Yanardag, Akmanoglu and Yilmaz (2013) for evaluating the effectiveness of a video prompting procedure in teaching aquatic skills, investigators recruited three children aged 6-8, who had no previous experience with the procedures of video prompting, for the 12-week intervention program with one session every week. The results of the pre and post-motor performance evaluation through the Movement ABC-2 test battery demonstrates consistency with the previous literature; the motor performance such as manual dexterity, aiming and catching, and balance scores of all three participantshas improved considerably after the 12-week intervention. Similarly, Wuang et.al. (2010) conducted an interesting investigation to document the effectiveness of a simulated developmental horse-riding program (SDHRP) for children with autism. Researchers used an innovative simulation called Joba®, and 60 children between 6 to 10 years old participated in the 20-week intervention program. The evaluation was carried out through two standard test batteries: the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP), a test for assessing gross and fine motor skills, and the Test of Sensory Integration Function (TSIF), an instrument to evaluate the sensory dysfunctions among children. The children who participated in the SDHRP showed significant improvements in the motor scores and sensory integrative functions.
In a 10-week aquatic program, children from 3 to 9 years of age participated in the program for 60 minutes every week. Ennis (2011, p.5) employed the Water Orientation Test of Alyn (WOTA) for monitoring aquatic skills, and the Paediatric Evaluation of Disability Inventory (PEDI) and the Paediatric Quality of Life Inventory (Peds-QL) to access improvements in the ‘physical function, interaction, or quality of life’. The results show significant changes in the motor, social and communication skills of all the participants. Fragala-Pinkham (2011) conducted a 14-week group intervention aquatic program participated in by 12 children with autism aged 6-12 years. The research used the Swimming Classification Scale, YMCA Water Skills Checklist, and Multidimensional Paediatric Evaluation of Disability Inventory Mobility scale (M-PEDI) as evaluation measures. The Results showed that the participants in the intervention group have improved in their swimming skills, cardiorespiratory endurance, muscle endurance, and motor skills. Pan (2011) evaluated the efficacy of the aquatic program on the physical fitness and aquatic skills of children with autism and their siblings with autism with the participants between ages 7 and 12 years old. Pan employed within participants the repeated measures design, using the Progressive Aerobic Cardiovascular Endurance Run (PACER), a multi-stage shuttle run, to access physical fitness and the Humphries Assessment of Aquatic Readiness (HAAR) checklist for assessing aquatic skills. The results observed demonstrate that the study produced a considerable increase in “all subtests of physical fitness and aquatic skills except in the subtest of body composition” (Pan 2011, p.663). In the ten-week physical activity intervention examining the fundamental movement skills and social responsiveness among children with autism in special school setting, Crawford, MacDonncha and Smyth (2013) found that the t-test scores comparing the pre and post intervention revealed a statistically significant result of 47% and 76% of participants in movement skills and social responsiveness skills respectively. All of the studies mentioned have improved the physical activity level and motor skills of children with ASD.

2.2.3 Physical Activity and Social Communication Skills

Social impairment represents one of the most important impairments in ASD (Macdonald, Lord and Ulrich, 2014; 2013) that affects a person’s relationships throughout all life domains such as ‘communication, school, friendships, relationships, work, and community’. Similarly, Gibson et al. (2013) contend that an increased number of children diagnosed with autism have chronic difficulties in social communication. Observed
difficulties in speech and communication symptomatology are important because it determines the success of peer relationships and quality of life (Gibson et al., 2013). Numerous research investigations have focused on how physical activity interventions have influenced the social and communicational difficulties in children with ASD. The following are some of the interventions that focused on reducing antisocial behaviours, improving social and communication skills, improving emotional/behavioural function and augmenting self-regulatory skills and adaptive living skills.

The results of the study conducted by Pan (2010) evaluated the effect of the Water Exercise Swimming Program (WESP) for children with autism from 6 to 9 years old based on the Humphries Assessment of Aquatic Readiness (HAAR) and School Social Behaviour Scales (SSBS–2) measures. The program showed that apart from the increase in swimming skills, evidence shows that there has been a decrease in antisocial behaviours among the participants. In their research, Yilmaz et al. (2005) analysed the effectiveness of the constant time delay technique in teaching aquatic play skills for four boys with autism aged 7-9. The results showed that implementing the constant time delay technique was effective in increasing the participants’ correct target skills and the children were able to sustain the effect even during the generalization phase. Furthermore, the participants’ social and communication skills and behaviour improved substantially in the pool. In investigating the impact of horse riding on parents’ identified goals for children with autism, Holm et al. (2014) implemented an Applied Behavioural Analysis (ABA) single subject design in the intervention that lasted for 12 weeks. Three children, two six-year-old boys and one eight-year-old boy, participated in the research. The results suggest that dosing is directly proportional to the registered changes in all three domains—physical, emotional/behavioural, and cognitive. Moreover, interviews with parents revealed that the children were successfully able to generalize the learnt skills during intervention phase at home and in the community.

In a recent study, Ghorban et al. (2013) examined the effectiveness of horse riding on the social skills of six children with autism aged 6-12. All of the participants took part in the four-week session, and their social skills demonstration assessment used the Triad Social Skills Assessment (TSSA) scale. Evaluation through a paired sample t-test reveals that the total mean score of social skill was higher post-intervention than the pre-intervention. Moreover, children have also significantly improved in the subscale variable skills of Affective Understanding/Perspective Taking, Initiating Interaction, Responding
Interaction and Maintaining Interaction (Ghorban et al. 2013, p.82). Ward et al. (2013) in their assessment hypothesised that children with ASD would demonstrate improved social communication and sensory reactions after participating in the horse riding session. Twenty-one children, 15 boys and 6 girls with the mean age of 8.1, were recruited for the intervention research. Two separate measures, the Gilliam autism rating scale-2 (GARS-2) and the sensory profile school companion (SPSC), were used to assess social communication and the sensory reactions. Research output shows that the participants have increased significantly in their social interaction, their sensory processing was improved, and the intensity of ASD symptoms has decreased after participating in the horse riding intervention. In another investigation measuring the effectiveness of horse riding on children with ASD, Gabriels et.al. (2012) recruited 42 children aged between 6 and 16. All of the participants were evaluated using the Aberrant Behaviour Checklist-community (ABC-C), Vineland Adaptive Behaviour Scales (VABS-II) and Bruininks-Oseretsky Test of Motor Proficiency (BOT-2). They showed significant improvement in self-regulation (Irritability, Lethargy, Stereotypic Behaviour, and Hyperactivity), adaptive living skills and motor skills after intervention (Gabriels et.al. 2012, p.586).

2.2.4 Other Implications of Physical Activity

Oriel et al. (2014) report that extensive documentation is available pertaining to sleep disturbance among children with autism. It is estimated that almost 66% to 80% of children with autism suffer from sleep disturbances, which is a decisive contributing factor that influences their daily functioning and intellectual development, and it causes stress at home (Oriel et al. 2014, p.1). A study investigated the relationship between sleep disturbance and the severity of autism symptoms (Hoffman et al., 2005), and the results concluded that there is a strong correlation between sleep duration and autism symptoms like stereotypic behaviour, social interaction, and developmental disturbances. Oriel et.al (2014) conducted an investigation among children with ASD aged 6 to 11 with an A-B-A withdrawal design using aquatic exercise. The research used the Children Sleep Habit’s Questionnaire (CSHQ) to put to scale the problems a child has with sleep. Results showed that the participant’s sleep duration increased, and awakenings reduced after their participation in the aquatic exercise session. So far, the discussions were centred on benefits of physical activity for individuals with autism. The subsequent section elucidates the benefits of golf as a physical activity.
2.3 Golf as a Therapeutic Alternative

In this section, the main topic of discussion will be to enumerate various aspects of golf that make it a therapeutic alternative. Initially, the history of golf and the exclusive nature of golf as a sport are discussed. Further, the section also deals with the benefits of golf as a physical activity, and the core components of the Els for Autism Foundation in general and the salient features of the #GameON Autism™ Golf Program in particular are discussed.

2.3.1 Exclusionary Traditions in Golf

Ceron-Anaya (2010) points out that historically golf developed as a professional sport in Scotland and England. Because of the longstanding association of Scottish people with the game, sometimes Scotland has been ascribed the honour of the origin of golf. Vamplew (2010) asserts that golf has historically been a popular game played by everyone. Lowerson (1994) eloquently asserts the claim that 'the game was played on public land using all sort of improvised equipment, betting was a normal practice, and golfing matches were commonly followed by festive groups drinking and celebrating the outcomes on the course' (cited in Ceron-Anaya, 2010, p.343). Ceron-Anaya (2010) argues that originally the very first rules pertaining to the game of golf were penned in 1744 at Leith (Scotland). Forty years later, in 1783, the Society of Golfers drafted rules pertaining to the etiquette of players for the first time in the history of the sport. None of the players should walk or move nor speak in a manner of deviating the attention of the player while a shot is being played. Approximately forty years later, in 1824, rules of etiquette were drafted for the audience, such as to remain silent during the play, walk behind the players, and to never move nor pull-out any objects, especially balls, from the course (Ceron-Anaya, 2010).

As noted before, historically golf was a popular sport played by all (Vamplew, 2010). However, Ceron-Anaya (2010) firmly contends that with the advent of the etiquette and formalisation, the game gradually changed into a middle-class stronghold. He further maintains that certainly the emergence of the regulated private golf course, as opposed to golf traditionally played on public lands, and rules pertaining to etiquette, especially uniforms and memberships, gradually made sure the people from the lower section of the community were excluded by choice since golf became unaffordable. In the words of Starn (2006), 'Golf, a sport perceived as linked to the lifestyle of the Scottish and British aristocracy, possessed an aura of Anglo-Saxon-ness, in contrast to the pastimes of what one observer called the swarthy, unwashed masses' (cited in Ceron-Anaya, 2010, p.349).
Sometimes a talented player from the lower class might be allowed to become a member of a club, but they are ascribed a second-class membership. Moreover, they will be treated as servants—owing to the unwritten rule that their playing time will be compensated by unpaid work (Ceron-Anaya, 2010).

Dawkins (2003) expresses his contention pertaining to the general depiction of sports being one of the most open-minded industries when it comes to race relations. He points out that racism as a general principal persisted in the history of sports by taking the form of exclusion, discrimination, and desegregation during the periods of slavery and post-slavery. According to Dawkins (2003), the white golfers and their associations through institutional systems such as a prohibitive quota system strategically segregated and vehemently opposed the golf participation of black people. He further points that, in spite of the participation of blacks in the game of golf for a long time, only recently after the rise of Tiger Woods in the professional circuit has literature started to acknowledge the contribution of black American golfers to the game (Dawkins, 2003).

Before Woods, there were only very few prominent black American names in the golfing industry. One among them during the late 19th century was John Shippen, who was called the first ‘coloured golf pro’ (Dawkins, 2003, p.232). He played in the then professional circuit called the United States Golf Association (USGA) from the 1890s to 1913. When they formed the Professional Golfers Association (PGA) in 1916, Shippen was not invited to join the organisation because of their famous ‘Caucasians-only clause’. This organised racism was in practice until 1961, and only after some steadfast legal battles was Charlie Sifford given full membership in the PGA (Dawkins, 2003). Even golf clubs such as the world-famous Augusta National were persistent in their segregation principle through discriminatory membership and the exclusion of coloured people from participating in the Masters Tournament. Such a ban on participation in the Masters was lifted when Lee Elder broke the race barrier in 1975 (Chandler, 2016), and later in 1991, the first black member of Augusta National was Ron Townsend, the president of Gannett Television Group. However, history was made when Tiger Woods became the first African-American to win a major PGA tournament at the Masters in 1997 and the rest is history (Chandler, 2016; Nylund, 2003).

Reis and Correia (2013) argue that golf as a professional sport has historically segregated people from minority groups to participate and women were systematically discriminated
from active participation. However, women have been fascinated about golf as a leisure pursuit since the 18th century. The game has evolved as a leisure activity dominated by males, for instance, almost 80 percent of the golfers around the globe are men (Reis and Correia 2013, p.68). Kitching, MacPhail and Bairner (2015) contend that traditionally the game of golf has a close connection with the ‘monarchy and the aristocracy’, and the history of golf as a gentlemen’s game has always discriminated against women’s participation in the game. Females who play golf for recreation have garnered a high level of stereotyping, and some of the words used by them to capture this typecasting experience are feeling ‘ignored, overlooked and unimportant’ (Kitching, MacPhail and Bairner 2015, p.178). They further claim that such patriarchal culture is reinforced when more young males are encouraged to take up golf, and this prejudiced socialisation helps to maintain the existing discriminatory gender biased golf culture to the next generation.

According to George (2010), men in general and even a Scottish high court judge hold the firm opinion that women are not competent enough to master a golf swing. Women were considered as a distraction and many golfers did not want women on the fairway. The permission for women membership was granted only for the membership fee, and because they organised fundraisers and parties, which was a very important component for establishing the clubhouse as a social institution. In spite of women’s contributions towards golf in many ways, George (2010) claims that there was no real spirit of equal treatment. Song (2007) points out that the discrimination against women in golf clubs is in practice today in the United States, Ireland, and Britain despite the passing of legislations on equal opportunity and non-discriminatory laws. The Royal St. George’s Golf Club in Sandwich, England raised a banner banning ‘dogs and Women’ (Song 2007 P.189).

2.3.2 Benefits of Golf

Historically the game of golf developed as a professional sport in Scotland and England in the 17th century (Ceron-Anaya, 2010). However, Carless and Douglas (2004) argue that there is always a debate pertaining to where the game originated, and they further state that both the Dutch and the Scots claim the honour for the creation of the game. Regardless of its origin, Carless and Douglas (2004) claim that the basic doctrines of the sport have remained the same over the centuries. That is, in the words of Evans and Tuttle (2015, p.381), the objective is to hit the small ball into 18 holes with as few shots as possible and ‘from a longevity perspective, continue to enjoy the game as pain and injury free as possible’. The game of golf is popularly described among the clubhouses as ‘a cross
between the fine motor control of a surgeon, the explosive power of the sprinter and the tactics of a chess player’ (Carless and Douglas, 2004, p. 28).

Golf is one of the popular recreational sports, played by approximately 80 million people around the globe, and the addition of golf to the 2016 Olympics stands as a testament to the increasing global popularity of the game (Evans and Tuttle, 2015). Simon (2004) states that there are two general conceptions pertaining to golf. First, since golf is played leisurely, the game does not always contribute towards cardiovascular health, but it can. Second, as the game is relaxed, slow paced and a gentleman’s game, players very rarely are injured. But it is argued by Simon (2004) that contrary to the general misconception, recent research into medical and physical fitness has espoused that golf as a physical activity is very good for the health and fitness of people of all age groups. Though injuries are common among golfers, they can be avoided by incorporating golf into a regular fitness schedule.

In the literature the discussion pertaining to the benefits of participating in the game of golf generally connotes to the physiological (Green, et.al, 2015; Simon, 2004) and psychological (Richardson, 2012; Lane and Jarrett, 2005; Carless and Douglas, 2004). The subsequent discussion contains both the physical and the psychological benefits of participating in the game of golf.

### 2.3.2.1 Physiological Benefits

Before the past two or three decades where the aerobics revolution was at its pinnacle, the tendency among the exercise physiologists was to describe golf as ‘a good walk spoiled’ (Simon, 2004, p.4). This idea was consistent with the notion of exercise at that time, where an exercise is beneficial only when it induces a 70% to 85% rise in the heart rate. There are scientists who still subscribe to the notion that aerobic exercise has the greatest health benefits (Simon, 2004). However, research findings over the past decade have proved that moderately paced physical activities also contribute towards fitness when performed consistently for at least 30 minutes every day (Simon, 2004). Richardson (2012) has noted that if an individual completes an exercise daily at a moderate level of intensity for 30 minutes, it will promote and maintain health by maintaining the blood pressure level and also reduce the risk of ‘heart disease, diabetes, obesity’ and improve the cardiovascular functions. This is achieved apparently by reducing the potential risk for sensitive groups.
such as children, pregnant women and older adults if they participate in the high-intensity activities with a higher workload (Lane and Jarrett, 2005).

Golf as a sport and as an exercise involves a reasonable long period of low-intensity activities with a few spurts of high-intensity activity (Evans and Tuttle, 2015; Lane and Jarrett, 2005). Simon (2004) clarifies that while considering golf as an exercise, the major activity will be from walking, not from the speed of the swing. An average golf course distance spans around 6300 yards, so a round of golf demands walking about a minimum of 4 miles. Simon (2004) argues that if an individual walked 18 holes three to five times a week, she/he will receive an optimal level of exercise for their heart. He further notes that golf would become beneficial by burning more calories if the golfer is pulling or carrying her/his clubs. Even though walking is an important component of golf, Evans and Tuttle (2015) argue that contrary to the general expectation of a low-intensity sport, the energy required for performing a full swing in golf is much higher. Also while playing full swing the maximal voluntary contraction of muscles reaches 90% for amateur golfers and 80% for professional golfers. Even though putting does not require much energy or muscle movement, it demands an optimal degree of ‘trunk inclination and sagittal flexion’, that is, postural endurance is very important (Evans and Tuttle 2015, p.381).

A study conducted by Dear et.al 2010 (cited in Richardson, 2012) among elderly golfers with a pull cart revealed that in a round of nine holes the average time spent on mild and high-intensity activity is 64 minutes. Similarly, the study also found that from a round of nine holes, the participants burnt 310kcal. Both the time spent on mild and high-intensity activity and the amount calories burnt meet the required guidelines of the American College of Sports Medicine (ACSM). Farahmand et al (2009) conducted an investigation of mortality among Swedish golf players compared to the general population adjusted for socioeconomic status. The study revealed that mortality rate reduction existed among both men and women in all age groups and socioeconomic categories. However, the analysis showed that the mortality rate is less among the skilled golfers than the unskilled golfers. The researchers acknowledged that the result of a 40% decrease in the mortality rate does not indicate a conclusive association with playing golf. However, they conclude that engagement in golf is part of the explanation. Therefore, a 40% decrease in mortality rate among golfers signifies an increase in life expectancy by five years.
2.3.2.2 Psychological Benefits

Lane and Jarrett (2005) argue that literature into golf research predominantly focuses on the physiological benefits of playing golf. However, they point out that there is a dearth of research investigating the psychological benefits of playing golf both as a recreational and professional activity. The literature points out that there is indisputable evidence towards both acute and chronic mood development after an exercise session (Lane and Jarrett, 2005). To enhance the effect of mood development, Berger and Motl (2000) recommend the following factors to be incorporated into the physical activity schedule: ‘duration of 20 - 30 minutes; moderate intensity; regular frequency (3 x week); rhythmic breathing; predictable and repetitive movements; and an absence of interpersonal competition’ (cited in Lane and Jarrett, 2005, p.48). Golf fits the recommendations suggested by, Lane and Jarrett (2005), and Berger and Motl (2000), therefore argue that golf could possibly contribute towards the enhancement of mood development of golf players. Putting the hypothesis to the test, Lane and Jarrett (2005) conducted an investigation measuring the mood of 34 male golfers in the aging population with the average age of 68. The mood profile was evaluated using the Brunei Mood Scale. The findings suggest that there was an increase in the reported scores on ‘anger, depression, and fatigue’ and vigour reduced after the golf session. On an average, each golfer has walked a distance of 10.21 km, which is a meaningful exercise for the age group, and the overall mood profile of the participants was positive. The research recommends that in order to use golf, as physical activity for an aging population, the player’s ability to regulate unpleasant mood states must be taken into consideration.

Murray et al (2016) report that research into the impact of golf on mental illness suggests that there exists no conclusive and consistent evidence or association. However, they acknowledged that the prevalence of the positive relationship between golf and mental wellness is supported by numerous studies that used rigorous and wide-ranging methodologies such as ‘qualitative interviewing, cross-sectional surveys and longitudinal studies’ (Murray et al 2016, p.7). Campbell (2016) states that golf contains the elements that induce Therapeutic Lifestyle Changes (TLC), has “no reported side effects” and oftentimes proves to be more effective than psychotherapy and medication. Some of the integrated therapeutic components of golf that offer TLC are exercise, time in nature, fostering of relationships, recreation, relaxation and stress management. Playing a round of golf gives an individual more than 30 minutes of exercise, which eventually results in
reduced risk of developing depression, Alzheimer’s or anxiety disorders (Campbell, 2016; Richardson, 2012). Golf contributes towards the cognitive, attentional, emotional, spiritual and subjective well-being of an individual while they are enjoying the serene and natural environment (Campbell, 2016). In addition to the above-mentioned benefits, the argument is that golf encourages social connections and relationships, which further foster happiness and self-management skills (Campbell, 2016). Golf also bolsters the self-efficacy, self-confidence, and self-esteem of the participants (Murray et al., 2016a). In their research, Kim, Compton and Robb (2011) analysed the impact of golf on the self-efficacy of 327 individuals with a disability. The poll of participants with disability include individuals with physical disability, mental disability and visual and hearing loss. Results proved that the individuals with disability showed improvement in their self-efficacy and self-confidence levels. Further, the analysis also revealed that the physical activity levels of the participants improved post participation (Kim, Compton and Robb, 2011).

In their controlled study investigation on youth development, Weiss et al (2007) compared the youth development components of 405 youth in the First Tee and 159 youth in comparative activities, e.g. sports, bands. First Tee is a golf program that emphasis on philosophy of positive youth development where attention is given to mastery, positive behaviour and personal skills. Weiss et al (2007) found that the participants in the First Tee showed positive evidence in the development of life skill transfer, general life skills experiences, and psychosocial outcomes. The observed improvement in the psychosocial components are ‘perceived behavioural conduct, self-efficacy and self-regulated learning’ (Weiss et al., 2007, p.S212).

2.3.3 Els for Autism Foundation

In 2009, Ernie Els and his wife Liezl Els founded the Els for Autism Foundation with the vision of productively contributing towards the research and development, and service provisions surrounding the issue of autism (Els For Autism, 2012). Ernie entered the competitive golf circuit at the age of 16 and became the world’s no.1 golfer in the professional circuit with 70 victories in his illustrious professional career. This includes four major championships, two world championships, and a record seven world match play titles. Acknowledging his unparalleled achievement in golf, he was inducted into the World Golf Hall of Fame in 2011 (Ernie Els, 2016).
The foremost reason why the famous golf pro started the Els for Autism Foundation is that his son Ben was diagnosed with autism. Even before the formal diagnosis, the couple had palpable questions about their son’s developmental achievements: Why he is not crawling? Why is he not walking? Why is he not looking them in the eye? (Els For Autism, 2012). The diagnosis has profoundly affected the family in every way possible, and the family even moved from the United Kingdom to the United States to get professional therapeutic care (Ernie Els, 2016). When they found that many children with autism are forgotten and/or even considered as a waste of time, Ernie felt heartbroken about such a skewed view of the group, and his son Ben’s ASD diagnosis became the driving force behind the Els for Autism Foundation (Ernie Els, 2016; Els For Autism, 2012).

The mission of the organisation as cited in the official web page of the Els for Autism Foundation is:

**Mission**

- Els for Autism is committed to better understanding the aspirations of people with autism spectrum disorder (ASD) and helping them to fulfil their potential to lead positive, productive and rewarding lives, through:
  - Understanding the nature of ASD and facilitating the development and delivery of treatment therapies, educational programs, training programs, and recreational programs as well as residential and independent living programs.
  - The development of global outreach that will facilitate the sharing of best practices and programs.
  - Raising awareness and promoting the value, acceptance, and inclusion of people with ASD.

The foundation has different programs in place; however, Ernie and his wife are now pulling their resources together to open a first-of-its-kind state of the art research and education facility called The Els Centre for Excellence (CNN, 2012). The facility is the headquarters for providing networks for the international autism communities, with the innovative research initiatives leading towards shared best practices. The Els Centre for Excellence is situated in the 26-acre facility, where the first phase of construction was completed in August 2015. The facility now houses a lower level school and auditorium buildings. The second phase of construction, consisting of an upper-level school, a sensory art garden and pavilion, is anticipated to be finished by July 2017 (Els For Autism, 2012).
Once both the phases of construction are completed, the facility is expected to house 300 students between 3-21 years of age along with other services. Some of the different facilities and services available in the Els Centre for Excellence are early intervention, therapeutic, medical and professional help in addition to research, transition to adulthood, on-site job training, individualized and distance transdisciplinary therapy for the families worldwide (Els For Autism, 2012). In the U.S, the unemployment level of adults with autism is very high at 88% claims Rep. Patrick Rooney, and he further states that the Els Centre for Excellence school will provide practical life skill training for children with autism to help them become employable in the future (Cox Media Group, 2015).

2.3.3.1 Els for Autism Foundation Programs

The Els for Autism Foundation runs various programs such as GOALS (Global Outreach Autism Learning Services), Spring into Action Early Intervention Services, Reach & Teach through the Arts, BASE (Behaviour Analytic Services & Education), Adult Services & Programs, Ernie Els #GameON Autism™ Fitness and Ernie Els #GameON Autism™ Golf (Els For Autism, 2012). The programs have been designed as a result of evidence-based practices and cater to the needs of different demographics like children from 15 months old to adults with autism. Of the entire list of programs, the Ernie Els #GameON Autism™ Golf Program is the flagship program of the foundation, and it is discussed in the following passages.

2.3.3.2 Ernie Els #GameON Autism™ Golf Program

The rationale for selecting golf over other sports is because golf courses are generally designed in serene, natural, and solitary environments away from the noise and chaos of complex social situations. This is perfectly suited for individuals with autism, as they suffer from sensory co-morbidities along with other conditions (Sotelo and Hong, 2016). Beyond the physical environment, the sport is constructed on the ethos of solidarity and quietness, and it contain natural elements that make it an effective supplemental therapy for individuals with autism (Sotelo and Hong, 2016). The nature of the sport and golf environments help very much to increase self-worth and confidence while providing new opportunities to develop and build friendships, relationships and deeper ties with the community (Sotelo and Hong, 2016).

An inability to perform gross and fine motor skills may discourage an individual with autism to participate in peer sport and could lead to the aggregation of social and
communicational difficulties. Through this research, golf will be promoted as an initiative to help the individuals with autism become introduced into the world of sport and physical activity. For individuals with autism, golf is an effective supplemental therapy because the game is rooted in the concept of repetition. This coincides with one of the stated determining factors of autism, namely, restricted and repetitive behaviours like hand flapping, rocking back and forth, and repeating one sentence constantly (Sotelo and Hong, 2016). These socially repudiated behaviours, if not channelled functionally, paint an unattractive picture of individuals with autism in society. ‘Golf can be a functional outlet for some of these individuals and serve as a socially acceptable tool for obtaining the inputs received from repetitive behaviours. For the game of golf, these repetitive traits are an asset; however, as golf requires extreme focus, determination, and dedication, these qualities of the game translate learning golf as not just a functional leisure activity but also a supplemental therapeutic alternative for individuals with autism (Sotelo and Hong, 2016).

The golf program is a 12 session initiative; each group session is for 60 minutes and consists of different lesson plans that focus on teaching golf with an integrated emphasis on autism learning concepts such as social, communication, regulatory and motor skills (Sotelo and Hong, 2016). The 12 sessions run over a period of 12 weeks, with one session conducted every week. Each session is divided into seven segments – warm up and warm down (15min), putting station (10min), chipping station (10min), water break (5min), pitching station (10min), and full swing station (10 min). The integral feature of the program package characterizes numerous elements of evidence-based practices such as ‘exercise, reinforcements, prompting, visual supports, modelling, video modelling, social narratives, and antecedent-based interventions’ (Sotelo and Hong, 2016). The program is designed to teach golf with a seamlessly incorporated lesson plan that augments the self-confidence and self-esteem of an individual with autism in a fun, welcoming and supportive environment (Sotelo and Hong, 2016). The implementation of the program is organised around the layered instruction and routine creation. The program is intentionally designed for layered instruction such that the content and design of every exercise and activity of a session coincides with the lesson plan (Sotelo and Hong, 2016). This design ensures gradual progression over the course of each session. For example, a lesson starts with a fundamental drill to practice motor skills, and gradually the complexity of activities...
increases to ensure participation and graduation to practice complex swing motions (Sotelo and Hong, 2016).

As part of monitoring the development of the child, quantitative data will be collected from all the participants for three sets of abilities: social/communication, athletic, and golf. There will be a pre-intervention (1st session) and a post-intervention (2nd session) evaluation (Sotelo and Hong, 2016). These assessments are imperative to #GameON as the data provides concrete field evidence to substantiate golf as a therapeutic alternative, and the efficacy of the program. The assessments are designed to be incorporated into the lesson plan so that the children do not feel the pressure of taking the test. The three assessments will be carried out in the same way to maintain consistency within the assessments (Sotelo and Hong, 2016). When children with autism participate in physical activity, it not only enhances their physical health but also impacts their psychological health leading towards improvement in their well-being and quality of life (Lanning et al., 2014). Therefore, participating in sports and physical activities essentially leads towards the holistic development of an individual, eventually leading to happiness and helping the individual to flourish. The following discussion enumerates the different components of human flourishing, especially the PERMA model.

2.4 Human Flourishing

A strong argument that constitutes the core of Aristotelian philosophy expounds that the rational consequence of human actions must result in Eudaimonia. Eudaimonia is a Greek word; its literal English translation means ‘human flourishing’ (Younkins, 2008). According to Aristotle, ‘Flourishing was not a momentary state, but a condition of living a good life’. Happiness, he wrote, was not limited to feeling good, but it encompassed a ‘fulfilment of life, dreams, and expectations’ (Davis and Brotherton, 2013). Flourishing expounds that a person has the opportunity to live a life that is as fulfilling as possible for him or her (Alexander, 2013, p.2). Aristotelian scholars maintain that there exists an unavoidable relationship between human nature and human flourishing. According to Aristotle, rationality (Boyle, 2012; Younkins, 2010; Cochrane, 2005), individuality (Younkins, 2010; Younkins, 2008; Davis, 1989) and morality/virtue (Grcic, 2013; Engel, Soldan, and Durand, 2008) are the three distinctive natures or characters that designate human beings as having the pinnacle position among all other terrestrial creatures in the universe. The question of happiness and well-being has not only been the topic of discussion
in philosophy. The issue of happiness, wellbeing and flourishing have also been the topic of debate and theorising in other fields, especially in psychology (Croom, 2015).

Numerous authors contend that historically the field of psychology has commonly operated on the premise of the deficit model, where the focus was primarily on the treatment of individuals with delinquency in their psychological domain who necessarily required treatment. In other words, psychology focused only on relieving misery as an intervention strategy; nonetheless little was done toward creating interventions focusing on well-being (Asebedo and Seay, 2015; Croom, 2015; Demirci, 2015; Doyle et al., 2016; Bayat, 2007). Seligman (2010) posits a similar argument, claiming that treating deficits is inadequate if the expected outcome is the holistic improvement of the human condition. Based on this ideology, a new branch of academia has come into existence called positive psychology (PS). The intended outcome or the pursuit of positive psychology is to improve the human condition by assisting individuals to achieve happiness and well-being (Hone et al., 2014; Seligman and Csikszentmihalyi, 2000). Over the last decade, positive psychology has attempted to explain how mentally healthy people can achieve a richer and fuller life experience. Positive psychology intends to ‘build upon and further inform the research and treatment surrounding mental illness and human suffering’ (Asebedo and Seay 2015, p.163). Seligman (2010, p.232) further states that ‘positive psychology is just as concerned with strength as it is with weakness. It is just as interested in building what makes life worth living as it is with repairing pathology’.

The majority of the initial research studies on positive psychology were unconvincing since they invested time and energy within a unidimensional approach to find that one factor responsible for well-being. Later realising that humans experience a good life in multidimensional ways called for the multidimensional approach (Coffey et al., 2016; Kern et al., 2015). The theory of well-being in positive psychology generally encompasses the accounts of both ‘hedonic’ (emotional states) and ‘eudemonic’ (flow and meaning) aspects of life that would eventually assist an individual to enjoy life circumstances that contribute to happiness and eventually result in flourishing. Seligman and Csikszentmihalyi (2000, p.5), in their important article on the introduction to positive psychology, argue that the subject matter of the new discipline endeavours to improve well-being at the subjective level (e.g. ‘satisfaction, hope and happiness’), at the individual level (e.g. ‘love, perseverance and forgiveness’) and at the group level (e.g. ‘altruism, civility and work ethics’). Seligman (2011, p.13) further concludes that ‘now he thinks that the topic of
positive psychology is well-being, that the gold-standard for measuring well-being is flourishing, and that the goal of positive psychology is to increase flourishing' (Joseph, 2015; Linley and Joseph, 2004).

The initial definition of well-being by Seligman, according to 'Authentic Happiness' contains three components, namely, positive emotion, engagement and meaning, and an increase in any of the three leads to flourishing (Coffey et al., 2016; Asebedo and Seay, 2015; Joseph Sirgy and Wu, 2009). However, consistent with the ideological construct of positive psychology, Seligman (2011) in his seminal publication, *Flourish: A Visionary New Understanding of Happiness and Well-being*, described his multidimensional theoretical construct of flourishing comprising of five key elements: 'positive emotion, engagement, positive relationships, meaning and accomplishment', with the acronym PERMA.

Positive emotions deal with the hedonic feeling of happiness that reaffirms an individual’s personal and optimistic mental states that influence all three components of time, that is, past, present and future (Doyle et al., 2016; Asebedo and Seay, 2015; Kern et al., 2015). It is essentially all the good things that individual experiences, and Coffey, et al. (2016) argue that every individual in the world strives to achieve positive emotions through their actions. Therefore, it is significant for not just being a goal all humans strive to achieve, but research shows that it is one of the primary parameters for assessing well-being (Croom, 2015). While arguing for the importance of positive emotions, Vallerand (2012) explains that while engaging in an activity continuously and repeatedly, the experience reinforces ‘harmonious passion that contributes to sustained psychological well-being while preventing the experience of negative affect, psychological conflict, and ill-being’ (cited in Croom 2015, p.24). In their review on positive emotions, Lambert D’raven and Pasha-Zaidi (2016) reported that the presence of positive emotions facilitates adaptive behaviours, expansive thinking, and self-regulation, making an individual more informed about the surroundings, therefore leading to enhanced social network and integration.

Engagement denotes the notion of while participating in a particular activity, the individual loses his self-consciousness while getting very attached or involved in the task at hand; this is also attributed in the literature as flow, a concept devised by Hungarian psychologist Csikszentmihalyi (Coffey et al., 2016a; Asebedo and Seay, 2015). Croom (2015, p.25-26) further maintains that ‘a good life is one characterized by complete absorption in what one
does’, and he goes on to note that ‘a life worth living then, seems to involve flow’. As opposed to the actual definition of engagement meaning interaction, engagement/flow in the context of PERMA arbitrarily implies a mental state of operation. Strati et al (2011) describe flow as a mental state that is epitomised by an individual’s intense engrossment or fascination toward an entertaining activity while enjoying the activity (cited in Croom, 2015). It is also maintained that the flow experience inculcates a sense of perseverance within an individual and encourages her/him to resume the activity again because of the rewarding experience they enjoyed before, therefore leading toward skill development and improvement in self-esteem (Lambert D’raven and Pasha-Zaidi, 2016; Keyes and Haidt, 2003). According to Doyle et al. (2016, p.4), individuals suffering from physical or mental disability when they engage in activities that would allow them to experience flow would effectively harness positive consciousness and happiness.

The pursuit of maintaining a positive and mutually gratifying relationship that makes an individual feel loved, cared, supported and appreciated is a universal phenomenon and a fundamental human need (Coffey et al., 2016a; Doyle et al., 2016; Kern et al., 2015). For substantiating the claim, they quote a study that had 75 percent of the world’s population from 55 countries as a study sample, which revealed the sole common factor of happiness that was expressed was a good relationship. Bowlby (1982) states that ‘humans have a biologically anchored, innate propensity to form affectionate relationships throughout their lives, beginning at a very early age’ (cited in Coffey et al., 2016, p.189). Among numerous factors that could impact an individual’s emotional pattern and cognitive processes, Croom (2015) contends that the sense of togetherness and belonging has the strongest effect. Essentially the lack of acceptance or inclusion tends to influence the individual’s health, happiness, and well-being adversely. He further maintains that existing research findings suggest that the need for acceptance and belongingness is powerful and fundamental. Lambert D’raven and Pasha-Zaidi (2016, p.909) argue that ‘acts of support, kindness, caring, as well as cooperation and social interaction, contribute to more robust states of physical health, self-esteem, mental health, as well as more meaning and greater social integration’.

Meaning personifies to the application of the talents and potential of an individual to put the fullest of their abilities toward a cause or task that eventually is greater than their personal self (Asebedo and Seay, 2015; Kern et al., 2015; Seligman, 2010). Regardless of the origin (religion, relationship, etc.), everyone perseveres toward meaning since it makes
an individual’s life to be accounted as worthwhile and infuses in her/him the taste of accomplishment. Moreover, research espouses that meaning in conjunction with other indicators of flourishing exist throughout an individual’s lifetime, accounting for greater life satisfaction and well-being, leading toward scarce glitches in cognitive functions (Coffey et al., 2016a). In his recent argument, Croom (2015) maintained that the reason for meaning to be considered as one of the key components of psychological well-being is that experiencing life as meaningful or purposeful acts as the primary source of motivation for all human actions and interactions. Crescioni and Baumeister (2013) also maintain that ‘when individuals talk about finding meaning in their lives they seek to interpret their own actions and experiences in terms of an existentially meaningful life story, where such stories depict actions and decisions as following from important, stable values and contributing to the fulfilment of one or more crucial goals’ (cited in Croom 2015, p.31).

The literature points out that the reasons depicted by individuals who have claimed to lead a satisfying life are they serve a higher cause, they serve people who are in need and believe that their service is making the world a better place (Low, 2014).

The final component of the well-being theory is accomplishment. It can be achieved through our pursuance of success, mastery, winning, or realization of goals in life for the individual’s personal sake (Asebedo and Seay, 2015, p.163). So in PERMA the evaluation of achievement does not comprise of the actual achievements; what is accounted for is the individual’s aspiration to achieve goal/s in life, that is, the persevering attitude is examined (Coffey et al., 2016a). Many people are motivated ‘to achieve, to have mastery, to have competence, even if it brings no positive emotion, no engagement, no relationships, and no meaning’ (Croom 2015, p.33). He further maintains that generally someone’s life with even few achievements is considered more meaningful than one who does not have the achievement. Therefore, he concludes that meaning, achievement, and happiness are propositional concepts leading toward positive self-identity (Croom, 2015).

Croom (2015) reported that the presence of a few or the entire facets of the PERMA model would evidence a case of archetypical cognitive well-being/flourishing. Croom (2012) in his investigation about practicing music continually and the application of the PERMA model revealed that the participants exhibited an increase in positive emotions, manifested pragmatic social relationship and manifested improvements in commitment toward participation, accomplishment and meaning in life (cited in Croom, 2015). The statement of Vermeulen (2014) captures the relevance of PERMA for the present research, which

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states that the autism interventions 'should not focus on preventing or treating stress and mental health problems in people with autism, but instead strive for well-being and ask ourselves: what makes them happy?' Or, in the words of Martin Seligman, it isn't 'enough for us to nullify disabling conditions and get to zero'. Instead, we need to think 'How do we get from zero to five?' (Vermeulen 2014, p.9). In different terms, positive psychology calls for intervention strategies that would eventually lead to the development of positive feelings rather than concentrating on treating or preventing individuals with autism from having negative feelings (Dee, 2013; Dawkins, 2003).

2.5 Summary
The literature review chapter examined the available literature on three main areas: introduction to autism, the impact of physical activity for individuals with autism, and flourishing theory. From the review, it was established that physical activity is beneficial for individuals with autism to reduce stereotypic behaviours and improve motor skills and social communicational skills. Further, the physical and psychological benefits of golf were presented and the PERMA theory of Martin Seligman was discussed. The review has established that even though research pertaining to the benefits of physical activity is available, there is a dearth of research in the area of using golf as a therapeutic alternative for individuals with autism. Additionally, there are no studies available that employed PERMA theory for the evaluation of golf as an intervention for individuals with autism. Therefore, the present research sets to address this particular gap in the literature. The next chapter will discuss the different aspects of methodology employed in this research for evaluation of the #GameON Autism™ Golf Program.
Chapter 3

Methodology
3.0 Introduction

Research is a scientific endeavour that follows a systematic and logical search toward discovering or explaining knowledge that is both new and useful on the chosen topic (Rajasekar, Philominathan and Chinnathambi, 2006). One of the very important aspects of the research process is the research methodology which describes the systematic steps of procedural planning and strategies that a researcher employed in the process of gaining knowledge about the phenomena under investigation (Rajasekar, Philominathan and Chinnathambi, 2006). As once said by Benjamin Franklin, ‘If you fail to plan, you are planning to fail’ (Read, 2016). Essentially the success of a research project warrants a clear and precise research methodology. Therefore, the current section will delineate in detail about the research methodology i.e. the strategic work plan that makes the present research endeavour a systematic scientific investigation.

Hogan, Dolan and Donnelly (2009) state that it is an imperative to have a research question that is clearly defined and to then structure the research methodology to facilitate the investigation toward addressing the research question. In other words, the choice of research question fundamentally dictates the choice of methodology. Consequently, it is only appropriate to describe the aims and objective of the research before carefully elucidating the research methodology. As such the overarching question that the current study endeavours to address is, what is the efficacy of the #GameON Autism™ Golf Program on children with autism (ASD), their families, and the PGA golf coaches?

As stated in Chapter 1 this research study addresses the following research objectives;

1. To analyse the impact of the #GameON Autism™ Golf Program on the social/communication, motor and golf skills of individuals with ASD.
2. To assess the potential for the #GameON Autism™ Golf intervention program to impart flourishing among the stakeholders.
3. To undertake a comprehensive review of the literature pertaining to autism and golf as a therapeutic intervention.
4. To explore the opportunity to utilise golf as a therapeutic physical activity intervention for individuals with autism.
5. To assess the changes in the attitude towards individuals with autism among the coach and the volunteers vis-à-vis pre and post participation in the #GameON Autism™ Golf Program.

In the following sections, the discussions explicate the systematic strategies that enunciated the robustness of the research methodology. The researcher begins with the explanation of the research paradigm, that is, the ontological and epistemological standpoint of the researcher that influenced the whole research process, from the selection of the research question to the choice of tools for data analysis. It also explains the choice of Interpretative Phenomenology as theory and the rationale for choosing the same. Subsequent to the research paradigm, the discussion addresses the situational context of the research. It explains the structure and components of the #GameON Autism™ Golf Program, sampling and sampling criteria, and the ethical issues that could arise during the course of the research. The succeeding sections in the methodology then explain the research design, data collection tools, data analysis techniques, generalisability, validity and reliability, pilot study, reflexivity, and researcher’s position.

3.1 Research Paradigm

Every research endeavour naturally pertains to an overarching philosophical presupposition or paradigm that validates and substantiates the selection of suitable method(s) for facilitating knowledge acquisition. In general, the paradigm is the ‘basic belief system’ that characterises how an individual understands the ‘nature of the world, individual’s place in it and the range of possible relationships between that world and its parts’ (Guba and Lincoln, 1994, p.107). According to Kuhn (1977) paradigm denotes to the tenable components of research culture such as the unobjectionable apprehensions that signifies the ‘beliefs, values and assumptions’ that guide a group of researchers’ worldview pertaining to the nature, intent and conduct of research (cited in Antwi and Hamza, 2015, p.218; Helve, 2005). The composition of the research paradigm consists of four fundamental concepts, namely, ontology, epistemology, methodology, and methods, which are imperative and integral aspects of the research process or inquiry (Scotland, 2012, p.9). The philosophical underpinnings pertaining to the choice of ontology and epistemology of the current investigation are illustrated and discussed hereunder.
3.1.1 Ontology

The word ontology originated from two Greek words, 'onto' and 'logos'; the former connotes being and the latter means science. It is a convention to call ontology the science of being (Lawson, 2004; Antwi and Hamza, 2015). 'Ontology refers to a branch of philosophy concerned with articulating the nature and structure of the world' (Antwi and Hamza, 2015, p. 218). Emphasising the importance of ontology, Beck (1979) argued that 'the purpose of social science is to understand the social reality as different people see it and to demonstrate how their views shape the action which they take within that reality' (cited in Bracken, 2010, p. 2). Bracken (2010) contends that a researcher's ontological tenacity becomes an imperative toward the research practice, since the personal perception about the nature of reality evidently will direct the methods chosen to unearth the phenomena in question. The two most contested worldviews, positivism (objectivist) and constructivism (subjectivist), are differentiated based on their ontological positions, which is 'Do things (reality) exist independently of our mind or is our world something constructed from our thoughts?' (Levers, 2013, p. 2; Bailey, 2011; Holden and Lynch, 2004). Positivism explores the social world through the philosophical lens of August Comte (Henn, Weinstein and Foard, 2009; Holloway and Wheeler, 1996; Pickering, 1993),
who argued that ‘observation and reason are the best means of understanding human behaviour; true knowledge is based on the experience of senses and can be obtained by observation and experiment’ (Antwi and Hamza, 2015, p.218). A positivist ontology is rooted in the realist ideology that subscribes to the notion of reality being conformed to perpetual and static regulations and rubrics of cause and effect (Dieronitou, 2014; Flowers, 2009). It also holds that reality is independent of the observer/subject; in other words, the researcher and the researched are two separate entities and hence this negates the possibility of social construction (Aliyu et al., 2014; Scotland, 2012). It is argued that positivism excludes ‘discovery dimensions in inquiry and the underdetermination of the theory’ (Sobh and Perry, 2006, p.1197) and Holden and Lynch (2004) strongly emphasised the repudiation of employing positivism while researching abstruse and discursive social phenomenality that involves human subjects.

Consistent with the above argument, the present research rejects the positivist ideology of realism and adopts a relativist ontology founded on the philosophy of constructivism, which places an emphasis on the indistinguishable and interactive nature of reality with the individual, and therefore discards the existence of an objective reality independent of the individual (Sremac, 2010). The researcher firmly subscribes to the relativists’ claim of multiple reality, hence rejecting the primordial positivist presupposition of single/objective reality (Dieronitou, 2014). The argument is that relativists do not reject the notion of external reality or the existence of reality external to human consciousness; rather they point out that for relativists it is inconceivable to represent the external reality without subjective interpretation (Levers, 2013; Sremac, 2010; Given, 2008). ‘Constructivism proposes the unification of the objective reality observed with the subjective reality of the observer’ (Borgatta and Montgomery, 2000, p.823). According to Levers (2013, p.2), for relativists ‘reality is human experience and human experience is reality’. Since human interactions are multifarious and so are their experiences, therefore leading to multiple interpretations of reality (Mack, 2010). Hence the goal of the relativist ontology in the current research is to unearth multiple realities that are subjective (Levers, 2013) to children with autism and to explain how children with autism construct and interpret meaning and understanding through their social interaction (Mertens, 2015) in the Ernie Els #GameON Autism™ Golf Program.
3.1.2 Epistemology

Ontological discussion pertaining to the two opposite worldviews about the constituents of reality leads us to the epistemological debate: Is it possible to measure reality? If so, what embodies knowledge from such measured reality? Crotty (1998, p.10) and others argue that a researcher’s ontological standpoint, in essence, is a directive of her/his epistemological choices. They further note that ‘the issues of ontology and epistemology emerge together because to talk of construction of meaning is to talk about construction of meaningful reality and therefore they sit alongside each other very well’ (Flowers, 2009; Henn, Weinstein, and Foard, 2009; Helve, 2005; Holden and Lynch, 2004;). Epistemology is founded from the Greek words *episteme* (knowledge) and *logos* (science/explanation), meaning science of knowledge. Epistemology, one of the foundational interests of philosophical debates, constitutes subject matters delineating the ‘origin, nature, methods, limits (Schuh and Barab, 2008, p.70), rationality and justification of human knowledge’ (Given, 2008, p.264). In general, epistemology deals with the generation of knowledge and dissemination of the same in the chosen field of inquiry (Bracken, 2010).

The tension between the two most extreme epistemological positions, with one arguing for understanding reality objectively (positivism) and the other subjectively (interpretivism), has remained unresolved for a long time (Turner, 2009; Holloway and Wheeler, 1996). Bracken (2010) states positivists hold that the major objective of any research endeavour is ‘scientific explanation’. For Neuman (2003) social science is conceived by positivism as ‘an organised method .... of empirical observations ... in order to discover and confirm ... general patterns of human activity’ (cited in Antwi and Hamza, 2015, p.219). According to Guba and Lincoln (1994), positivistic epistemology is dualistic and objectivist in nature. The assumption is that the researcher and the researched are separate and isolated entities, and positivists advocated and believed that objective investigation of the object is possible ‘without influencing it or being influenced by it’ (Guba and Lincoln 1994, p.110). Levers (2013) presents that the objective knowledge claim perceives reality in its essence to be static and infallible; therefore, from this frame of reference, the nature of knowledge discoverable through ‘impartial observation’ is generalizable universally invariable of who is researching. According to positivists, the rationale of science and knowledge generated from epistemology rooted in objectivist doctrine is to ‘explain, predict, and control’ (Levers 2013, p.3).
The criticisms mounted against positivists as pointed out by Marshall (2000) are their persuasive efforts to reiterate the false notion of objectivity and their deficit to acknowledge the capability of human beings to engage meaningfully to the external stimuli rather than reacting to it. The present research acknowledges the criticisms; their notion of quantification as a technique to ensure objectivity is perhaps the most deliberate detriment of the positivistic approach. Consistent with Mack’s (2010, p.6) statement of ‘your ontological assumptions inform your epistemological assumptions’, it is only appropriate to adopt an epistemology rooted in subjectivism from the tradition of interpretative philosophy. Contrasting to the knowledge claim of positivists, Thomas (2010, p.295) contends that reality for the interpretativists is socially constructed, and therefore it is argued that ‘knowledge and meaning are acts of interpretation’. From this perspective, there exists a multiple reality and it therefore holds that there is only a subjective knowledge claim, which is facilitated by thinking, reasoning, and human interaction and experiences. The major concern for interpretivism is to understand the world from the subjective experiences of the individuals (Thomas, 2010; Flowers, 2009; Weber, 2004).

The following table provides a summary of the key assumptions underpinning constructivist ontology and interpretivist epistemology, illustrating how both are interconnected and augment each other.

**Table 1: Assumptions about Constructivist Ontology and Interpretivist Epistemology**

<table>
<thead>
<tr>
<th><strong>Ontological Assumptions</strong></th>
<th><strong>Epistemological Assumptions</strong></th>
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<tbody>
<tr>
<td>• The reality is indirectly constructed based on individual interpretation and is subjective.</td>
<td>• Knowledge acquisition happens through a strategy that “respects the differences between people and the objects of natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action”.</td>
</tr>
<tr>
<td>• People interpret and make their own meaning of events.</td>
<td>• Knowledge is gained inductively to create a theory.</td>
</tr>
<tr>
<td>• Events are distinctive and it is impossible to generalise them.</td>
<td>• Knowledge arises from particular situations and is not reducible to simplistic interpretation.</td>
</tr>
<tr>
<td>• There are multiple perspectives on one incident.</td>
<td>• Knowledge is gained through personal experience.</td>
</tr>
<tr>
<td>• Interpreted meaning and symbols determine causation in social sciences.</td>
<td></td>
</tr>
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</table>

Source: Mack, 2010, p.8

The present research will employ interpretivism/constructivism as identical epistemological positions, which is supported in the literature (Oppong, 2014; Dieronitou,
Interpretative epistemology draws heavily from the philosophical movements of hermeneutics and phenomenology, both the perspectives advocated in considering the subjective and lived experience of an individual’s lifeworld to understand the social phenomena under investigation (Mertens, 2015; Mack, 2010). According to subjectivism, there is no denial of the existence of an external reality; nonetheless, the argument is that the knowledge extraction is possible only through the reflections of individuals that are interpreted through the prism of ‘value, language, gender, class, race, and ethnicity’. Interpretivists also believe that the understanding of human action is achieved only ‘by relating it to the conscious intentions, motives, and purposes, and ultimately the values of the agent who performs it’ (Henn, Weinstein, and Foard, 2009, p.15).

Creswell (2003) argues that socially constructed meanings are very subjective in nature as the individual interprets the phenomenon in question based on their social and historical knowledge. The idea that emerges points out that the purpose of the present study would be to concentrate on unraveling the myriad of meanings constructed by children with autism, as they are involved in social interaction through participating in the golf program. That is how the children with autism have perceived, understood, interpreted and constructed meaning about their experiences in participating in the golf program. Therefore, it is the researcher’s responsibility to focus on these multiple interpretations along with the meaning and understanding from an emic perspective, which constitutes the subject matter of interpretivist knowledge claim (Flowers, 2009).

### 3.2 Interpretative Phenomenology

“The researchers’ …… assumptions are consequential to each other, that is, their view of ontology effects their epistemological persuasion which, in turn, effects ….their choice of methodology” (Holden and Lynch, 2004, p.2).

As espoused earlier, a researcher’s ontology and epistemology dictate the choice of methodology. However, before going into a detailed explanation of the methodology to be employed, Crotty (1998) suggests that a clear description of the theoretical perspective on which the research methodology will be based is extremely important. According to him, theoretical perspective is the philosophical presupposition that underpins the methodology and therefore ‘provides a context for the process and grounding its logic and criteria’ (Crotty 1998, p.3). As alluded before, since the constructivist ontology and interpretative
epistemology have their origin in the theoretical perspectives, namely, hermeneutics and phenomenology (Mertens, 2015; Mack, 2010), the current research incorporates hermeneutics and phenomenology as the overarching theoretical perspective that will guide the choice of methodology. The following discussion will incorporate a detailed description of phenomenology and interpretative/hermeneutic phenomenology, and the rationale for choosing interpretative phenomenology as its overarching theoretical perspective.

Several theories emerged with an interpretative epistemology, including ethnomethodology, phenomenology, critical theory, feminism, etc. Amongst these interpretative schools of thought, phenomenology stands out because it is both a philosophy as well as a methodology at the same time (Giorgi, 2007; McPhail, 1995), and it provides a contemporary viewpoint on the social/life world (Borgatta and Montgomery, 2000). It is a twentieth-century philosophical project, which became prominent after Husserl’s publication of his seminal article titled *Phenomenology* in 1929. Even though the idea can be traced back to ancient writings, proponents of phenomenology unanimously recognise German philosopher Edmund Husserl as its founding father (Ritzer, 2005; Ritzer and Smart, 2001; Crowell, 1990). Husserl opposed the prominent worldview of ‘cartesian dualism’ that claimed objects (reality) exist independently in the world and the knowledge about such reality is reliable and generalizable. He contends that human consciousness can be certain about how things (reality) appear or present themselves to an individual. ‘The aim of phenomenology is the return to the concrete, captured by the slogan ‘back to the things themselves!’’ (Groenewald, 2004, p.4). In other words, the purpose of phenomenology is to ascribe meaning to the life world of an individual, through which explanations can be obtained for fundamental research questions like how reality or the phenomenon is constructed and interpreted by the social actors, and how an actor construes specific circumstances in order to bestow meaning for their action (Ritzer, 2005).

Different phenomenological traditions like transcendental phenomenology, existential phenomenology, hermeneutic phenomenology, linguistic phenomenology, and ethical phenomenology (Given, 2008) originate from the difference in the ontological and epistemological presuppositions that are ingrained in each of the traditions. Husserl’s work exemplifies the composition of transcendental phenomenology. Generally, transcendental phenomenology’s central concern is to understand the process, which explains the acquisition of knowledge in human consciousness. Existential phenomenology sprang out
of the radical turn induced by Heidegger as he argued that the main subject matter of phenomenology is not epistemological but rather ontological, which asks the question ‘how the being of beings shows itself as a revealing of being itself’ (Given, 2008, p. 615). Another famous phenomenological tradition is ethical phenomenology, which argues that for a real understanding of human reality, an additional question of ‘what is otherwise than being: alterity or the infinite’ must be answered along with the traditional question of the meaning of being (Given, 2008, p.615).

Next in the phenomenological tradition is linguistic phenomenology, which contends that the primacy of language and discourse is highly inextricable in exploring the relationship between ‘understanding, culture, historicity, identity, and human life’ (Given, 2008, p.615). Finally, hermeneutic phenomenology became popular for adopting interpretative ideology as an effectual component. Proponents of hermeneutics argue that there is no description but only interpretation because all human understanding are interpretative in nature. The main rationale for choosing hermeneutics against the other four traditions is because of its emphasis on the interpretative component. The following section will elucidate on interpretative/hermeneutic phenomenology.

3.2.1 Heidegger’s Interpretative Phenomenology

Interpretative phenomenology is also called hermeneutic phenomenology (Finlay, 2009). Cerbone (2006) in his book Understanding Phenomenology argues that Heidegger conceived phenomenology as extremely acquiescent toward the basic philosophical question of being (Grossmann, 1984), which he denotes as ‘fundamental ontology’. What it is to be denotes a personal question that demands explanation. In doing so, Heidegger suggests starting from the personal self, which he named as Dasein, meaning being there (Trubody, 2014). The reason to begin with Dasein is because ‘human beings are beings to whom entities are manifest in their way of being’ (Cerbone, 2006, p.42). The primary ontology of phenomenology begins with an endeavour to decipher the ‘taken for granted’ pre-ontological understanding of beings.

Kerry and Armour (2000) note that from their investigation of the ontological status of Husserlian phenomenology, Heidegger formulated two important and interrelated conceptions: ‘historicality of understanding and the hermeneutic cycle. Related to these notions are the four concepts of background, pre-understanding, co-construction, and interpretation, but underpinning them all is the key notion of the hermeneutic circle (Kerry
and Armour 2000, pp. 5-6). **Background** denotes to the personal history, which for Heidegger forms the inescapable component of the hermeneutic circle, and it is from birth and through culture and tradition that an individual becomes a part of it. Hermeneutics recognise that 'meaning, skills and practices' that are congruent to an individual's history are impossible to be brought out unambiguously. However, the understanding of these individual backgrounds as a fundamental opportunity for a unique interpretation of the Dasein negates the notion of bracketing such personal stories (Kerry and Armour, 2000; McPhail, 1995).

For Heidegger, **pre-understanding** denotes to the 'meaning and structure of a culture, including language and practices, which are already in the world before we understand them' (Kerry and Armour, 2000, p.6). It could be argued that every individual as a precondition ought to have a substantial level of pre-understanding that is eventually factored into a 'common background understanding'. These understandings constitute the general framework for 'being in the world' (Dostal, 2002). Since these understandings pre-exist, he contends that it cannot actually be bracketed. **Co-constitution** connotes to the philosophical notion of 'indissoluble unity' (person-world). It means that the world we live in constructs our human experiences, and consequently an individual apprehends reality through the lens of her/his personal experiences and history. Indissoluble unity forms one of the assumptions in hermeneutics, where human existence and the world co-constitute each other. **Interpretation** becomes the basic unit for an individual to enjoy life at the level of cultural participation. Every situation an individual comes across; she/he has to engage in interpretation and does so entirely with reference to their personal history and pre-understanding of a similar social situation. Hermeneutics conceive interpretation, not as a tool through which an individual could know about the world, rather it is a mode of being, that is, 'fundamental characteristics of our being in the world' (Kerry and Armour, 2000, p.6).

### 3.2.2 Rationale for Choosing Interpretative Phenomenology

Interpretative phenomenology basically argues that before understanding comes the lived experience, and therefore meanings that are fundamental to the architecture of human consciousness are lived before they were supposedly transferred to consciousness (McPhail, 1995, p.162). Working with children with autism is very challenging, but they live in their own world and interpretative phenomenology gives the opportunity to document the lived experiences of the children with autism as how they experienced
participating in golf program. Another important reason for choosing an interpretative approach is that it provides the opportunity to understand the reality as co-constructed through the interaction between the individual and their experiences. In the process of co-construction, Heidegger argued that both the researcher and participants work together in unraveling the reality as experienced by the participants. Therefore, bracketing of a researcher’s individual and personal subjective ideas and experiences is impossible as it will make redundant the process of co-creation of meaning (Laverty, 2003). Finally, the hermeneutic phenomenology of Heidegger permits the interpretative process to incorporate explicit statements of the historical movements or philosophies that are guiding the interpretation, as well as the presuppositions that motivate the individuals who make the interpretations (Laverty, 2003, p.15). Since the researcher will use of Human Flourishing as a theoretical guide for interpretation, hermeneutic phenomenology is an appropriate phenomenological tradition to employ in the current investigation.

3.3 Situational Context – Background to the Research
The current section presents the context and background of the research. The main titles discussed are #GameON Autism™ Golf Program, Sampling and Sampling Criteria, and Ethical Considerations.

3.3.1 #GameON Autism™ Golf Program
Since 2009, the Ernie Els Foundation has been conducting golf clinics for children with autism throughout the U.S. After receiving an overwhelming response from the community, in 2015 the golf clinics were converted to a comprehensive #GameON Autism™ Golf Program hinged on multiple evidence-based practices with the goal to make the program available to the wider global community. The #GameON Autism™ Golf Program was piloted in Ireland in 2016, and this is the first evaluation of the program to be conducted outside of the USA. The golf program is a 12-session initiative; each group session is for 60 minutes and consists of different lesson plans that focus on teaching golf with an integrated emphasis on autism learning concepts such as social, communication, regulatory and motor skills.

One session a week is held for a period of twelve weeks or two sessions over a six-week period. Professional golf coaches conduct the golf sessions and volunteers assist the coach in program implementation. The volunteers are given training pertaining to the program
and assessments used in the sessions. The following table explains the structure of the #GameON Autism™ Golf Program.

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Title</th>
<th>Golf Technique</th>
<th>Learning Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week #1</td>
<td>Session #1</td>
<td>Assessment + All basics</td>
<td>✓ Try Every Activity □ Make Proper Grip</td>
</tr>
<tr>
<td>Week #2</td>
<td>Session #2</td>
<td>Small Swings</td>
<td>✓ Following Directions □ Distance Control</td>
</tr>
<tr>
<td>Week #3</td>
<td>Session #3</td>
<td>Big Swings</td>
<td>✓ Keep your cool □ Getting the Ball to the Air</td>
</tr>
<tr>
<td>Week #4</td>
<td>Session #4</td>
<td>The Smallest/Biggest Swings</td>
<td>✓ Getting Body Parts Working Together □ Aiming at the Target</td>
</tr>
<tr>
<td>Week #5</td>
<td>Session #5</td>
<td>A Smaller/Bigger Swing</td>
<td>✓ Taking Turns and Sharing □ Taking Practice Swings</td>
</tr>
<tr>
<td>Week #6</td>
<td>Session #6</td>
<td>Small Swings</td>
<td>✓ Respond and Asking for Help □ Distance Control</td>
</tr>
<tr>
<td>Week #7</td>
<td>Session #7</td>
<td>Big Swings</td>
<td>✓ Getting Comfortable □ Getting the Ball to the Air</td>
</tr>
<tr>
<td>Week #8</td>
<td>Session #8</td>
<td>The Smallest/Biggest Swings + Assessment</td>
<td>✓ Seeing, Feeling and Doing □ Aiming to the Target</td>
</tr>
<tr>
<td>Week #9</td>
<td>Session #9</td>
<td>All Swings</td>
<td>✓ Working with Others □ Taking Practice Swings</td>
</tr>
<tr>
<td>Week #10</td>
<td>Session #10</td>
<td>Small Swings</td>
<td>✓ Communicating with Coach □ Distance Control</td>
</tr>
<tr>
<td>Week #11</td>
<td>Session #11</td>
<td>The Smallest/Biggest Swings</td>
<td>✓ Getting the Body in Sync □ Aiming at the Target</td>
</tr>
<tr>
<td>Week #12</td>
<td>Session #12</td>
<td>All Swings + Assessment</td>
<td>✓ Having Fun with Friends □ Putting it all Together</td>
</tr>
</tbody>
</table>

The integral feature of the program package characterises numerous elements of evidence-based practices such as exercise, reinforcements, prompting, visual supports, modelling, video modelling, social narratives, and antecedent-based interventions (like priming, environmental arrangement, choice, and modified/varied instruction). The program was designed to teach golf with a seamlessly incorporated lesson plan that augments the self-confidence and self-esteem of an individual with autism in a fun, welcoming and supportive environment (Sotelo and Hong, 2016). The implementation of the program is organised around layered instruction and routine creation. The program was intentionally
designed for layered instruction such that the content and design of every exercise and activity of a session coincides with the lesson plan. This design ensures gradual progression over the course of each session. For example, a lesson starts with a fundamental drill to practise motor skills and gradually the complexity of activities increases to ensure participation and graduation to practise complex swing motions (Sotelo and Hong, 2016).

As mentioned in the literature review, an inability to perform gross and fine motor skills may discourage an individual with autism to participate in peer sport and could lead to the aggregation of social and communication deficits. Through the #GameON AutismTM Program, golf is promoted as an initiative to help individuals with autism to become introduced into the world of sport and physical activity. For individuals with autism, golf is an effective supplemental therapy because the game is rooted in the concept of repetition. This coincides with one of the stated determining factors of autism, namely, restricted and repetitive behaviours like hand flapping, rocking back and forth, and repeating one sentence constantly. These socially repudiated behaviours, if not channelled functionally, paint an unattractive picture of individuals with autism in society (Sotelo and Hong, 2016).

Golf can be a functional outlet for some of these individuals and can serve as a socially acceptable tool for obtaining the inputs received from repetitive behaviours. For the game of golf, these repetitive traits are an asset; however, as golf requires extreme focus, determination, and dedication, these qualities of the game translate learning golf into not just as a functional leisure activity but also a supplemental therapeutic alternative for individuals with autism.

3.3.2 Sampling and Sampling Criteria

Sampling connotes to the process of selecting the workable data source from a wider population or parent population. Finalising the sampling procedure consists of two interrelated steps: first, to choose an entire data source or to identify the research population, and second, to select an appropriate data sample from the selected parent population (Given, 2008). The sampling frame denotes to the eligibility criteria that are ascribed to the data source. For this study, the sampling frame was children with autism within the age group of 7 to 18 years studying in three schools with an autism unit in County Kerry. Since autism and intellectual disability are common co-occurring conditions, some of the participants had a dual diagnosis. Within this wider population, through convenience sampling, those children whose parents consented to their children
taking part in the #GameON Autism Golf Program constituted the research sample. Even though children with ASD were selected from schools, for facilitating consistency the following were to be considered as inclusion criteria for recruitment of participants. Individuals who are:

1. Diagnosed with Autism Spectrum Disorder (ASD) with severity limited to 'mild and moderate' (Siman-Tov and Kaniel, 2011).
2. Between 7 to 18 years old.
3. Medically capable of participating in the #GameON Autism Golf Program.
4. Not having planned medical interventions like surgeries or medications and/or anticipated intervention changes during the time of the program.
5. Not required to be constantly monitored for their individualised medical or behavioural status.
6. Capable of following simple instructions and able to participate in a one-hour #GameON Autism Golf Program for 12 sessions along with one of the parents.

The researcher was fully committed to executing an inclusive research atmosphere. However, for eliminating practical difficulties that may have influenced the research outcomes, the following exclusion criteria was drawn up,

1. Orthopaedic medical history such as fractures or sprains that may limit their participation in the program.
2. Open wounds or infections that could aggravate if participating in physical activity.
3. Professed fearfulness to go out into a golf course or any playground for that matter.

3.3.2.1 Sampling for Personal Interview

From the research sample, participants were selected for the purpose of interviews. For facilitating participant selection for interviews, the following inclusion criteria were considered for the recruitment of participants. Individuals:

1. Whose parents/guardians consented.
2. Who communicated their verbal assent to their parents
3. Who had attended all 12 sessions and two assessments.
4. Who are verbal and able to participate in the interview.
(5) Who are residing within 30 minutes' travel distance from Tralee.

The inclusion criteria for the selection of parents was their child had to be in the cohort of programme participants being interviewed. Consistent with the IPA literature, seven children participated in each of the two groups during the #GameON Autism™ Golf Program main study phase. The research also evaluated the perception of four parents and two golf coaches from the main study. The following Table 3 shows the total number of participants who took part in the research and Table 4 shows how many participants completed assessment evaluations, and how many participants, parents, golf coach, and volunteers were interviewed.

Table 3: Total number of participants in Program

<table>
<thead>
<tr>
<th>Sites</th>
<th>Number of Children</th>
<th>Number of Parents</th>
<th>Number of Golf Instructors</th>
<th>Number of Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Main Study</td>
<td>14</td>
<td>7</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>11</td>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 4: Number of participants included in data collection

<table>
<thead>
<tr>
<th>Sites</th>
<th>Number of Children completed assessment</th>
<th>Number of Children participated in interview</th>
<th>Number of Parents participated in interview</th>
<th>Number of Golf Instructors participated in interview</th>
<th>Number of Volunteers participated in interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Main Study</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
3.3.3 Ethical Considerations

Barrat and Cole (199, p.231), in their book on sociology, caution that ‘in gathering data, the ends do not always justify the means’. In social research, it is very important to ensure that the ends always justify the means. In other words, the major aim of the social science research pursuit must be the administration of an ethically cognisant research process towards understanding the phenomena under investigation (Blaxter, Hughes and Tight, 2006). Ethical issues arise predominantly in qualitative research procedures where generally the researcher and the researched are co-creators of the reality (Given, 2008; Roth, 2005). Invariable of the research paradigm employed, any social research innately elicits various issues pertaining to ethics, namely, ‘privacy, informed consent, anonymity, secrecy, being truthful and the desirability of the research’ (Blaxter, Hughes and Tight, 2006, p.158). In general, ethics implies to those obligatory values, which govern the act of an individual or any reciprocal relationships, in order to benefit the involved parties (Borgatta and Montgomery, 2000). From this view, research ethics connotes to the values, accountability, and obligations that are vested upon the researcher to go over and beyond in order to implement those values systematically to benefit the research participants.

Literature suggests that an important element to consider while gaining access to participants for data collection in a qualitative research project is not to harm and create risk for the participants (Aluwihare-Samaranayake, 2012). Given (2008) and Ritchie and Lewis (2003) suggest that to ensure and mitigate risk and harm for both participants and the researcher while gathering data, the researcher must get appropriate formal clearance from the academic or professional ethics boards prior to data collection. Consistent with the literature (Given, 2008; Ritchie and Lewis, 2003), the researcher applied and received clearance from two ethics committees, namely, the Institute of Technology Tralee Research Ethics Committee (IREC) and the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC). In addition, to fulfilling the clause of going over and above to ensure that research ethics were being followed, the design and development of the #GameON Autism™ Golf Program incorporated ethical guidelines from numerous sources including the following:

- The United Nations Universal Declaration of Human Rights -1948 (OHCHR, 2017a)
- The UN Convention on the Rights of the Child -1989 (OHCHR, 2017b)
- The Declaration of Helsinki - 2013 (The World Medical Association, 2017)
Aluwihare-Samaranayake (2012) points out that the Nuremberg Code completed in 1947 has ascertained that every participant (human subject) of the research must voluntarily provide consent for taking part in the research. Therefore, consent was obtained from all of the stakeholders (participants, parents/guardians, volunteers, golf coach) involved in the program #GameON Autism™ Golf Program. Aluwihare-Samaranayake (2012) further contends that ethics must be seen as an opportunity for undertaking socially responsible research, not just as an instrument of protecting human rights. Consistent with the recommendation in the literature (Aluwihare-Samaranayake, 2012; Brinkmann and Kvale, 2005), in order to protect the well-being of those participating in the research process and to ensure that the values of beneficence, non-maleficence and autonomy are maintained, only Garda vetted individuals took part in the implementation of the #GameON Autism™ Golf Program (i.e.) golf coaches, the researcher, and volunteers. A signed declaration with form attached confirming Garda vetting was collected from the golf coaches, researcher and volunteers (Appendix D).

As the program was going to be implemented as an after-school program, a formal letter of request to recruit students with autism to take part in the study was submitted to all of the school heads (Appendix E). Similarly, since the children were to be recruited from the schools, a research protocol, and an information sheet that detailed the systematic description of the program and the subsequent research activities that would take place alongside the program implementation was presented to both the school headmasters and parents (Appendix F). Children were the primary participants in the research. As advised in the literature (Oye, Sørensen and Glasdam, 2016; Aluwihare-Samaranayake, 2012), since children are not at the legal age of consent, an informed signed consent form was collected from one of the parents giving permission for their child to participate in the
#GameON Autism™ Golf Program (Appendix G) and an assent was collected from the child (Appendix H).

Since parents also participated in the research, a separate consent to ascertain the parents’ participation in the research was collected (Appendix I). The consent also asked the parents to confirm that their child is medically capable of participating in the #GameON Autism™ Golf Program by completing the PAR-Q children checklist (Appendix K). The research examined the pre-and post-perception of golf coaches; hence, consent was collected from them also (Appendix J). Data was collected in accordance with the Data Protection Act 1988 and 2003 (Data Protection Commissioner, 2009) and due consideration was also given to the approaches set down in the 2001 UK Data Archive. All computer based copies of interview transcripts were stored only on the researcher’s PC and were password protected. Copies of transcripts were stored in securely locked filing cabinets, with only the researcher having key access. The interviews were anonymized in order to comply with this assurance. Pseudonyms or codes were used to identify research participants and access was limited to the researcher (Ritchie and Lewis, 2003).

3.4 Research Methods – Data Production Tools

As previously noted, the researcher’s philosophical stance influences their choice of methodology and methods (Holden and Lynch, 2004; Crotty, 1998). Silverman (1993) provides a clear description pertaining to the difference concerning methodology and method—whereas the former refers to ‘a general approach to studying research topics’, the latter denotes ‘a specific research technique such as an in-depth interview, focus group, participatory observation’ (cited in Pietkiewicz and Smith, 2014, p.7). This research study employed a mixed methods approach and thus utilised both qualitative and quantitative research methods, namely physical assessments, in-depth interviews and observations. In the research methods section, the following will be discussed, use of a mixed method approach, data collection tools and the analytical techniques utilised.

3.4.1 Mixed Method Design

Consistent with the philosophical assumptions and investigations that employed IPA (Callary, Rathwell and Young, 2015; Murray and Holmes, 2014; Pietkiewicz and Smith, 2014; Cooper, Fleischer and Cotton, 2012; Todd, Simpson and Murray, 2010; Borisov and Reid, 2010; Biggerstaff and Thompson, 2008; Carrington, Papinczak and Templeton, 2003), the present research was positioned on the qualitative tradition. However, the
present research used a mixed methods research (MMR) approach, which is, a qualitative technique as the core component and quantitative element as a supplementary component in order to augment the ability of the research to engage in both description and understanding/interpretation of the phenomena under investigation. MMR can be defined as:

“Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.” (Cameron, 2011, p.96)

Mixed methods research (MMR) in simple terms is a pragmatic approach that extracts the positive elements of the traditional methodologies, namely, quantitative and qualitative offers, in order to nullify the negative components inherent to each of the traditional methodologies (Johnson, Onwueguzie and Turner, 2007). Esteves and Pastor (2003, p.69) state, ‘Qualitative and quantitative methods should not be viewed as polar opposites since their combination introduces both testability and context into the research’. The appreciation of mixed method research (MMR), which adopts more than one research method to reduce error and increase the validity of the research assertion, has attracted growing consensus and recognition in the last decade as a methodological movement from numerous academic disciplines, not limited to sociology, psychology, nursing and management (Ahmed and Sil, 2016; Cameron, 2011; Denscombe, 2008).

Ahmed and Sil (2016, p.935) point out that ‘the mixed-method strategy is simple but powerful. If our various methods have a weakness that is truly different, then their convergent findings can be accepted with far greater confidence than any single method’s findings would warrant’. Tashakkori and Teddlie (2010) point out that MMR has achieved tremendous growth and momentum in the last decade. The emergence of MMR has added a third alternative to the traditional methodologies, namely, quantitative and qualitative (Cameron, 2011; Symonds and Gorard, 2010; Denscombe, 2008; Johnson, Onwueguzie and Turner, 2007).

Three main reasons the mixed methods option was selected as a pragmatic choice for the current investigation were as follows: (1) triangulation of the data increases validity (Meijer, Verloop and Beijaard, 2002) (2) rich data can be collected by combining methods
instigating robust analysis; and (3) ‘combinations can be used to initiate new modes of thinking by attending to paradoxes that emerge from the two data sources’ (Meijer, Verloop and Beijaard, 2002, p.115).

3.4.2 Data Collection

Since the current investigation employed a mixed methods approach, the data collection techniques consisted of both qualitative and quantitative techniques as illustrated in the following table.

Table 5: Mixed-Method Data Collection Approach

<table>
<thead>
<tr>
<th>Method</th>
<th>Instrument</th>
<th>Participant</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>Els for Autism Foundation Protocol</td>
<td>Children with Autism</td>
<td>Week 1 &amp; Week 12</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Observation and semi-structured Interview</td>
<td>• Children with Autism</td>
<td>After participation in the program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Parents</td>
<td>Before and after participation in the program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Volunteers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Golf Coach</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.4.2.1 Quantitative Data Collection

The quantitative data were collected using the Els for Autism Foundation protocol where all the participants took part in three sets of assessments evaluating their abilities in social/communication skills, athletic skills and golf skills as depicted in Table 6.

Table 6: Major components of the Els Foundation Assessment Protocol

<table>
<thead>
<tr>
<th>Social/Communication skills</th>
<th>Athletic skills</th>
<th>Golf skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Communicative Skills</td>
<td>2. Continuous Lateral</td>
<td>2. Scoring</td>
</tr>
<tr>
<td>3. Social Skills</td>
<td>3. Ball Throw</td>
<td>3. Distance control</td>
</tr>
<tr>
<td>5. Motor Skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Social/Communication Assessment

Participants took the social/communication assessment focusing on the specific autism learning concepts that they learnt and practised throughout the program. The children were evaluated for their social skills, communication skills (receptive/expressive, regulatory skills and motor skills. A guardian or a parent completed the social/communication assessment. Appendix A shows a sample of the assessment sheet of social/communication skills.

2. Athletic Assessment

During the athletic assessment, all children participated in a simple athletic assessment. The athletic skills assessed are: (1) Standing Long Jump; (2) Continuous Lateral Jumps; (3) Ball Throw; and (4) Plank Hold. The athletic assessment sheet is shown in Appendix B.

3. Golf Assessment

The golf assessment measured four specific skills that are fundamental to playing the sport: grip, scoring, distance control, and aiming to the target. Grip checked if the participant had two hands on the club, preferably hands close together and touching. Scoring looked for the participants’ understanding on how to put the ball in the hole in the fewest amount of strokes. Distance Control aimed to check the participants’ ability to manage swing length and swing speed to demonstrate control. For Aiming at the Target, the goal was for the participant to understand the basic variables of alignment: club face alignment and direction of the body. See Appendix C for the golf assessment protocol. All of the assessments were performed as a pre-intervention (1st session) and a post-intervention (12th session). These assessments were imperative to the #GameON program as the data provided concrete field evidence of the efficacy of the program as a therapeutic alternative.

3.4.2.2 Qualitative Data Collection

Qualitative data were collected using semi-structured interviews with the participants, their parents, volunteers and golf coaches. The interview schedule was designed to bring out the aspects of flourishing from the experiences of participants with ASD, their parents, volunteers, and golf coaches and a separate interview schedule was used with each of the aforementioned stakeholders (See Appendix L for stakeholder’s interview schedule).
In addition, during the program implementation, the researcher also carried out participant observation the output of which was recorded by taking field notes, photographs were also taken to illustrate the observed impact of the program on the child and on the golf coach and volunteers.

3.4.3 Data Analysis

3.4.3.1 Quantitative Data Analysis
The quantitative data collected from the children with ASD about their skills in social/communication, athletics and the golf domain were analysed using descriptive statistics, the non-parametric Wilcoxon signed-rank test and McNemar’s Test statistics in SPSS 21. Due to the small sample size, the use of non-parametric tests was deemed appropriate. Furthermore, the research used the two-tailed tests because it was difficult to predict the direction of the effect of the golf intervention.

<table>
<thead>
<tr>
<th>Method</th>
<th>Software</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>SPSS 21</td>
<td>Wilcoxon signed-rank test and McNemar’s Statistics</td>
</tr>
<tr>
<td>Qualitative</td>
<td>NVivo 10</td>
<td>Smith et al., (2010) seven steps of phenomenological data analysis</td>
</tr>
</tbody>
</table>

3.4.3.2 Qualitative Data Analysis
Interpretative Phenomenological Analysis informed the analysis of the qualitative data from the semi-structured interviews conducted with the children with autism, their parents, volunteers and golf coaches.

3.4.3.2.1 Interpretative Phenomenological Analysis (IPA)
The initial reference to the idea of Interpretative Phenomenological Analysis (IPA) as a method and as an approach became popular through the work of Jonathan Smith’s (1996) seminal publication in *Psychology and Health*, and Smith is ascertained as the founder of IPA (Callary, Rathwell and Young, 2015; Smith, Flowers and Larkin, 2009; Crossley, 2000). Smith argued that a knowledge gap exists in psychology, and Benner (1994, p.18) points to this gap through the contention of Merleau-Ponty, which states that ‘there is an area between what is purely biological and what is conscious and rational’. Therefore, according to IPA, understanding human experiences and their realisation of the subjective
meanings about this in between area forms the subject matter of the investigation (Biggerstaff and Thompson, 2008). In general, IPA strives to understand the subjective meaning of the participant pertaining to a specific incident, or in other words, the rationale of IPA is to provide an in-depth, deep, thick and ideographic explanation of ‘how participants make sense of their experience in their personal and social worlds’ (Borisov and Reid, 2010, p.296). Cassidy et al. (2011) further point out that the significance of IPA is the opportunity it provides for the researcher to unravel the deep meaning of the phenomena through a proper linguistic and psychological analysis of data, espousing details about the individual beyond their own self-awareness beside their claims during interviews.

IPA stems from three different theoretical foundations, namely: phenomenology, hermeneutics and symbolic interactionism/ideography (Callary, Rathwell and Young, 2015; Knight, Wykes and Hayward, 2003). Phenomenology and hermeneutics originated from the works of Husserl and Heidegger respectively, and these were discussed in the previous section. Only symbolic interactionism will be discussed in the following section. Even though symbolic interactionism has similarities to hermeneutics in attributing importance to interpretation, the difference is that its emphasis is on illuminating the understanding of meanings an individual asserts to a particular life event/s. According to IPA, the major epistemological belief is that accessing participants’ ‘inner cognitive life world’ is possible through ‘careful and explicit interpretative methodology’ (Biggerstaff and Thompson, 2008, p.176) and also through the intrinsic interpretative element of the researcher’s meticulous engagement with the research data. In the words of Huws and Jones (2008, p.100), ‘the depiction of participants’ personal worlds involves two stages of interpretation, or a double hermeneutic: participant’s attempt to make sense of their experiences, and the researcher attempts to make sense of, and interpret, the participant’s making sense of their experiences’.

Smith (2004) identifies three salient characteristics of IPA, namely, Ideographic, Inductive and Interrogative, that make it an approach appropriate for understanding the elements of social cognition and meaning making process that allows both the participant and the researcher to make sense of phenomena under investigation. ‘Ideography is concerned with the particular, the distinct experiences of particular people and the particular contexts in which those experiences occur’ (Cassidy et al., 2011, p.267). IPA strongly emphasises the Ideographic approach since it facilitates the analyst (researcher) to engage in an in-depth
analysis of one participant until the point of saturation of emergent themes (Pietkiewicz and Smith, 2014; Griffiths, 2009). The second characteristic of the IPA research process points out that it is Inductive in nature because the technique employed puts an emphasis on adaptability and flexibility, therefore creating unhindered facilitation for the probability of emanation of unexpected themes and topics during the course of analysis (Callary, Rathwell and Young, 2015). The third characteristic of IPA is Interrogative; Smith (2004) iterates that with all its epistemological and methodological differences, IPA’s fundamental aspiration is to contribute to the field of psychology. In general, the idea is to add to the intellectual knowledge base of the discipline in which the research is being conducted. Griffiths (2009) and Callary, Rathwell and Young (2015) contend that even though IPA places emphasis on engaging in in-depth and case-by-case analysis of data, the results from the analysis do not get justified in their own right. Rather they are discussed based on the extant literature available in the field of research inquiry, thereby allowing room for constructive dialogue between the literature and the data.

**Table 8: Systematic Analysis Process in IPA**

<table>
<thead>
<tr>
<th>Step 1 - Transcription</th>
<th>Verbatim transcription of the semantic content of each individual interview based on the audio recording.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2 - Reading and Re-reading</td>
<td>Immersion in the data, active engagement with the data, searching for richer, detailed sections. Searching for contradictions and paradoxes. Spotting shifts from generic to specific in accounts and patterns.</td>
</tr>
<tr>
<td>Step 3 - Initial Noting</td>
<td>Detailed and time-consuming, examined semantic content and language. Noting anything of interest. Identified specific ways participant talks about an issue. An unstructured commentary. Described what matters to the participant and the meaning of those things. Noted language used and context. Descriptive comments (content of what participant has said), linguistic comments (specific use of language by the participant) and conceptual comments (interrogative level and interpretative). Identified important text and/or noted free associations formed from reading text</td>
</tr>
<tr>
<td>Step 4 - Developing Emergent Themes</td>
<td>Based on Step 3. Reduced the volume of data but captured complexity. Mapped interrelationships, connections, and</td>
</tr>
</tbody>
</table>
patterns. Fragmented transcript to chunk themes. Need to be grounded in data as well as conceptual. (See Appendix M to P for example of Primary coding)

Step 5 - Searching for Connections Across Emergent Themes
Mapped how the themes appear to fit together and related to research questions. Removed themes from the chronological order as they appeared in the text, group together. Abstraction (developing superordinate themes), subsumption (emergent theme becomes a superordinate theme), polarisation (identified oppositional themes), contextualisation (relate themes to life events), numeration (identification of how often a theme is discussed), function (what function are the themes serving for the individual). (See Appendix Q to T for example secondary coding)

Step 6 - Moving to the Next Case
Move to next case; side lined the assumptions and knowledge from the previous text.

Step 7 - Looking for Patterns Across Cases
Connections between/across interviews, graphic representation of most potent/consistent themes, identified individual and shared meanings.

(Smith et al., 2010 cited in Bailey, 2011, pp. 58-59)

The systematic analysis process used for analysing qualitative data is shown in Table 8. Additionally, as a best practice, the data were returned to the participants for verification to identify whether the researcher has misunderstood or misrepresented the participants.

3.5 Generalisability
Qualitative research endeavours to produce an interpretative, in-depth, and rich description of the phenomena under investigation. However, this raises the question of generalisability, that is: Can research that ascribes such importance to subjective and lived experiences of the participants produce inferences that are generalisable to a population besides the target population and the research context? (Schofield., 2002; Malterud, 2001). The issue of generalisability/transferability is not something that is much discussed or even dismissed in qualitative research because it is one of the weak points (Polit and Beck, 2010; Ritchie and Lewis, 2003; Schofield, 2002; Firestone, 1993). It is even criticised by its own proponents on the grounds of not being able to generalise the research findings beyond the context of research participants (Firestone, 1993). Firestone (1993, p.16) further argues
that 'generalisation requires extrapolation that can never be fully justified logically. When researchers generalise, they really make claims about the applicability of their findings to other settings'.

Ritchie and Lewis (2003) and Pearson, Parkin and Coomber (2011) have described three types of generalisation namely, representational, inferential and theoretical. Representational generalisation has to do with whether the results of the study can be generalised for the parent population from where the samples were chosen. Also in some cases, it focuses on the phenomena that are present in the parent population that are not found in the sample population (Pearson, Parkin and Coomber, 2011). Inferential generalisation is concerned about the possibility of making generalisations that are applicable beyond the research population to other settings. Finally, theoretical generalisability is concerned about the association of the research findings to the wider universal theoretical application (Ritchie, Lewis, Nicholls and Ormston, 2014; Ritchie and Lewis, 2003). The major focus of the current investigation was to invoke all three kinds of generalisations, to demonstrate that mixed methods provide the researcher with the opportunity to use the subjective and contextual qualitative data to achieve generalisation/transferability of the research findings. Establishing research findings that are generalizable at all three levels stated above are ideal expected condition. However, the researcher wish to acknowledge that the nature and probability of generalisation of the research findings will be centred predominantly on the live experiences of the participants. Establishing representation that is generalizable at all three levels implores the question of validity and reliability of the research findings. Generally, it is argued that validity and reliability ensure ‘the robustness and credibility of the original research evidence’ (Ritchie and Lewis, 2003, p.270). The following section will discuss the issue of validity and reliability.

3.6 Validity and Reliability

Generally, validity refers to the excellence or the correctness of the investigation. The description of good or sound research varies considerably depending on the research paradigm chosen (Given, 2008; Golafshani, 2003), for instance, positivists view validity as to whether the research has actually managed to identify and describe the objective truth it endeavoured to unearth in the first place. Validity also denotes the quality of the research, which is directly dependent on the robustness of the research procedures applied in the study (Golafshani, 2003). Contrary to this idea, it is contended that for a researcher from a
social constructivist paradigm (the ontology of the present research), validity ultimately depends on how close the research findings resonate with the vernacular discourse of the research participants (Noble and Smith, 2015; Given, 2008; Cho and Trent, 2006).

From a qualitative perspective, validity or trustworthiness is viewed done best, based on the subjective and contextual demand, instead of trying to fix the research based on generally accepted specifications and precedents (Given, 2008). In qualitative research, the researcher does not have to wait until after data collection to ensure validity. On the contrary, it is a continuous process where validity can be achieved through ‘constant verification of findings, member checks, self-reflection, peer debriefing, negative case analysis, sampling sufficiency, theoretical thinking, and audit trails’ (Given 2008, p.909; Shenton, 2004). Finally, the validity of a qualitative research project can be accentuated by utilising intelligible and transparent research procedures that would ensure incontrovertible research findings (Morse et al., 2002). According to Brocki and Wearden (2006), the aim of validity checks in qualitative research is to guarantee the credibility of the final description of the phenomena under investigation, rather than providing an objective true account about reality.

Most discussions about the reliability of a research project generally involve how dependable the data collection is and how consistent and repeatable the interpretation and analysis of a research project are (Blaxter, Hughes and Tight, 2006). However, the notion of reliability is understood on completely variable terms in the field of qualitative and quantitative research (Given, 2008; Golafshani, 2003). For quantitative research, how similar and consistent the research findings are when the same study is carried out by different researchers employing analogous data collection and research processes (Borgatta and Montgomery, 2000; Golafshani, 2003; Barrat and Cole, 1991). Therefore, Given (2008, p.753) states that ‘from a quantitative perspective, reliability is specifically defined, sought, and measured, and it is accepted as an essential indicator of a study’s quality along with measures of validity and generalizability’. Contrary to this, the conception of reliability is conceived as being completely different, though not consensually, among various theoretical approaches within the qualitative tradition (Griffiths, 2009). Some scholars within the qualitative tradition dismiss the notion of reliability (Griffiths, 2009), invoking the argument ‘...the concept of reliability is misleading in qualitative research. If a qualitative study is discussed with reliability as a criterion, the consequence is rather that the study is no good’ (Golafshani, 2003, p.601),
and they further contend that a conscious pursuit of reliability might undermine the foundational philosophical underpinnings of a qualitative inquiry (Given, 2008).

However, one idea on which many scholars from the qualitative paradigm concur is a shift in terminologies like credibility, dependability, confirmability, and consistency that would suitably be replaced as the qualitative parallel for reliability (Ritchie and Lewis, 2003; Fielding, 2010; Golafshani, 2003). Consistent with Given (2008), the three main factors that were used to elicit the reliability or credibility of the present qualitative inquiry were 1) through maintaining coherence in methodology during the process of data collection, analysis (coding techniques) and interpretation (Borgatta and Montgomery, 2000). 2) by the researcher being empathetic and receptive while engaging with the data throughout the data collection process; and 3) drafting an honest description of an audit trail, including the researchers' bias, if any, for ensuring transparency (Given, 2008).

3.7 Pilot Study

Piloting research is the 'process whereby you try out the research techniques and methods which you have in mind, see how well they work in practice, and, if necessary, modify your plans accordingly' (Blaxter, Hughes and Tight, 2006, p.137). In this research, the pilot study was conducted in a school in County Kerry which has a designated autism unit. The pilot study took place between May 12, 2016 to June 21, 2016. The research participants were those students who were enrolled by their parents to take part in the #GameON Autism^TM^ Golf Program. In total seven students enrolled in the program, and two teachers and three SNAs accompanied those students during the pilot intervention sessions. Along with the golf coaches and the researcher, six volunteers assisted the golf coaches in program implementation during the pilot. The volunteers received training prior to the pilot program, this training included guidance on working with individuals with autism, appropriate instructing techniques, program assessment, and their role in assisting the golf coaches.

The #GameON Autism^TM^ Golf Pilot Program comprised of 12 sessions spread across six weeks and each session took place for one hour approximately. The pilot study was a testament for why the literature (Gillis and Jackson, 2002) recommends piloting the tools and methods to be used for final data collection. Given the low functioning ability of the participants, the pilot study acted as a great learning curve on how to implement the program, how to interact with children with ASD, and how to understand their behaviour
from closely monitoring them as they took part in the program. One of the golf coaches, during an informal discussion, accepted that working with children with ASD is very challenging and he went on to add about the changes he had to make while communicating with children with ASD.

As mentioned previously, seven children participated in the #GameON Autism™ Golf Program pilot site. During the initial evaluation of the social/communication skills, athletic skills and golf skills, six children participated, and one other child joined the group after the second session. However, during the final evaluation of their skills, only four children participated. Therefore, only the four children who took part in both the pre-and post-intervention completed the pilot.

**Major Lessons Learnt**

In the process of data collected from the pilot study and the experience gained through implementing the pilot phase many valuable lessons were learnt. Langdridge and Hagger-Johnson (2013) suggest that when the pilot is completed, it is imperative to address all of the issues and difficulties raised by different stakeholders in the research project. Consistent with the literature, this pilot has provided rich experiences and lessons, which are very critical for the actual program implementation and evaluation.

- The importance of maintaining more than one point of contact was a major lesson during the pilot phase. During one session, our main point of contact was not present at the school and it created issues in communicating with the school and children. Therefore, in the implementation phase contact details of all of the parents will be collected before the program.

- The pilot project literally thrived with the benevolent support and participation of volunteers. Sometimes there were many volunteers and only two or three children in the program on a day. This will be addressed in the implementation phase by kindly asking the parents to inform in advance in case a child will not be attending on the day.

- During the pilot phase, it was observed that the children became tired very quickly on the days where they took part in some strenuous activities like cycling and swimming before coming to the program. During the actual project phase, the parents will be contacted beforehand and it will be ensured that children have not engaged in overly strenuous activity before the program.
• Over the 12 sessions, only four sessions followed the manual given by the Els for Autism Foundation and the golf coaches devised the other eight sessions. During the discussion with the golf coaches, it was found that they felt the Els for Autism Foundation manual was a little complex for the children in this particular centre, which included students with both Autism and ID. It was decided that for the project phase, the overarching ideas of the Els for Autism Foundation manual for each session will be strictly followed, but if the children find it hard, then the golf coaches will change it according to the practicality of the given day.

• Children with ASD require positive reinforcement every time, and we found children got very upset if they were not able to achieve the target of a particular activity. Therefore, a consensus decision taken to mitigate this issue was to finish every session with a putting activity in order to help them to go home with a sense of achievement.

• Children were evaluated for different aspects of athletic skills and golf skills, so one of the personal recommendations of the researcher is to incorporate the techniques and postures used in assessments during the regular warm up and cool down activities so that during the final evaluation, they won't feel like they are doing something completely different.

• One important aspect that is absolutely an imperative during the program implementation is to have two volunteers at every station during the pre-and post-evaluation sessions. It is ideal to have the same set of volunteers to carry out both of the assessments. In the pilot, for the pre-intervention, we made it extremely complicated for the volunteers to work separately while performing the assessments. There were immediate consequences because of that; one, the assessment became a time-consuming activity and two, the children became bored of the lengthy process, and it was hard for the golf coaches to kick-start the program on a low note.

• Volunteers got the opportunity to work with children with autism before the implementation phase. This helped them to be familiarised with the working environment and the way to deal with and communicate to the children with autism. It also helped the volunteer team to enhance their social capital and improve their ability to work together and support each other as a team.
In the actual implementation phase, the aforementioned lessons were incorporated to make sure that the program produced optimal benefit for the participants in the following program. Also in the implementation phase of the program, the 12 sessions will be implemented over 12 weeks instead of six weeks in the pilot study. This is to ensure the program is less intense and to main long-term interest among the participants.

3.8 Reflexivity
Reflexivity in qualitative methodology denotes to the researcher’s constant and iterative engagement in the research process for acknowledging and describing how the researcher has influenced the research project (Bailey, 2011), that is, reflective engagement with the researcher’s perspectives or worldview, interests, theoretical underpinnings, ethical considerations and purpose for engaging in the research (Dima and Skehill, 2008; Gabriel, 2015; Berger, 2015). It is argued that accomplishing reflexivity is a complex process, where decisions made at each stage of the research should be deliberated and examined (Given, 2008). According to Gabriel, (2015, p.333) ‘reflexivity involves a questioning of one’s emotions as well as one’s assumptions, that it should not result in a solipsistic or narcissistic undertaking, but should aim for a dialogue with multiple others, including audiences, research collaborators and field respondents’. Reflexivity became a popular approach in qualitative research owing to the increased debate of reliability tending to compromise the interpretative and subjective nature of qualitative tradition (Griffiths, 2009).

As opposed to quantitative tradition of achieving objectivity, Given (2008, p.754) argues that ‘most qualitative researchers embrace the notion of reflexivity—the idea that researchers’ backgrounds, interests, skills, and biases necessarily play unique roles in the framing of studies and in the collection, analysis, and interpretation of data’. Therefore, reflexivity acknowledges the presence of the researcher as instrumental and integral to the research process and it also increases the rigour of the research process for a more precise interpretation of phenomena under investigation (Darawsheh, 2014; Newton et al., 2012; Standard, 2009; Townsend, Cox and Li, 2010). Congruent with Dowling (2006), the current investigation implemented the following process to ensure rigour and to facilitate both the reader and the researcher to evaluate the validity of the investigation. Firstly, the efforts were made to understand how the researcher’s interpretative lens influenced the organisation of the field of study. Secondly, it was recognised that the researcher will
influence and be influenced by the research process. One way of ensuring these components of reflexivity is to engage in a continuous internal dialogue with the bracketed preunderstandings and manoeuvring the same to be used as the source of intuition during the interpretation. Finlay (2009) cautions that entertaining reflexivity might lead to falling prey to ‘navel gazing’, that is, the researcher being engrossed and focused too much on their personal experiences and emotions. He further cautions that unless the focus stays on the research participant and the phenomenon in its appearance, the research will be distracted to different directions.

3.8.1 Researcher’s Position

In practising reflexivity, the personal perspective of the researcher is important. The following discusses researchers’ personal perspective. For the researcher, autism is a sensory disorder and its ramifications are lifelong dependency on others for normal day-to-day activities. The researcher has a degree in social work and therefore had previous knowledge about general childhood disorders. One main idea the researcher had pertaining to autism was that the individual “cannot” handle change in their daily routine. Therefore, the researcher was very cautious and anxious to witness how the participants were going to handle change from their school and home environment. From the researcher’s educational background, he was “very certain” that individuals with autism would not wish to engage in sports activities and are not comfortable meeting new people. The Researcher’s perspective changed after participating in the research and now he firmly acknowledges that autism is a neuro developmental disorder and further the symptoms and external representation of the same are different for every individual with autism.

From the subjective religious and philosophical standpoint, the researcher strongly believed in the existence of social reality external to human consciousness. However, the researcher along with the relativists argued that the individual experience of reality varies from one person to the other, and therefore multiple realities exist from the perspective of the individual experiencing the life situation at that particular point in time. In addition, the researcher firmly believed that as humans we do not respond and react passively towards the stimuli created by life circumstances. Nonetheless, we have the potential to construct our own reality by productively engaging and interacting with life situations. The researcher has previous experience working with typically developing children but not with children with autism. Therefore, from the beginning the researcher decided to keep an open mind and did not think of a response action to a prospective situation that may
arise. The researcher has the experience of implementing programs for typically developing children and has organised cricket matches among children. This experience helped the researcher in organising and mobilising volunteers for the #GameON Autism™ Golf Program.

3.9 Conclusion

The current chapter discussed various aspects of the methodology employed in the evaluation of the #GameON Autism™ Golf Program. The current research employed a constructivist ontology and an interpretative epistemology which has its origin in the theoretical perspectives, namely, hermeneutics and phenomenology (Mertens, 2015; Mack, 2010), and therefore the methodology of the current research incorporated Interpretative Phenomenological as the overarching theoretical perspective. Further, the research employed a purposive sampling technique, and since it was a mixed method research, the Els for Autism Foundation Protocol was used for quantitative data collection and semi-structured interviews were used for collecting qualitative data from participants, their parents, the golf coaches and the volunteers. The next chapter presents the findings and discussion from analysing both qualitative and quantitative data.
Chapter 4

Findings and Discussion
Findings and Discussion

4.0 Introduction

The following section presents the results and discussion that emerged from analysing the qualitative and quantitative data gathered in the evaluation of the #GameON Autism™ Golf Program conducted in Ireland. The quantitative data was collected to enable the evaluation of the participants’ development in athletic skills, golf skills and social/communication skills. The qualitative data encapsulates the emergent evidence for lived experiences of flourishing as described by the different stakeholders (participants, their parents, golf coaches, and volunteers) involved in the #GameON Autism™ Golf Program. The findings and discussion in this chapter are divided into two parts; the first part will present the outcomes of the quantitative data and the second part will discuss the lived experiences of the stakeholders through the lens of the Seligman’s (2011) PERMA theory of flourishing.

4.1 #GameON Assessment Protocols

The research objective that the current section will address is the improvement of the participants in athletic skills, golf skills and social/communication skills. The #GameON Autism™ Golf Program main study was conducted among individuals with autism between the age group of 7 to 18 years who were studying in schools with an autism unit. The indoor sessions were conducted in a sports hall attached to one of the schools in County Kerry, with three outdoor sessions conducted at a golf course in County Kerry. In the main study, lessons learnt from the pilot study were incorporated to maximise the quality of the program implementation. Therefore, the author acknowledges that there was some difference in the program implementation between the pilot and the main study. The main study was conducted once a week over 12 weeks, rather than twice a week over 6 weeks. In addition, in the main study three sessions were conducted in golf course. The program was conducted on Saturdays and the participants that participated were from different schools in County Kerry. In total fourteen participants participated in the program and they were all boys. Very few participants were low functioning on the spectrum, that is, with a minimum level of communication. Of the fourteen participants who participated in the program, twelve participants completed both the pre-and post-assessments. The following section will elucidate a detailed analysis of the data collected through the Els for Autism Foundation assessment protocol, assessing the athletic skills, golf skills and social communication skills of the participants.
Much of the discussion in this section will draw on the works of, Schachten and Jansen (2015), Zoerink and Carter (2015) and Carless and Douglas (2004) as they are the available works that examine the application of golf as an intervention for individuals with disabilities.

4.1.1 Athletic Assessments

The components of the athletic assessments evaluated were the long jump, lateral jump, ball throw and plank. The impact of the program for each of the athletic assessment components are presented in Table 9. It was hypothesised that in the main study for each of the variables in the athletic assessment, the mean difference between the pre-intervention and the post-intervention is equal to zero. Data elicited for the athletic assessments are mean values unless otherwise stated.

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Descriptive Statistics</th>
<th>Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Before</td>
<td>Mean After</td>
</tr>
<tr>
<td>Long Jump (Explosive Power)</td>
<td>1.519</td>
<td>1.499</td>
</tr>
<tr>
<td>Continuous Lateral Jump (Balance)</td>
<td>16.08</td>
<td>22.83</td>
</tr>
<tr>
<td>Ball Throw (Coordination)</td>
<td>8.35</td>
<td>10.23</td>
</tr>
<tr>
<td>Plank (Abdominal Strength)</td>
<td>11.13</td>
<td>12.00</td>
</tr>
</tbody>
</table>

In ‘long jump’, six participants have improved on the scale; five have reduced from the pre-intervention scores and one participant did not show improvement. On the ‘lateral jump’, nine participants have improved on the scale and three have reduced from the pre-intervention scores. On ‘ball throw’, ten participants have improved on the scale and two have reduced from the pre-intervention scores. In ‘plank’, six participants have improved on the scale and six have reduced from the pre-intervention scores. It is evident from the
Wilcoxon signed-rank test in Table 9 that the mean difference on two variables, long jump ($z = -0.267$, $p = 0.789$) and plank ($z = -0.275$, $p = 0.784$), are not statistically significant. The mean difference for the other two variables, continuous lateral jump ($z = -2.238$, $p = 0.025$) and ball throw ($z = -2.197$, $p = 0.028$), shows statistically significant results. Therefore, for two components of the athletic assessments (long jump and plank) the null hypothesis is retained. For the other two components (continuous lateral jump and ball throw) of the assessment, the null hypothesis is rejected.

In the athletic skills evaluation, the results showed that there is no statistically significant difference in the pre-intervention and the post-intervention score of the standing long jump (explosiveness/power) and plank hold (abdominal strength). In other words, the #GameON Autism™ Golf Program may have caused no improvement in the power and strength components of athletic assessment. The results pertaining to the statistical insignificance in the power component of the athletic assessment is consistent with the findings of other research studies conducted among participants with autism (Tyler, MacDonald and Menear, 2014; Keyhani, et al., 2014; Rad, Rafiee and Fahim, 2012). The results of the study conducted by Tyler, MacDonald and Menear (2014) comparing the physical activity and fitness level of school-aged participants with autism ($N=17$) and their typically developing peers ($N=12$) revealed that the participants with autism have lower scores in the strength domain of motor skills. The lower strength score of children with autism in a study conducted by Yilmaz, et al. (2004) is consistent with the strength results of the current research. Nevertheless, this finding is divergent from the findings of other research works (Pan, et al., 2016; Holm, et al., 2014; Pan, et al., 2014) indicating a positive change in the strength subset of the physical activity assessments. In their examination, Holm, et al. (2014) reported improvement in the strength was identified by the parents as a demonstrable outcome for the children with autism who participated in a therapeutic horse riding (THR) intervention. However, the results of the present research were inconsistent with the findings of Yilmaz, et al. (2004) who reported an increase in the power scores of the participants with autism who participated in the 10 weeks swimming training.

In the present research, the individuals with autism have improved in their scores pertaining to the continuous lateral jump (agility/balance) and a ball throw (motor coordination) component of the motor skill assessment. One of the objectives of the study conducted by Yilmaz, et al. (2004) was to evaluate the effects that water exercises and swimming had on motor performance and physical fitness. After the 10-week aquatic
intervention, it was observed that along with other motor development components, the balance score had increased from the baseline evaluation. Gabriels, et al. (2012) in their research measuring the effect of therapeutic horse riding (THR) argue that THR may impart improvement in the ‘muscle strength, tone, bilateral control and balance’ of the children with autism. They further argue that since the rider will have to adjust constantly to the movement of the horse by adjusting their weight, it thus contributes to maintaining posture and balance. The current investigation revealed that the #GameON Golf intervention could significantly increase the balance score subset of the motor skill assessment, and this is consistent with other research findings of Rad, Rafiee and Fahim (2012) and Pan (2011) who employed general physical exercises and aquatic exercises among individuals with autism. Generally studies into the physical benefits of golf acknowledge the contribution of golf in improving balance and flexibility (Murray, et al., 2016; Torres-Ronda, Sánchez-Medina and González-Badillo, 2011; Wells, Elmi and Thomas, 2009; Sell, et al., 2007; Lephart, et al., 2007). Therefore, improvement in the balance component of the participants in the current research is not surprising because golf requires the player to adjust the body position constantly in order to play a proper swing, and that demands the participant to maintain upright body posture and balance (Green, 2012).

The results pertaining to balance are inconsistent with the investigations conducted by Keyhani, et al. (2014) which concluded that there is no significant improvement in the balance. In their recent research, Pan, et al. (2016) evaluated the effect of the two-phase 12-week table tennis intervention on the physical and cognitive performance of children with autism. In both of the phases, the investigation revealed improvement in the interaction effects and a significant increase in manual coordination and body coordination of the motor area composites. The potential benefit of the #GameON Autism Golf intervention in stimulating improvement in the balance component of the motor skill assessment is consistent with the reported findings of research studies on the impact of physical activity on children with autism (Pan et al., 2014; Holm et al., 2014; Gabriels et al., 2012). The result of the current research on coordination is inconsistent with the findings of Rad and colleagues (2012). They further argue that the reason for no difference in the scores of the bilateral coordination after the intervention in children with autism is due to the impairments found in their cognitive and motor skills (Rad, Rafiee and Fahim, 2012).
In terms of fitness and motor skill assessment tools, the current research did not use standardised assessment tools for evaluating the athletic skills of the participants. Since this was the evaluation of the #GameON Autism Golf Program, using the protocol developed by Els Foundation became an imperative. The importance of employing standardised assessment tools is that it will assist in comparing the results of other research utilising the same assessments and increases the probability of having high face validity and inter-rater reliability. Some of the standard tools mentioned in the literature are Bruininks-Oseretsky Test of Motor Proficiency – 2nd edition (Pan et al., 2016; Lourenco, et.al., 2015; Tyler, Macdonald and Menear, 2014; Rad, Rafiee and Fahim, 2012; Pan, 2011; Todd and Reid, 2006); Multidimensional Paediatric Evaluation of Disability Inventory Mobility Scale (M-PEDI) (Fragala-Pinkham, Haley and O’Neil, 2011; 2008); Progressive Aerobic Cardiovascular Endurance Run (PACER) (Pan, 2011); Test of Gross Motor Development (Pan, 2011; Todd and Reid, 2006); and the Motor Performance Test (MOPER) (Pan, 2011).

4.1.2 Golf Skills

Evaluation of the golf skills was based on four main parameters: grip, scores, distance control, and aiming at the target. For golf skills, since the variables are dichotomous, McNemar’s statistics were used to analyse the data and these results are presented. It was hypothesised that for the main study the pre-training and the post-training proportions of the variables in all four parameters of golf skill assessments were equal. Each of the four parameters are discussed separately in the following sections.

4.1.2.1 Gripping Technique

The assessment of gripping technique consisted of four elements as follows: ‘did the participant use two-hand grip’; ‘did the participant have two hands touching each other while gripping’; ‘did the participant use one hand to grip’; and ‘did the participant use a reverse grip’. Table 10 shows the results of the McNemar’s test for the gripping technique component of golf assessment. On the variables of ‘two hands on grip’ and ‘two hands touching’, eight participants gripped using both hands with them touching and four participants used one hand for gripping on pre intervention assessment. After the intervention, all twelve participants used proper two handgrips, with two hands touching each other. On the variable ‘one-handed grip’, eight participants gripped using both hands and four participants used one hand for gripping on pre intervention assessment. After the intervention, all twelve participants used proper two handgrips. On pre-intervention
assessment, four participants used ‘reverse grip’ and eight did not. After the intervention eleven participants learned the proper gripping technique, that is, two hands unreversed gripping, while one participant still used a ‘reverse grip’.

Table 10 shows that the McNemar’s test determined that the difference in the proportion of gripping technique variables two hands on grip \((p=0.125)\), two hands touching \((p=0.125)\), one handed grip \((p=0.125)\) and reverse grip \((p=0.125)\) on pre-and post-intervention was not statistically significant. Therefore, there is not enough evidence to reject the null hypothesis for all four components of gripping technique and hence the null hypothesis is retained.

<table>
<thead>
<tr>
<th>Gripping Technique</th>
<th>Frequency</th>
<th>McNemar’s (p)-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
<td>Post Test</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1. Two Hands on Grip</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>2. Two Hands Touching</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>3. One Handed Grip</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>4. Reverse Grip</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

4.1.2.2 Scoring Technique
The main components in the scoring techniques were participants’ understanding of the following concepts: ‘understand putting the ball into the hole’, ‘making the putt in the fewest strokes’, whether the participant managed to ‘putt into the hole’, whether the participant ‘put the ball into the hole without putting’, and whether the ‘participant keeps count of scores’. The impact of the program on the scoring technique is shown in table 11. On the variables ‘understand putt into the hole’ and ‘keep scores correctly’, only one participant understood putting and scoring on pre intervention assessment. After the intervention, all twelve participants understood putting and were able to keep scores correctly. On the variable understanding of the concept ‘put the ball into the hole in fewer strokes’ and ‘putt into the hole’, two participants understood the task on pre intervention assessment. After the intervention, all twelve participants demonstrated that they understood the concept of putting the ball into the hole in fewer strokes and were able to
putt into the hole. When it comes to the variable ‘putt into the hole without putting’, on pre-intervention assessment, none of the participants were able to perform the task. After the intervention, all twelve participants were able to ‘putt into the hole without putting’.

The inference of Table 11 shows that the McNemar’s test determined that the difference in the proportion of scoring technique variables understanding of ‘put the ball into the hole’ ($p=0.001$), ‘put into hole in fewest strokes’ ($p=0.002$), ‘put into the hole’ ($p=0.002$), ‘put the ball into the hole without putting’ ($p=0.000$) and ‘keep count of scores’ ($p=0.001$) on pre-and post-intervention was statistically significant. Therefore, there is enough evidence to reject the null hypothesis for all five components of scoring technique, and therefore the null hypothesis is rejected.

### 4.1.2.3 Distance Control

An important aspect of distance control technique is that each participant was evaluated on their ability to ‘putt the ball in Zone 1 (5ft)’ and ‘Zone 2 (10ft)’. The participants were also evaluated on whether they were able to make a bigger swing to ‘putt the ball in Zone 2 (10ft)’ and their ability to ‘swing harder to putt the ball in Zone 2 (10ft)’.

The impact of the program on the distance control technique is shown in table 12. On the variable ‘putt to Zone 1’, eight participants were able to perform the task and four could not on pre-intervention assessment. On ‘putt to Zone 2’, seven participants were able to perform the task and five could not on pre-intervention assessment. When it comes to the variable of making ‘bigger swing to Zone 2’, five participants were able to perform the task and seven could not on pre-intervention assessment. For the variable of ‘swinging...
harder to reach Zone 2', four participants were able to perform the task and eight could not on pre-intervention assessment. However, after the intervention, all twelve participants were able to perform all four components of the distance control technique.

### Table 12: Distance Control Technique

<table>
<thead>
<tr>
<th>Distance Control Technique</th>
<th>Frequency</th>
<th>McNemar’s p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
<td>Post Test</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1. Put to Zone 1</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>2. Putt to Zone 2</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>3. Bigger Swing to Zone 2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>4. Harder Swing to Zone 2</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

The inference of Table 12 shows that the McNemar’s test determined that the difference in the pre and post intervention proportions of distance control technique variable of ‘putt the ball in Zone 1’ \(p=0.063\) was not statistically significant, and the variables ‘putt the ball in Zone 2’ \(p=0.031\), ‘making bigger swing to Zone 2’ \(p=0.008\) and ‘swinging harder to reach Zone 2’ \(p=0.004\) were statistically significant. Therefore, except for the putt to Zone 1, all of the other three variables show statistically significant evidence to reject the null hypothesis. Therefore, the null hypothesis is retained for the variable putt to Zone 1, and for the other three components of distance control technique, the null hypothesis is rejected.

#### 4.1.2.4 Aiming at the Target

The aiming at the target assessment was devised to check whether the participants could ‘chip the ball to target 1’ and ‘target 2’ and whether they could ‘chip inside the right direction boundary’ as well as the participants’ ability to ‘chip the ball inside the left direction boundary’. Further, whether participants changed the ‘direction of the clubface’ and ‘body’ to chip to target were also assessed. The impact of the program on the distance control technique is shown in Table 13.

On the variable of ‘chip the ball to target 1’, ten participants were able to perform the task and two could not on pre-intervention assessment. On the variables ‘chip the ball to target...
2' and ‘chip to right direction’, nine participants were able to perform the task and three could not on pre-intervention assessment.

**Table 13 : Aiming the Target**

<table>
<thead>
<tr>
<th>Aiming the Target</th>
<th>Frequency</th>
<th>McNemar’s p-Value (One-Tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
<td>Post Test</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1. Aiming Target 1</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>2. Aiming Target 2</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>3. Chip to Right Direction</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>4. Chip to Left Direction</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>5. Club Face Direction Change</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>6. Body Direction Change</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

The inference of Table 13 shows that on the variable ‘chip to left Direction’, seven participants were able to perform the task and five could not on pre-intervention assessment. On the variables ‘change clubface direction’ and ‘body direction’, none of the participants were able to do it on pre-intervention assessment. After the intervention, all twelve participants were able to do all six components of aiming the target. The inference of Table 13 shows that the McNemar’s test determined the pre-training and the post-training proportions of the variables ‘chip the ball to target 1’ \( (p=0.250) \), ‘target 2 \( (p=0.125) \)’, and chip inside the ‘right direction’ boundary \( (p=0.125) \) are not statistically significant, and the variables chip inside the ‘left direction’ boundary \( (p=0.031) \), ‘club face direction change’ \( (p=0.000) \) and ‘body direction change’ \( (p=0.000) \) are statistically significant. Therefore, for the first three variables, the null hypothesis is retained and for the latter three, it is accepted.

Zoerink and Carter (2015) in their analysis of teaching golf as a physical activity intervention for eleven individuals suffering from stroke reported that the post-intervention assessments revealed significant improvements in the levels of coordination, balance and strength, and a non-significant result in the agility component of fitness. In a similar research study conducted by Schachten and Jansen (2015) they evaluated the effect of golf training for patients that had a stroke, on variables like attention, balance, emotional well-
being, visual-spatial memory and mental rotation performance. The results showed that all of the participants have improved in all aspects of the measured variables.

In regards to the golf skills, the current research findings suggest that the #GameON Golf intervention has produced statistically significant results in some of the subsets pertaining to skills like scoring, distance control, and aiming at the target, and a non-significant impact in the gripping technique for children in the study. Burns (2010) stated that his experience of working with children with autism shows that their inability to concentrate for a long time to complete most of the tasks is because “they all had issues with attention deficit”. He disagreed with the general myth that children with autism are learning disabled. As noted earlier, various research investigations have successfully employed physical activity as a therapeutic intervention for imparting social, communicational and motor skills of children with autism.

However, not all studies reported the learnings at the actual skill level of the physical activity used for teaching other autism-specific skills. Pan (2010) in his investigation on determining the effectiveness of a 10-week water exercise swimming program (WESP) on the aquatic and social behaviour of 16 children with autism used Humphries Assessment of Aquatic Readiness (HAAR) checklist for reporting aquatic skills. The findings of WESP suggested that the aquatic skills of the participants had improved and there was significant potential for social skills development (Pan, 2010). Similarly research conducted by Ennis (2011) reported that In a 10-week aquatic program, children from 3 to 9 years of age participated in the program for 60 minutes every week. Improvements in the ‘physical function, interaction, or quality of life’ were evidenced. The results show significant changes in the motor, social and communication skills of all of the participants.

One possible explanation for the non-significant outcome for a basic variable like gripping technique could be because of the yes and no format of the golf skill questionnaire. A golf coach in his interview stated that,

“Wow, you can’t say yes and no for 14 different kids of 6 different levels. For instance, do they hit the ball? Ya, but do they hit the ball every time? No. If you have a hit ratio, like how many times they hit it out of 10 towards the target and how many finished in the target. The question is not in-depth enough, in that, you should add ratio from 1 to 10. One being bad and ten being brilliant” (Golf Coach, Post intervention).
Kennedy, one of the volunteers, also reiterated the same concern regarding the golf skill question while discussing the assessments. He said,

"Take the first one, for instance, grip it says yes and no. But for me, it should have been scaled. The answers here are too definitive as in it's black or white. Two hand grip yes or no. Well, it's difficult to play with one hand and so they would have two hands on the club... I would expect some level of scale to identify how far or how good they are. You know the vast majority of the answer would be yes because they are doing it to some degree. But like any coaching program, what you want is to evaluate the degree of progression. For me, yes and no is too narrow and that's the one criticism I would say" (Kennedy, Volunteer).

Therefore, it is highly recommended that the format and the line of questions in the golf skill assessment questionnaire should be modified to add robustness and to capture the changes in the golf skills of the individuals with autism.

4.1.3 Social/Communication Skills

Social and communication skills were evaluated based on five components, namely, communication skills (receptive and expressive), social skills, regulatory skills and motor skills. Each of the components are discussed in the following section. The impact of the program for each of the components of social and communication skills for the main study was analysed using a Wilcoxon signed ranks test. It was hypothesised that for each of the variables in the social and communication skills, the mean difference between the pre-training and the post-training is equal to zero. Data elicited for social/communication assessments are mean values unless otherwise stated.

4.1.3.1 Communication Skills: Receptive

The assessment of 'communication skills: receptive' consisted of two main components: whether a child could 'respond to individual' and 'group instructions in a single prompt'. The impact of the program on the communication skills: receptive components is shown in Table 14. On the variable 'individual instruction response in single prompt', three participants have improved on the scale. Two participants have reduced from their pre-intervention score and seven participants showed no improvement, whereas on the variable 'group instruction response to a single prompt', five participants have improved on the scale. Two participants have reduced from their pre-intervention score and five participants showed no improvement. It is evident from the Wilcoxon signed-rank test in Table 14 that the mean difference of pre-and post-intervention on the two variables individual instruction response in single prompt ($z=-0.962, p=0.336$) and group instruction response in single
prompt ($z=-1.403, p=0.161$) shows statistically insignificant results. There is not enough evidence to reject the null hypothesis for both components of the communication skills: receptive variable, and therefore the null hypothesis is retained.

**Table 14 : Communication Skills: Receptive**

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positives (Mean Rank)</td>
</tr>
<tr>
<td>Individual instruction response in single prompt</td>
<td>3 (3.67)</td>
</tr>
<tr>
<td>Group instruction response in single prompt</td>
<td>5 (4.40)</td>
</tr>
</tbody>
</table>

**4.1.3.2 Communication Skills: Expressive**

The assessment of communication skills: expressive, consisted of three main components: whether a child can ‘ask for help’, ‘respond to interactions’ and ‘respond to questions’. The impact of the program on the communication skills: expressive components are shown in Table 15.

**Table 15 : Communication Skills: Expressive**

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positives (Mean Rank)</td>
</tr>
<tr>
<td>Participants ask for help</td>
<td>4 (3.13)</td>
</tr>
<tr>
<td>Respond to interactions</td>
<td>3 (3.00)</td>
</tr>
<tr>
<td>Respond to questions</td>
<td>4 (4.50)</td>
</tr>
</tbody>
</table>

On the variable, the participant can ‘ask for help’, four participants have improved on the scale. One participant reduced from their pre-intervention score and seven participants
showed no improvement. On the variable, 'respond to questions', four participants have improved on the scale. Four participants have reduced from their pre-intervention score and four participants showed no improvement. On the variable, participant 'responds to interactions', three participants have improved on the scale. Four participants have reduced from their pre-intervention score and five participants showed no improvement. It is evident from the Wilcoxon signed-rank test in Table 15 that the mean difference of pre- and post-intervention on the three variables, 'can ask for help' ($z = -1.414, p = 0.157$), 'respond to interactions' ($z = -0.879, p = 0.380$) and 'respond to questions' ($z = 0.000, p = 1.000$) shows statistically insignificant results. There is not enough evidence to reject the null hypothesis for the three components of the communication skills: expressive variable, and therefore the null hypothesis is retained.

4.1.3.3 Social Skills

Assessment of social skills consisted of four main components: whether the 'participant waits for his/her turn', the 'participant shares equipment/materials', the 'participant interacts with others by keeping personal space', and the 'participant demonstrates sportsmanship by cheering'. The impact of the program on the social skills components is shown in Table 16.

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positives (Mean Rank)</td>
</tr>
<tr>
<td>Participant waits for his/her turn</td>
<td>3 (3.50)</td>
</tr>
<tr>
<td>Participant shares equipment/materials</td>
<td>1 (1.50)</td>
</tr>
<tr>
<td>Participant interacts with others by keeping personal space</td>
<td>3 (4.50)</td>
</tr>
<tr>
<td>Participant demonstrates sportsmanship by cheering</td>
<td>3 (2.50)</td>
</tr>
</tbody>
</table>

Table 16: Social Skills

97
On the variable, ‘participant waits for his/her turn’, three participants improved on the scale. Four participants have reduced from their pre-intervention score and five participants showed no improvement. For the variable, ‘participant shares equipment /materials’, one participant has improved on the scale. Two participants have reduced from their pre-intervention score and five participants showed no improvement. On the variables, ‘participant interacts with others by keeping personal space’ and ‘participant demonstrates sportsmanship by cheering’, three participants have improved on the scale. Three participants have reduced from their pre-intervention score and six participants showed no improvement.

It is evident from the Wilcoxon signed-rank test in Table 16 that the mean difference of pre-and post-intervention on the four variables, ‘participant waits for his/her turn’ \((z = -0.632, p = 0.527)\), ‘participant shares equipment /materials’ \((z = -0.816, p = 0.414)\), ‘participant interacts with others by keeping personal space’ \((z = -0.649, p = 0.516)\) and ‘participant demonstrates sportsmanship by cheering’ \((z = -0.649, p = 0.516)\), shows statistically insignificant results. There is not enough evidence to reject the null hypothesis for the four components of the social skills variable, and therefore the null hypothesis is retained.

4.1.3.4 Regulatory Skills

Assessment of regulatory skills consisted of three main components: whether the participant is ‘able to stay calm when he/she is frustrated’, the participant is ‘able to obtain sensory reduction as needed’, and the participant is ‘able to use a golf club safely’.

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positives (Mean Rank)</td>
</tr>
<tr>
<td>Able to stay calm when he/she is frustrated</td>
<td>6 (4.08)</td>
</tr>
<tr>
<td>Participant is able to obtain sensory reduction as needed</td>
<td>3 (3.33)</td>
</tr>
<tr>
<td>Participant is able to use a golf club safely</td>
<td>4 (2.50)</td>
</tr>
</tbody>
</table>
The impact of the program on the regulatory skills components is shown in Table 17. On the variable participant ‘able to stay calm when he/she is frustrated’, six participants have improved on the scale. One participant has reduced from the pre-intervention score and five participants showed no improvement. On the variable, ‘able to obtain sensory reduction’, three participants have improved on the scale. Two participants have reduced from the pre-intervention score and seven participants showed no improvement. For the variable the participant is ‘able to use a golf club safely’, four participants have improved on the scale. Two participants have reduced from the pre-intervention score and six participants showed no improvement.

It is evident from the Wilcoxon signed-rank test in Table 17 that the mean difference of pre-and post- intervention on three variables, participant able to stay calm when he/she is frustrated \((z = -1.897, p = 0.058)\), participant able to obtain sensory reduction as needed \((z = -0.707, p = 0.480)\), and participant able to use a golf club safely \((z = -0.108, p = 0.914)\), shows statistically insignificant results. There is not enough evidence to reject the null hypothesis for the three components of the regulatory skills variables, and therefore the null hypothesis is retained.

As alluded to earlier in the literature review, research into the therapeutic benefits of golf as a physical activity for individuals with mental health issues is scarce, and so is the investigation into its benefits for individuals with disabilities. Among the literature available, qualitative research conducted by Carless and Douglas (2004) reported the outcome of an experimental golf program conducted for individuals with mental health issues. The aim of the research was to document the possibility of promoting golf as a physical activity that encourages social inclusion. Results showed a high attendance rate, and the participants expressed enthusiasm about the program and about the after program social interaction (Carless and Douglas, 2004).

The challenges and limitations in social reciprocity and communication are defined as the critical elements in the definition of autism symptomology, and without proper intervention the difficulties in social and communication skills are most likely to persist throughout a lifetime (Wang, et.al., 2011; Matson, Matson and Rivet, 2007). In fact, Matson and colleagues (2007, p.683) argue that the lack of targeted intervention towards effectively addressing the social and communication skills tends to debilitate the social interaction of an individual with autism and ‘these deficits have tended to increase rather
than diminish with age'. Numerous research findings specific to social skills intervention among individuals with autism reveal a significant level of improvement in the various components of the social skills assessment (Laugeson et al., 2014; Laugeson and Park, 2014; Chein, Lee and Lin, 2014; Reed, Hyman and Hirst, 201; Hopkins et al., 2011).

The reported findings in the current investigation show no statistically significant improvements relating to the social/communication skills of the children with autism. This result is inconsistent with the existing literature which highlights a significant increase in the social/communication skills after participating in various physical activity interventions (Ketcheson, Hauck and Ulrich, 2016; Ledford, et.al., 2016; Ward et al., 2013; Pan, 2010; Yilmaz, et al., 2004). In their cross syndrome study, McPhillips, et al., (2014) examined the possible presence of syndrome-specific motor difficulties for children with autism compared to the children with specific language impairment (SLI). A detailed analysis revealed two important outcomes; first, there exists no difference in the motor profile of the two groups compared, and two, a regression analysis suggested the presence of a strong association between general language ability and motor skills acquirement for children with autism (McPhillips, et al., 2014).

In their review examining the change in the behavioural domain of the social skills after participating in a physical activity intervention, Bremer and colleagues (2016, p.910) demonstrated that apparently physical activity interventions like ‘jogging, horseback riding, yoga/dance, swimming and martial arts’ reduced the stereotypic behaviours and improved the social-emotional functioning of children with autism. They further clarify that the improvement in the social and behavioural domain could also be due to the high participant to instructor ratio, and the involvement of the children with autism in the intervention and the concomitant increase in social interaction. Therefore, Bremer and colleagues (2016) argue that the improvement in the social behaviour may not be directly due to the physical activity. Another study conducted by Ghorban, et.al. (2013) investigated the effect of therapeutic horseback riding on social skills of six children with autism who participated in the intervention. The assessment of social skills was performed using the Social Skills Rating Form, which is a subscale of the Triad Social Skills Assessment (TSSA) designed to assess 6-12 year old children with autism. They reported that the therapeutic horseback riding intervention has induced significant improvement in the mean scores of the social skills.
The empirical research findings of Jenkins and Reed (2013) align with the outcome of the present research pertaining to the social communication domain. Their study used therapeutic horseback riding as a physical activity intervention and evaluated the impact of the same on the social behaviours of the seven children with autism who participated in the intervention. The t-test score of the research showed that the intervention did not demonstrate statistically significant outcomes in the social communication specific to ‘affect, responding to others’ initiations, spontaneous initiations, off-task behaviour, compliance, problem behaviour, or performance on two standardised measures’ (Jenkins and Reed 2013, p.738).

One possible explanation for such inconsistency in the findings of the current research in social communication skills compared to other studies is that even though parents completed the assessment, they were not familiar with the specifics of the improvements the children attained in the social/communication domain pertaining to the #GameON Golf intervention. For instance, from the researcher’s perspective, the participants have significantly improved in aspects like responding to communication, waiting for their turn, ability to share equipment, interacting with others by keeping personal space and all the subsets in the regulatory skills. However, the results do not reflect positive improvement because the parents may not have been familiar with the changes and they were not acquainted with the details of the lesson plan. Since the golf coach and the volunteers worked closely with the children every session, it is recommended that both the parents and the coach or a volunteer who is familiar with the development of the children in that particular domain complete the post-intervention evaluation for social/communication skills.

4.1.3.5 Motor Skills

Assessment of motor skills consisted of three main components, whether the participant demonstrates ‘motor coordination’, and whether the participant ‘demonstrates motor planning’. The impact of the program on the motor skills components is shown in Table 18. On the variable demonstrates ‘motor coordination’, four participants have improved on the scale. Two participants have reduced from the pre-intervention score and six participants showed no improvement. On the variable ‘motor planning’, four participants have improved on the scale. None of the participants has reduced from the pre-intervention score and eight participants showed no improvement.
It is evident from the Wilcoxon signed-rank test in Table 18 that the mean difference of pre-and post-intervention on two variables, participant able to demonstrates ‘motor coordination’ \((z=-1.000, p=0.317)\) and ‘motor planning’ \((z=-1.890, p=0.059)\), shows statistically insignificant results. There is not enough evidence to reject the null hypothesis for the three components of the regulatory skills variable, and therefore the null hypothesis is retained.

### 4.1.4 Summary

The purpose of the current section is to examine the impact of the #GameON Autism Golf Program on the athletic skills, golf skills and social communication skills of the participants with autism who participated in the program. The analysis of the quantitative data revealed that the participants have improved in some of the elements of the athletic skills (continuous lateral jump and ball throw) and golf skills (scoring, distance control and aiming) components. However, no significant improvement was documented in the social communication skills of the participants.

The subsequent section will present the data analysis and discussion of the interviews conducted among participants, parents, volunteers and golf coaches. As noted in the methodology chapter, the current investigation followed a mixed methods approach, acknowledging that the result of combining quantitative and qualitative offers the opportunity to nullify the negative components inherent to each of the traditional methodologies. Phenomenological qualitative data was collected in order to understand the impact and changes the program has induced in the participants. The qualitative data collected was analysed using Interpretative Phenomenological Analysis (IPA) where the purpose was to ascribe meaning to the life world of an individual and through which
explanations can be obtained for fundamental research questions (Ritzer, 2005), in this case the impact of the #GameON Autism™ Golf Program on the participants, parents, volunteers and golf coaches. The following section will present the data analysis of the interviews conducted among participants, parents, volunteers and golf coaches.

4.2 #GameON Autism™ Golf Program & Human Flourishing

This current section presents the findings pertaining to the lived experiences of various stakeholders, namely, participants, parents, golf coach and volunteers, who participated in the #GameON Autism™ Golf Program. The findings presented in this section are described based on the theoretical construct of human flourishing introduced by Martin Seligman (2011), formally known as the PERMA model. The main theoretical themes used for superordinate coding consist of five key elements of the PERMA model: ‘Positive Emotion, Engagement, Relationships, Meaning and Accomplishment’. Positive emotions deal with the hedonic feeling of happiness that reaffirms an individual’s personal and optimistic mental states that influence all three components of time, that is, past, present and future (Doyle et al., 2016; Asebedo and Seay, 2015; Kern et al., 2015). Engagement denotes to the notion of while participating in a particular activity, the individual loses his self-consciousness while getting very attached or involved in the task at hand; this is also attributed in the literature as flow (Coffey et al., 2016; Asebedo and Seay, 2015).

Positive relationship is the pursuit of maintaining a positive and mutually gratifying relationship that makes an individual feel loved, cared, supported and appreciated, and this is a universal phenomenon and a fundamental human need (Coffey et al., 2016a; Doyle et al., 2016; Kern et al., 2015). Meaning personifies to the application of the talents and potential of an individual to the fullest of their abilities toward a cause or task that is eventually greater than their personal self (Asebedo and Seay, 2015; Kern et al., 2015; Seligman, 2010). The final component of the well-being theory is accomplishment. It can be achieved through our pursuance of ‘success, mastery, winning, or realization’ of goals in life for the individual’s personal sake (Asebedo and Seay, 2015, p.163).

Croom (2015) reported that the presence of few or the entire facets of the PERMA model would evidence a case of archetypical cognitive well-being/flourishing. Seligman (2011) states that flourishing is not defined by any one element of the PERMA model, but rather each of them contribute towards flourishing. Therefore, the inferred ideology is that the presence of less or more elements of PERMA will contribute to flourishing accordingly. It
is also recognised that the absence of some component of PERMA does not mean the absence of flourishing. Evidence of the components of the PERMA model was present in the lived experiences of the participants with autism, their parents, golf coach and volunteers. Beyond that, the volunteers’ written feedback, the researcher’s field notes, and photographic evidence captured during the implementation of the program has also encapsulated some of the components of the lived experiences of the participants. Therefore, pertinent quotes and comments from the volunteers’ written feedback and field notes, and photographs are appended to represent the lived experiences of the participants, their parents, golf coach and volunteers. The following sections present the lived experiences of all four stakeholders based on the PERMA model.

4.2.1 Positive Emotions (PE)

Positive Emotions (PE) consist of the subjective positive view of the present, past, and future (Asebedo and Seay, 2015), and it is also argued that PE is passionate subjective feelings in the mind of an individual that makes her/him sense natural satisfaction and desire (Mitas, et.al., 2012). It is important to ask the question: What role do positive emotions have in fostering the factors that permit an individual to flourish? The answer appears to be simple at the outset, that is, a pointer for establishing flourishing. However, consistent with different perspectives, Fredrickson (2001) further states that positive emotion is not only a marker but it also produces flourishing. Essentially Fredrickson (2001, p.218) argues that ‘positive emotions are worth cultivating, not just as end states in themselves but also as a means to achieving psychological growth and improved well-being over time’.

Evidence for positive emotions was present in the lived experiences of all of the stakeholders who took part in the #GameON Autism™ Golf Program. The following passages describe the various aspects of positive emotions experienced by the participants, their parents, volunteers, and golf coach. The discussions with the stakeholders captured positive emotions when they expressed feelings like joy, interest, awe, hope, optimism, and amusement from their lived experiences, while participating in the program. Participants Alex, Isaac, and Prince express the following comments about how they enjoyed playing golf and enjoyed their time at the #GameON Autism™ Golf Program.

"Ya the golf was fun, I had a great time at it and I learnt so much from it" (Alex, Participant).
"Ya liked it tiny bit after knowing it a bit more... the exercise was fun and playing around... making lots of fun and jokes around" (Isaac, Participant).

"It was fun (laugh) and something to do on Saturday mornings (all laughed)" (Prince, Participant).

Isaac is a fun-loving person and he made jokes throughout the session. He liked the program after getting familiar with the coach and the volunteers. He liked the exercise, his involvement during the warm up session was good, and he has exactly brought that out in his statement. Prince’s full attendance in the program was a manifestation for how thoroughly he enjoyed the program, and it became a regular activity of his Saturday routine. His mother confirmed Prince’s genuine interest in golf through the following comment, "He keeps it (golf) for himself... He liked it as well... He liked golf and now it is his game" (Prince’s Mother, Parent). The satisfaction and joy that emanated from her face when she expressed her comment spoke volumes on how golf has become a game that her son enjoys now. Isaac’s mother also asserted how much he enjoyed the program when she said, "He really enjoyed it the first time... no matter what he says, he enjoyed it" (Isaac Mother, Parent). The testimony of the parents provides evidence for how much the participants have enjoyed the golf program.

Participants reported that they felt amused and excited about playing on a golf course. In expressing his thoughts about playing on the golf course, Alex responded,

"Ya I did. I liked playing in the golf course because it is free and like so much space. It’s perfect like to play golf" (Alex, Participant).

He absolutely enjoyed the space and tried to hit the ball as far as possible (see Appendix U for a picture of how much Alex enjoyed the golf course). Alex was attracted to the golf course because of the space and it is perfect for playing golf. The following statement from his mother captures the other reason why he was attracted to play on the golf course,

"The minute we came out he said, mum did you hear the ocean, I could hear the ocean and he said I loved the sound of the ocean" (Alex Mother, Parent).

When describing his reasons for enjoying going to the golf course, Isaac said ‘Ya going away from town... for lake’. He spends more time inside the town, and that is the reason why he did not miss even a single session conducted on the golf course. The researcher’s field observation, “I could see the enthusiasm they received playing on the golf course... Now they are enjoying the game of golf” (Week 9, Field Notes) captures without ambiguity
the extent participants enjoyed their time on the golf course (see Appendix U for pictures of participants enjoying the golf course). The excitement conveyed by the participants about being on the golf course reinforces the argument of Campbell (2016) who stated that golf contains the elements that induce Therapeutic Lifestyle Changes (TLC) that have no side effects and often times prove to be more effective than psychotherapy and medication. Some of the integrated therapeutic components of golf that offer TLC are exercise, time in nature, fostering of relationships, recreation, relaxation and stress management (Campbell, 2016; Richardson, 2012). Highlighting the connection between emotional well-being and time spent in nature, Campbell (2016) noted that golf contributes towards the cognitive, attentional, emotional, spiritual, and subjective well-being of an individual, while enjoying the serene and natural environment.

Participants also expressed positive emotions when they discussed the kind of golf shots they like the most. One thing Alex desired to do immediately after coming on Saturday morning was to do long shots. He commented, “I enjoyed the long shot, like the long swing” (Alex, Participant), and when asked whether he remembered any instructions given by the golf coach, he immediately responded, 

“Ya, how to hold your hands like a Y, kind of like straight down. Keep the arm straight when you are holding back with the club and then swing” (Alex, Participant).

He remembered the exact directions given for the long swing, which appropriately explains his first comment of enjoying the long shot. The evidence of Alex’s desire to play long swing was confirmed from his answer to the question of where he would like to continue playing golf. He replied: “Ya, in the driving range, that is in the ...” (Alex, Participant). How Isaac enjoyed the program was evident when he stated, “I like pu...ting” (Isaac, Participant), and this statement corroborated with his answer, ‘It was putting’ (Isaac, Participant) while answering the question what was his favourite golf shot. Prince loved driving the ball to the furthest distance. This is evident from his expression, “I like long swing” (Prince, Participant). His dad explained, “It’s probably for hitting the ball hard” (Prince Father, Parent) as an apparent reason for his interest in the long swing. Alex was good in putting and he enjoyed it very much. Initially, he showed frustration and became impatient when he missed the target while putting. However, the field notes indicated improvement, “Now he likes putting and he also understands that he is hitting the ball fast” (Week 9, Field Notes) while documenting Alex’s time in the golf course.
The volunteers also expressed positive emotions while reflecting on their experiences about volunteering in the #GameON Autism™ Golf Program. Their comments corroborated with the comments of the participants about enjoying the program when Stephanie articulated, “Kids are so comfortable with each other and they are cracking jokes or having fun with each other as everyday boys do” (Stephanie, Volunteer). How much the participants enjoyed the program is also evident from the comments of the parents as observed by the researcher, “They acknowledged that they loved the fact that their kids enjoyed golf” (Week 7, Field Notes). Evidence of participants loving the golf course also emerged during the interviews with the volunteers. Austin while describing his experience with Neil stated,

“He did enjoy it (golf course). He didn’t run after his mother or anything like that. He stayed on the golf course and he listened as well” (Austin, Volunteer).

Generally, the volunteers expressed optimism when they talked about the ability of the participants, for example, the following statement captures Austin’s reflection about the capabilities of the participants,

“Able to do the full swing and able to hit a hole in their first go. It’s interesting to see that they are actually capable of learning golf” (Austin, Volunteer).

Austin has experience in working with children with autism. His previous experience elicited a question in his mind regarding the ability of the participants to learn golf. He felt delighted to watch the participants learn golf without any problem. While discussing the abilities, Kennedy noted that this experience “reinforces the fact that it’s not about disability, but the ability” (Kennedy, Volunteer). Kennedy came with the vast experience of coaching, and throughout the discussion, he highlighted this notion of ability.

The positive emotion was also expressed while talking about how much the volunteers enjoyed the golf program. Stephanie described,

“I loved it, I absolutely loved it. It’s very enjoyable and the kids were fabulous. They are so friendly, warm and funny... and it is as if like they don’t have disability what so ever” (Stephanie, Volunteer).

The comment espouses the fact that the volunteers become very much involved and enjoyed the program. Stephanie enjoyed working with the participants so much that it helped her feel as if the participants do not have a disability at all. It shows that positive emotion will help an individual to overcome psychological barriers and prejudices that she/he might have had before working with participants with autism.
Evidence of positive emotion was also apparent in the lived experiences of the golf coach. The coach reported the components of positive emotion like hope and optimism while discussing the participants being on the golf course and the adaptability of the participants. The coach expressed in the pre-interview that,

"Certainly it's not all the technical know hows, but it's not only that but you walking around as I said in sand dunes, flowers or mountain or something like that... While they are out in the open, they get used to the open and the scenery and I think it's great" (Coach, Pre-Interview).

The statement captures an important aspect of what the coach was hoping participants with autism might experience if they are out in the open. As noted earlier, participants loved playing on the golf course because it exposed them to a different environment. The researcher in the field observation has also noted, "The parents acknowledged that they loved the fact that their kids enjoyed and liked the outdoor". Beyond enjoying and loving being at the golf course, the observation by the researcher was, "The weather was very good for golf, but very cold, though. Despite the cold weather, all the participants enjoyed the day" (Week 8, Field Notes).

This explains that the participants in the program were able to handle cold weather and therefore were able to manage sensory issues inherent to autism symptomology. The coach reported both hope and optimism in the pre-interview when he said,

"Can we push them hard teaching three or four skills we will have to see. We have 12 weeks to get that right. I think they will change and they will adapt... but how far you can push them on the competitive side will be interesting to see" (Coach, Pre-Interview).

The statement encompasses the idea of both hope and optimism, and it captures the positive quality necessary for any coach – being hopeful of improvement and development of their participants. The positive approach and optimistic mindset in coaching definitely helped the participants to learn and adapt to the new environment. The coach in his post interview expressed joy when he described the skills learnt by the participants (Coach, Pre-Interview).

"Alex is a good golfer. Short enough attention span. He has improved a lot, putting, chipping and pitching... Full swing is not a problem, but whether it is correct is another thing. Only two persons who actually did full swing correctly today are Dean and Jerry" (Coach, Post-Interview).
While commenting about the competitive side of the participants, Stephanie, one of the volunteers, commented that,

"The program has grown from catching a golf club to actually playing six holes... they are competitive. They were asking what's the score and how many shots now" (Stephanie, Volunteer).

The comments elicited by the volunteer established that the participants with autism are capable of being competitive and can show competitive spirit. These pure expressions capture how much the program resulted in positive emotions among the stakeholders of the program. All the stakeholders interviewed have highlighted positive emotions when they discussed enjoying the golf session and when talking about the interest of the participants with autism in the golf program. In their study examining the positive emotions before, during and after leisure travel activity, Mitas, et al. (2012) asserted that positive emotions like joy and interest increased during the leisure travel experience. The current research outcome on positive emotion is consistent with the outcome of Mitas, et. al. (2012) and also with the review conducted by Lyubomirsky, King and Diener (2005).

Lyubomirsky, King and Diener (2005, p.804) further argue that ‘positive emotions produce the tendency to approach rather than to avoid and to prepare the individual to seek out and undertake new goals’. They have also revealed that positive emotions contribute towards mental health, and well-being and happiness are inversely proportional to the symptoms of psychopathology, such as depression, hypochondriasis, or schizophrenia. In their recent work, Lyubomirsky and Layous (2013) also revealed that participating in positive activities increases the well-being of an individual and suggests that activities become positive only to the degree that they produce positive emotions. Because the golf program as a positive activity has resulted in positive emotions in the stakeholders, it could be argued that participating in the program contributed towards well-being and flourishing of all of the stakeholders.

4.2.2 Engagement

Engagement is referred as the ‘psychological state of complete immersion, absorption, and focus on a particular task or activity, often referred to as flow’ (Asebedo and Seay, 2015, p.163). Younkins (2010) posits that for an individual to flourish it is important that she/he is involved in meaningful engagement and becomes completely absorbed into activities pertaining to different life domains such as work, leisure and so on. Csikszentmihalyi and Lefevre (1989) predict that for an individual participating in an activity, positive
experiences are possible only when the individual recognises that the environment provides opportunities that are befitting to the person’s skill set and capabilities. When an individual is exposed to challenges, it encourages the person to achieve optimal experience, that is, there is increased possibility for the individual to learn new skills and grow in self-confidence. This process of optimal experience is called flow (Jackman, Swann and Crust, 2016; Csikszentmihalyi and Lefevre, 1989; Csikszentmihalyi, 1975). The main aspects of engagement elicited from the lived experiences of the stakeholders who participated in the golf program were attention, flow and practice, contribution, commitment and appreciation. Various components of engagement emerged during the interview with the participants while discussing the instructions given to them by the golf coach, their involvement in the program, and the effort taken to develop golf skills after the program.

When asked to describe what he remembered from the instructions given by the golf coach, Alex replied,

"He (coach) said keep an eye on the ball. Focus don’t look at the club. Just focus on the ball. Focus like that, then you swing then the ball will go further" (Alex, Participant).

As noted earlier, Alex is very much interested in the long game. Consistent with his previous expression of interest in the long swing, the present quote also captures the basics of long swing and the idea of hitting the ball further. Attention to details is synchronous to the ability of the participants to engage meaningfully. Prince expressed that the coach gave instructions “like don’t move after you hit the ball up and turn your left foot and so” (Prince, Participant), and evidence of engagement emerged from his comment “like end of the handle should be pointing at you and for chipping or something should be pointing away from you” (Prince, Participant). Prince must be commended for his interest and attention to details other than long shots. In this instance, he remembered subtle details of instructions for putting and chipping. The researcher has noted in his observation,

“Alex told me that his ball is jumping off as it reaches the hole. He noticed the extra uncut grass surrounding the putting hole” (Week 7, Field Notes) (see Appendix U for picture the grass around the hole)

A very promising sign of paying attention to details proved how serious participants were during the training session. Evidence of engagement emerged in the form of flow. When asked about the timing of the program, Prince reported, “It was long but it felt short. I don’t
know. It felt short” (Prince, Participant). Flow generally means the extent to which the participant is absorbed into the particular activity. The statement of Prince reveals how much he has enjoyed the program, and in the event of that, he got completely absorbed in golf activities. It also explains that an hour of a session felt long initially. However, once he acquired an interest in golf, he did not notice how fast the time went. Alex also made a similar observation, when he said: “Ya time goes fast” (Alex, Participant). Reiteration of flow as involvement emerged in the interviews conducted with the volunteers. Stephanie described the involvement of Isaac as, “He doesn’t even realise he is playing a sport. They are so into practising how to hit the ball” (Stephanie, Volunteer). Her words thoughtfully capture how much the participants were captivated and consumed with golf. While discussing how participants got very interested in golf, Kennedy, one of the volunteers, said:

“If they learn to crack the skill and if they see there is a way into it, in a snap, they will begin to like it. You know what the program has showed to everybody involved is that, kids with autism can play sport once they are comfortable” (Kennedy, Volunteer).

An important aspect that the program showed is that participants with autism are capable of learning and performing the skills required for golf. More importantly, to help the participants learn skills and achieve flow is pursuant with how comfortable and welcoming they feel within the program environment. One aspect of the program that made the participants comfortable was how welcoming the volunteers and coach were when the participants came in for each session. The researcher noted in his field observation, “When the participants came into the school gym, volunteers and coach welcomed them calling the participants by their name” (Week 9, Field Notes). The golf club was also very welcoming and accommodating. The golf club provided the participants, their parents, volunteers and the coach with refreshments before and after the session. The participants were very comfortable and they felt welcomed in the golf club. It was observed by the researcher that,

“The golf club maintained the welcoming environment. This week, though the club looked like it was booked for societies, till, we were permitted to use the practice green and putting green. Before the start of the day and after the session, the members of the societies watched the children practising shots or children hanging out in the clubhouse. I only saw curiosity in the face of the on looking society members. One of the society members provided brownies for the children today (Week 8, Field Notes).
The researcher also noted during the field observation that,

“In the clubhouse, refreshments were served for everyone who participated in the golf program… Children along with their parents enjoyed the refreshment time and the kids were very comfortable hanging out spending time on the couch” (Week 8, Field Notes) (see Appendix U for picture of one of the participants relaxing in the clubhouse).

The evidence of interest to engage in golf is elicited through the efforts and understanding of participants to pursue golf. When the participants were asked whether they wanted to continue golf, all of them along with their parent/s expressed their desire to continue golf in the future. For the question of where they would play if they wanted to continue, each replied as follows,

“Maybe a pitch and putt or something” (Prince Mother, Parent).

“If I can, I would like to play in the Aquadome maybe” (Isaac, Participant).

“Ya, I would love to continue... in the driving range...” (Alex, Participant).

From the interviews conducted with the volunteers, it was apparent that the volunteers also felt that the participants would continue to play golf. Austin reported, “I believe some of the children will pick up golf forever you know” (Austin, Volunteer), and Kennedy who has experience in coaching described, “Prince is a very good golfer. For him and a few others, golf is an individual sport, where they can succeed” (Kennedy, Volunteer). During the observation, the researcher could see the development in the participants. Not just their communication and listening skills, but also their golf skills (see Appendix U for pictures of how one participant developed his posture and balance) have improved so much that they started counting their shots and made efforts to reach the target in fewer shots.

The volunteers in their interviews elicited engagement when they discussed their contribution, commitment, and appreciation. While reporting contribution, Austin said that:

“You guys told me I worked well with Neal. Because you guys thought I was working very well with him and I thought that was one of my biggest contribution” (Austin, Volunteer).

Neal is a well-built person, and while talking about individual participants, Kennedy stated, “Neal strikes me as a hyperactive, very difficult to control and a strong man” (Kennedy, Volunteer). The fact that Austin was able to work with Neal is definitely a great
contribution to the program. His experience of working with participants who are severe on the spectrum became very useful. General observation of the researcher indicated that Austin himself has "developed very much in his way of interacting with the participants over the course of the program" (see Appendix U for picture difference in Austin helping a participant).

Discussion of best practices came up during the interview; it was an encouragement for the researcher to see volunteers could recognise that the research was ethically sound, with built in practices to support the participants and volunteers in whatever may arise during the programme. Austin while reporting thoughts about the post-session meetings stated,

"You talk about any issue you think that the children might have, which is not only good for the volunteering work itself but also it's good for the children; that there is a group of people who are actually concerned for their wellbeing whenever there is an issue" (Austin, Volunteer).

His level of engagement in the program could be easily understood from the comment, and he could see that the program was not run for the sake of testing alone. Any intervention must be focused on the constructive learning and development of the participants. Stephanie echoed a similar sentiment when she said,

"That's the other part of the program I liked about that they have a hobby out of it. It's not just being analysed and they are being guinea pigs of a program you know. They actually are learning something, very important" (Stephanie, Volunteer).

From the researcher's point of view, it gave a great deal of satisfaction and assertion that there were no contrasting views about the way the research was being conducted, ensuring good ethical practice in all aspect. It also ascertains that the volunteers did not simply participate but they have given their contribution keeping in mind the best interest of the participants in the program.

The evidence for engagement emerged in the discussion where the golf coach reported,

"Actually most people with disability wouldn't go into golf...sometimes they are so embarrassed and become so mad or become depressed and they wouldn't get involved in golf, because it means meeting and being with people and so on and so forth" (Coach, Pre-Interview).

In saying, people with disability are not desirous of meeting and being with new people, the coach expresses his profound understanding of the experiences and the emotions
endured by an individual with a disability. Neal’s mother provided a similar interpretation for why Neal shows negative acceptance towards golf. She further explained,

“The negativity is from having to deal with people and having to interact with other people. He is intolerant of it; he really didn’t want to stand for pictures. He wants to take the certificate and go” (Neal Mother, Parent).

Initially, the actions of Neal showed he did not like the program. The researcher observed, “Neal did not want to take part in golf and he tried to run. His mother went and persuaded him” (Week 1, Field Notes). Neal’s mother in her interview mentioned, “Neal apologised for his behaviour afterwards. When he first ran out he said because he was scared” (Neal Mother, Parent).

During his pre-interview, the coach spoke about the importance of persistence and patience as an imperative characteristic in golf. He reported,

“As I always say, golf is a wonderful parameter telling you what a person will be like under pressure. A person who is very good under pressure or very good when you want them – he will make a pretty good golfer” (Coach, Pre-Interview).

An important aspect of the comment to be noted is that the coach is expressing his concern over the ability of the children with autism to understand the rules in golf. Kennedy alluded to a similar reference to the ability of the participants when he said,

“Initially I thought teaching these children those techniques would be beyond them, but obviously it isn’t. It added to my admiration that they are able to grasp some level of details” (Kennedy, Volunteer).

Kennedy raised the question and answered the doubt himself. However, Stephanie captured a more relevant depiction of what the participants have achieved in terms of patience and persistence in her comment:

“Some of them were very determined not to move on until they get the exact shot. Whether it took ten times or 15 times, they did it. They didn’t complain or throw their club down and walk away. Personally, I would have. But they kept at it...” (Stephanie, Volunteer).

With considerable experience of coaching golf for a long time, the coach reported the following about the program. He said,

“...what we would teach them (participants) is going to be the same as the normal child. Maybe less information is more” (Coach, Pre-Interview).
He commented the following,

"Lovely, there is no difference. As we saw in the video, they may be scrambled now and then. But there is no difference" (Coach, Pre-Interview).

When reporting about his perception of the difference between the participants with autism and their typically developing counterparts, the first comment captures his understanding of the communication strategy he is going to use when working with the participants with autism. However, the second comment shows either his over confidence or his ignorance. An ideal interpretation must be the lack of experience working with participants with autism. After working with the participants, the coach expressed the following three statements as lived experience,

"Children you have to work in smaller sound bites" (Coach, Post-Interview).

"If they understood it correctly and practised correctly they may still be under performing. It will take certainly a couple of weeks for it to suddenly come back and to be perfect. Where that may take a whole 12 weeks for a child with autism depending on how willing they are to learn" (Coach, Post-Interview).

"And at the end of it all, they could come back and suddenly forget it all. I noticed that last week in the golf course especially in group one. Today they were better, but last week at the golf course, it was like they hadn't played at all. Today they were flying and that is the nature of the beast with autism I am assuming" (Coach, Post-Interview).

The first statement reinforces his previous strategy for how to communicate with the participants with autism. The other two reported statements profoundly explicate the change in the perception and provide clear evidence beyond any reasonable doubt that there is a significant difference between coaching the participants with autism and their typically developing counterparts. In describing the possible adjustments that the coach was expecting while implementing the program for participants with autism, the coach reported the following in the pre-interview,

"what level of information they (participants) require is determined, by the individual coach. You can have set patterns and you can have set things. But if those kids are not going with that at that time, then you will have to deal with it. If children are not with it, then you got to adapt" (Coach, Pre-Interview).

The comment depicts his years of experience and strategy based on a pragmatic approach. This prediction came true a few times, and one such instance that was reported by
volunteers and parents happened in the golf course. For one session, Ryder, one of the participants, travelled to the golf course in his friend’s mom’s car. Ryder smelled smoke in his friend’s car and he became completely disorientated. He became agitated and he did not want to play, but instead wanted to go home. The following comment tells what the researcher observed,

“Then I took him to Isaac’s mum and told her that he is not interested. So she and Jenny took him for a small walk, but Jenny shifted his attention away from the car incident to what he enjoys and convinced him to play the small shots. As they returned to get putter from the putting green, Ryder decided that he wanted to play the long shots. He then became totally involved in the shots and started enjoying” (Week 8, Field Observation) (see Appendix U for a picture of Ryder before and after Jenny shifted his attention).

Isaac’s mother mentioned the incident in her interview, saying,

“That day when I brought the other boy, Ryder. He just wanted to go home. It was the other lady who came over and said something to him. She knew to change the subject eventually. So whatever she said, his attention has changed from I want to go home, I want to go home” (Isaac Mother, Parent).

One of the volunteers, Stephanie, referring to the incident expressed that,

“I guess it was an eye opener, because usually he will be very interested. But that incident threw him off guard. You know kind of ruined his day” (Stephanie, Volunteer).

Issues pertaining to attention, poor attention or being over sensitive are considered as a common difficulty experienced by individuals with autism (Kinnealey et al., 2012). They further state that ‘attention and engagement are interchangeable terms that are associated with successful learning’ and posit attention difficulties as an important element in autism symptomology (Kinnealey et al., 2012, p.512). The impact of Ryder’s experience in the car made him sustain his attention to the stimuli that caused disorientation, and as Stephanie pointed, could have ruined his day. Patten and Watson (2011) refer to over focus of details from one stimuli as sustained attention and argue that the difficulties individuals with autism experience in sustained attention may be due to the inability of the individual to disengage from one stimulus and then shift and reorient to a new stimulus. When Jenny shifted his attention elsewhere, Ryder became completely involved and started enjoying the game. With the help of Jenny, Ryder was able to shift attention from the stimuli that disoriented him to golf, which made him feel happy and enjoy the day in the golf club.
Ryder’s example was discussed to substantiate how adaptations were made to include and accommodate a participant who was thrown off guard by a simple thing as smoke in the car. Further, it is evident that when the attention is shifted it leads to improved engagement, which is consistent with the findings of Kinnealey, et al. (2012).

Jackman, Swann and Crust (2016, p.57) argue that for engagement or flow to occur, three proximal conditions are imperative, namely, ‘challenge-skills balance (balance between high perceived demands and skills), clear goals (know exactly what to do during the task), and unambiguous feedback (instant feedback about performance progression)’ (Everett and Raven, 2015; Csikszentmihalyi, 2014). It could be argued that the present program provided the participants with autism, golf coach, and volunteers with those three dimensions, and hence the stakeholders have expressed their experience of flow from their lived experiences of participating in the golf program. In spite of having a facilitative and structural arrangement that encourages flow, experiencing flow happens at a very personal and subjective level. A very salient aspect of flow reiterated by Kun, Balogh and Krasz (2017, p.57) is ‘when time seems to stand still and one loses one’s sense of self, and concentrates intensely on the present’. This explanation is consistent with the experiences of the stakeholders, especially the participants. Since the stakeholders of the golf program have experienced flow, it could be argued that the golf program has helped the stakeholders to flourish.

4.2.3 Relationships

Positive relationships are the pursuit of positive, healthy, and fulfilling relationships with others (Asebedo and Seay, 2015, p.163). According to Croom (2015), social relationships are considered as a salient constituent of psychological well-being (Lambert D’raven and Pasha-Zaidi, 2016), and it is an important element that gives meaning to life. Even though ASD is a lifelong disorder, Tobin, Drager and Richardson (2014) state that toning down or improvement in the core and associated symptoms documented over a period of time may be seen as a typical trait of ASD in adulthood. They further argue that the improvement may be detected in communication skills, however ‘The social use of language is generally more resistant to change, and interpreting social information and participating in reciprocal social interaction often continue to be areas of significant difficulty’ (Tobin, Drager and Richardson, 2014, p.215). A general notion is that individuals with autism do not prefer social interaction and relationships. Stokes, Newton and Kaur (2007) dismiss the notion and argue that individuals with autism are willing to form relationships with friends and
relatives. However, the general lack of interest in social interaction and initiation of communication is due to their difficulties in social communicational skills, not because of their lack of desire for relationships (Spain and Blainey, 2015). The component of relationship is delineated through the lived experiences of the participants, their parents, volunteers and the golf coach. The emergence of friendship, the supportive role of family and their role in enunciating the relationship are discussed with the supportive quotes and comments from different stakeholders. The evidence of relationships emerged during the discussions pertaining to support, relations and aspects of friendship.

The evidence of relationships, both positive and negative, emerged while discussing aspects of the relationship with their siblings. The general idea that the parents shared pertaining to siblings was that an elder brother was becoming the role model for the younger siblings. Before looking into the concept of role model, it is prudent to capture what the participants said about their siblings. Isaac described, “Ya I have talked about it (golf) once or twice to my brother” (Isaac, Participant), and he shared during the interview how his brother encouraged him by saying, “Isaac - golf is the one of the easiest sports in the world (jovially) and I trusted him on that” (Isaac, Participant), even though the reliability of the statement, golf being the easiest sport in the world, is disputable. What constituent deserves the pertinent attention is the fact that Isaac trusted his brother and joined golf. Prince stated that “I don’t, I really don’t talk with them (siblings)” (Prince, Participant). Prince presented a complete contrasting comment about his relationship with his siblings.

An important component of sibling relationship is looking up to the elder sibling as a role model. While discussing sibling relations, Isaac’s mother reported,

“He (Isaac) absolutely adores his brother. He is very much into fashion. Isaac is now trying to dress the way his brother would dress like skinny jeans and all. He tries to mimic him” (Isaac Mother, Parent).

Alex’s mother also reported a similar comment as well, saying:

“Alex I see he looks to him (brother) and wishes he was more like him. He (brother) is understanding and trying to help Alex now. As he is a teenager, in terms of clothing – he will say take that top off and put something else on and don’t wear those shoes with that” (Alex Mother, Parent).

Good sibling relationships encouraged the participants to be positive and motivated them to pursue something new like golf. Basic sibling rivalry came up while discussing sibling
relationships. The interesting aspect is it became a motivational factor for Prince to try something new on his own and hence he joined golf. He commented, "Maybe with my parents, not with my brother or sister" (Prince, Participant) when he was asked whether he would like to play golf with his family members. His mother described that:

"His brother is doing soccer and he himself is doing golf now. They are doing something that they are not involved in together. Probably if his brother is there, they would be picking among themselves and not learning really. He liked golf and now it is his game" (Prince Mother, Parent).

One very important issue for individuals with autism is making new friends. A promising aspect of the golf program is that new friendships and bonds are formed. Many of the parents stated, as noted in the researchers' field notes, that 'this is the first time the children are meeting outside school' (Week 10, Field Notes). While discussing friends, Alex said: "Oh ya there is a person who goes to my school, his name is Prince" (Alex, Participant). As Prince stated, below, he made a new friend also,

"You wouldn't know Jerry before the program, do you?" (Researcher)
"No, no, I met him at the golf" (Prince, Participant)

An interesting aspect of the answer given by Prince is that he has new friends, Alex and Jerry. Though Alex and Prince went to the same school, they were not friends before golf. However, after coming to golf both acknowledged each other as friends. Prince would not have known Jerry before coming to the golf and now they are friends. Prince’s father mentioned about the conversation when Prince first introduced Jerry to him during the interview, reporting, "Prince said to me, this is Jerry and I was telling him about the X-Box and he is thinking of getting PS4 or something" (Prince Father, Parent). Prince’s mother stated that he has acquired friends through the golf programme. They further stated,

"I suppose in his school he doesn’t want to be hanging around the hall because he finds it hard to find friends and keep friends. But in golf, he thought of everyone as his friend" (Prince Mother, Parent).

Golf became a channel through which participants met new friends outside of school. Both the parents of Alex and Prince stated that their sons are now planning to meet outside school. Alex’s mother reported, "They are planning to meet for pizza or something or go to a cinema or something. They will decide and see how it goes" (Alex Mother, Parent). Stephanie, one of the volunteers, stated, "They (participants) have definitely formed a bond
and they are laughing with each other” (Stephanie, Volunteer). New friendship is a good indicator that the golf program helped participants to foster relationships.

While discussing family support, Alex shared his moment of receiving the programme completion certificate. His mother asked him a question:

“Where did you bring it to and who did you show it to?” (Alex Mother, Parent)

“I showed it to my nan and papa” (Alex, Participant).

“They were very pleased. They had to see and that they couldn’t believe it. Everybody was so excited like and we are going to frame it” (Alex Mother, Parent).

Support of his grandfather and grandmother was evident from the report of his mother about his relationship with his grandparents. She said,

“He got the benefit of having grandparents who are very involved and they are seeing him every day. They interact with him and do activities every day” (Alex Mother, Parent).

She noted that they were fortunate to have family living in the same town. As opposed to Alex, Isaac didn’t seem to be in the privileged position of having family around. The following comment, “My family find it hard to make bonding with him as well. They 100% think he is odd, just odd. They let him do his own thing. He doesn’t really interact with them,” (Isaac Mother, Parent). This captures the reality of how Isaac’s family dealt with him. The comments of Alex’s and Isaac’s mothers captures the importance of family support. Moreover, when the tone and connotation of the comments are prudently looked into, the former presents a positive ideation and the latter reveals a negative depiction.

Evidence of relationship was also apparent from the lived experiences of the volunteers while discussing their interaction with the participants, opportunities created for new friendships and expressing valuable suggestions. Austin reported that the most persuasive element of the program that attracted him to continue volunteering was “the children were great and the other volunteers were great as well. They are very welcoming and nice to everybody” (Austin, Volunteer). The program was designed to create a welcoming environment for participants with autism that would facilitate them to learn golf along with other autism-specific skills. The comment from Austin is a testament that the implementation captured the spirit of the program. One other influential factor about the program shared by Austin is,
“From what I have heard this would be the first time they would be socialising outside the school. That’s just great to see them having a social life as well” (Austin, Volunteer).

A significant factor about the program parents liked the most was the opportunity to socialise outside the school. An initial reservation the researcher noticed was some of the participants went to the same school. However, the following expression from Prince’s mother completely proved the reservation unfounded. She said,

“I suppose he would have been meeting Alex at school. But because of the golf program now the two of them have arranged to go to town and go to the pictures and pizza afterwards. That wouldn’t have happened in the school” (Prince Mother, Parent).

Isaac’s mother elicited a similar sentiment when she reported,

“So it was lovely to meet their friends outside the school. And we were invited to peoples’ houses and we invited them to our house. That was nice like you know” (Isaac Mother, Parent).

Volunteers, as expected, took some time to get used to and understand what it takes to be working with the participants with autism. Stephanie expressed that it.

“probably took a little bit of time for myself and the children to get used to the activity. Now they laugh away with me and they tell me stories” (Stephanie, Volunteer).

The researcher has noted in his observation that “now they (volunteers) have got used to each other and the kids, now the interaction seems organic” (Week 6, Field Notes). It was a great sign to see volunteers and participants interacting very well with each other, and many participants shared about their school, holidays, and hobbies with the volunteers. Austin noticed, “Lots of them (children) had liking to some of the other staff and they keep the focus on the other staff” (Austin Volunteer). When listening to such comments, it creates a feeling that such strategy of staying close to a person whom an individual is comfortable with is the coping mechanism used by almost everyone. Sharing of general traits with others reminded the researcher of the comment, “As far as I am concerned it’s like saying, he is Alex with an autism diagnosis. But it is not who he is” (Alex Mother, Parent). It provides a profound understanding that participants with autism are different only with the diagnosis and that does not determine the personal self of an individual.

The bond within the volunteers strengthened over the period of the program. Stephanie mentioned, “Ya I definitely formed friendships with one or two” (Stephanie, Volunteer).
The program also provided the opportunity for the volunteers to form bonds and friendships. The discussion among the volunteers also suggested that they encouraged and supported each other by valuing the contribution of one another. Austin expressed how he felt valued when he reported,

"One of the people (volunteers) said that because I am volunteering I should go for an award and apply for it. That's good support and encouragement as well you know. It's something that I could achieve now" (Austin, Volunteer).

Evidence for the relationship was noticed from the golf coaches' expressions about the volunteers and while talking about taking children to the golf course. During the pre-interview, he was concerned about the volunteers. He stated,

"Now we have got 8 children and I presume it's going to be 8 helpers and I'm interested to see how that's going to balance out" (Coach, Pre-Interview).

This was a genuine expression of concern because he understood that sourcing volunteers would be a difficult proposition. He made the following statement in the post-interview,

"You got 5 kids in a group and you got 7 helpers. That needs to clarify and it's just they are wasting time. They will get bored and they won't come back. But it's lovely they turned up in the first place. They are lovely people but that needs to be slightly looked at" (Coach, Post-Interview).

Both comments were expressing concern, but the former captures the anxiousness pertaining to the possibility of sourcing volunteers. However, the latter connotes to the presence of more volunteers. He was concerned about the volunteers. He genuinely valued their time and he respected the volunteers. A testament to the coach valuing the presence of volunteers is evident from his statement,

"Here you can spend 10 minutes each in an hour at least. And you can give it more time and that's the beauty of the helper. Once you walk away there is somebody there looking after them" (Coach, Post-Interview).

Even though he used the word helpers, he valued them as active members of the coaching team. One of the volunteers, Mary, said, "I have more understanding and I am learning to give one instruction at a time as in short sentences reiterating what the coach says" (Mary, Volunteer).

On the discussion about the relationship with golf course. The coach said,
"I have seen them how open they are with the general children... They all say yes, but nothing ever happens. It’s terrible and they are very narrow-minded that way. So to take kids with autism on there!" (Coach, Pre-Interview).

He further stated, "I think in Ireland, with its very own traditional ways, do you think we are going to find a golf course to allow these children" (Coach, Pre-Interview). He was very sceptical about finding a golf course that will permit participants with autism. However, in the post-interview, he himself acknowledged, "I certainly think it was a good move to the golf course" (Coach, Post-Interview). In previous sections, ample examples have been discussed pertaining to how much the participants enjoyed playing on the golf course. It became possible just because of the open-minded and noble decisions taken by the Golf Club to permit participants with autism to practise in their club premises.

As established above, the stakeholders of the golf program formed relationships during the golf sessions. Coffey, et al. (2016) state that positive relationship is a fundamental human need, and for substantiating the claim, they quote a study that had three quarter of the world population from 55 countries as a study sample, which revealed the sole common factor of happiness that was expressed was a good relationship. Sipes, et al. (2011) state that the prevalence of difficulties in social skills for individuals with autism adversely influences other aspects of life. For instance, Sipes, et al. (2011, p.146) argues that 'children with ASDs who have social skill problems are less likely to develop peer relationships appropriate for their developmental level which may be exhibited through relationships with younger children or adults or simply a shortage of friendships in general' (Ramdoss, et al., 2012; Sipes, et al., 2011). The golf program has provided the participants with autism with an opportunity to make friendships with peers. The result of current research pertaining to formation of new friendships is consistent with the results of Laugeson, et al. (2014), which showed increased level of social engagement with the peers of their age through self-initiation and peer-reciprocitiy. Further current results on friendship are also consistent with the results of two reviews (Spain and Blainey, 2015; Reichow, Steiner and Volkmar, 2013) conducted on the social skill interventions reported improvement in social functioning and reduced loneliness among individuals with autism.

4.2.4 Meaning
Meaning is the full utilization of one's talents to contribute and belong to something believed to be bigger than one's self (Asebedo and Seay, 2015, p.163). It denotes to the array of components that assist the participants in understanding the bigger picture and
feeling connected to something greater than oneself (Kern et al., 2015) based on their lived experience. Schueller and Seligman (2010, p.254) describe meaning as experiencing life experiences as ‘purposeful, significant, and understandable’. Generally, meaning discusses two aspects, recognising higher or supreme power - religiosity and purpose in life (Lambert D’raven and Pasha-Zaidi, 2016; Coffey, et al., 2016; Asebedo and Seay, 2015). Evidence for meaning emerged when the participants discussed their understanding pertaining to their experiences in the golf program. Lived experiences of meaning is discussed hereunder with appropriate quotes and comments. Understanding about golf and the program is also an indicator for experiencing meaning. Alex expressed that,

“Coach gave instruction on how to swing the club. (Pause) ... Sometimes I try to do it in my own way. But he will want me to do it in a proper way like a real golf professional would do” (Alex, Participant).

A very promising aspect about Alex’s improvement is that he became interested and inquisitive from being uninterested. The thought that the golf coach wanted him to do it the way a golf professional would do also reveals he was appreciative of the process of learning golf. Alex expressed meaning from the way he reported his favourite activity; he said, “I liked when I had to swing and putt. Like gentle swings and long swings, and how to chip the ball into the hole and the long shots” (Alex, Participant). Alex further revealed with his concluding statement that,

“Ya the golf was fun, I had a great time at it and I learnt so much from it. I learnt so much experience from the golf and I hope someday I could become a good golfer” (Alex, Participant).

The program has installed personal ambition within Alex that he may become a good golfer someday. It reveals that Alex has acquired presence of mind for the game in that, as noted before, he realised that he is not playing as the professionals do and in the present statement he admitted the fact that he is just in the beginning stages of learning golf. It also indicates that he admitted the fact that he is not a good golfer today and he wants to work towards a tangible target of becoming a good golfer. Understanding about golf and the program is also an indicator for experiencing meaning. While discussing his experience of playing one to one competition. Isaac said, “James was with us and I played with Ryder ... Ya, I didn’t win. Ryder won I’m pretty sure” (Isaac, Participant). Isaac has difficulties with his short-term memory, so the fact that he remembered Ryder won was great, and it explains that he has understood the rules of golf.
Extensive evidence of meaning emerged from the reports of the volunteers while expressing appreciation for the children and during their description of experiences pertaining to challenges they faced, their preconceptions and the changes in their perception. Austin derived meaning through his enhanced understanding of children with autism in the program. He described that:

“You can see that they are well capable of dealing with anything and they can learn whatever they wanted to as long as they had the kind of push and help that they had” (Austin, Volunteer).

Involvement in the program provided Austin with a special understanding about children with autism. After his time with the children, contrary to the popular notion of children with autism not being able to learn new things, he expressed optimism that the children can do and learn anything with his previous experiences working with children with autism. He cautiously did not provide a generalised grand statement, rather he also added that the children needed the right kind of push and help to achieve greater abilities beyond the popular capability construct for autism. In addition, the volunteers’ understanding of the program elicits components of meaning. Stephanie reported the following about the structure of the golf program. She noted, “Even when they are learning the same routine of shots, but the layout changes every week and it’s an adventure for the kids every morning” (Stephanie, Volunteer). Such a description of the program explicates not only the structure of the program but also her expression of adventure for the kids, capturing the reality she understood from her interaction with the children. A probable explanation for the statement could be that golf appeared as adventurous from all the activities and stories the children shared with her. It also highlights the absence of physical activities in the general lifestyle of children with autism.

Austin expressed the general perception that tantrums and meltdowns are compulsive behaviour traits for individuals with autism. Theoretically, certain behaviours like hand flapping, yelling, screaming, etc. are conceived as coping mechanism activities for preventing sensory overload. According to Austin,

“...they might get upset from nowhere and you have no idea why. I think he might have a reason, but we just don’t understand it. There may be too many people in the room and too much noise in the room. ... It’s only we don’t understand them, but for them, that is everything” (Austin, Volunteer).
Some of the activities perceived as compulsory and involuntary behaviours do not essentially connote to the inability of the children. For Austin, rather it alluded to the inability of the people surrounding the children with autism to understand the meaning behind silence or upset feelings. Components of meaning were also demonstrated when the volunteers discussed their preconceptions about autism and how they changed. Pertaining to preconceptions, Austin said his “impression first was can they do it and they are autistic, so I am not sure they are able for this (golf)” (Austin, Volunteer). Kennedy expressed similar doubts about whether the children can learn golf. He described:

“I was a little bit concerned in my own head about what I am doing here. You don’t know how this is going to work. The first thing that completely stuck me was a complete lack of coordination or as I perceived” (Kennedy, Volunteer).

While Austin and Kennedy had doubts, Stephanie noted:

“To be honest, what would have come to my mind would be screaming, shouting, disorientation, hyper and protect them. I mean it would be hands on and watching over them all the time” (Stephanie, Volunteer).

This is because she thought of such characteristics as being traits of autism in general. She also expressed concerns such as “I didn’t know whether I could handle the situation and I didn’t know whether I have the experience necessary” (Stephanie, Volunteer). While looking at quotes pertaining to preconceptions, male volunteers were concerned about objective components like whether the children were capable of learning and understanding complex golf skills, whereas Stephanie was concerned about subjective components and personal ability.

Among the volunteers, Austin and James expressed their purpose while reporting about the significant personal impact of the program. Austin stated the following,

“I joined the program... to develop my understanding of teaching them (children with autism). I think that may be the path of my career, to be a Montessori teacher for people with intellectual disability. Now I have a keen interest in working with them” (Austin, Volunteer).

James stated in his feedback that he joined his undergraduate Health and Leisure program with the interest of specialising in physical education (PE). The following comment captures his change after participating in the program, “Now I am planning to specialise in Adapted Physical Activity (A.P.A) instead of Physical Education (P.E)” (James,
Volunteer). Involvement in the program has elicited meaning among the volunteers by installing change in their career goals and ambitions.

Evidence of meaning was apparent during the discussion with the coach while describing the program and about golf as an individual sport. In the pre-interview, when asked about the program, the coach stated, "The programme itself from what I have seen is great, introduce them to the game of golf" (Coach, Pre-Interview). The comment represents his overall understanding of the program when seen as it is on paper. However, when asked about the program after the experience of implementing the program, the coach said,

"The program has mostly to do with the golf course, which they have the facilities in the States, golf course and outdoors with the sunshine. We are indoor and no sunshine. It needs to be adapted" (Coach, Post-Interview).

While the first comment deals with the general idea about the program, his second comment encapsulates the intricate nuances of the program and the necessity to adapt the program to the existing conditions prevailing in Ireland. An important element discussed in the pre-interview with the coach about the suitability of golf for children with autism revealed the individualist nature of the sport making it an appropriate sport. The coach expressed,

"Golf involves all individuals; there is no way in golf that you cannot get involved. In a team match or a football match, they could be on the field and not playing. They can hide; they can stick around but never touch the ball" (Coach, Pre-Interview).

He understood that team sports generally do not suit the children in this demography because they will get the opportunity not to be involved though they are still on the ground. This could happen by default or by the choice of their teammates. According to him, sticking around does not impart learning the actual technique of the sport or inculcate interest in the sport. The parents of Prince shared a similar sentiment for why they stopped football coaching. They said,

"...with the football, kids don’t give him the ball. He was like going in and out of the tide and he came to a stage that he was just going into the training and it was just destroying him. So we pulled him out of that" (Prince Mother, Parent).

As the coach said, "Whereas in golf you can’t, it’s just you and you are on your own. They learn to play with themselves, as a partner and as a team as well” (Coach, Pre-Interview). The coach acknowledged that with golf, the children could not pretend to be learning, and
his comments explain the suitability of golf as a physical activity for individuals with autism.

Schueller and Seligman (2010) state that it is often argued in the literature that for an individual to achieve psychological well-being, finding meaning in life is considered as one of the contributing factors. The present research finding on meaning is inconsistent with the results of different research outcomes (Lambert D’raven and Pasha-Zaidi, 2016; Asebedo and Seay, 2015; Schueller and Seligman, 2010) and consistent with Low (2014), where the findings showed the least amount of meaning component. In the research of Lambert D’raven and Pasha-Zaidi (2016), conducted among university students in the United Arab Emirates, they have found that meaning was elicited through religion, moral values and showing gratitude to God.

4.2.5 Achievement

Achievement could be defined as the pursuit of success, mastery, winning, realization of goals, or accomplishment (Asebedo and Seay, 2015, p.163). Coffey, et al. (2016) describe achievement as an enduring and resolute pursuit for reaching expertise or proficiency for one’s own sake. Therefore, Coffey and colleagues conclude that while examining achievement as one of the parameters for determining well-being, it’s working definition should focus on the persevering attitude for accomplishment. Hence, evidence of achievement was derived from the stakeholders’ expression of attitude and what they have actually achieved from the program. The aspects of achievement was not necessarily expressed by the participants but the interviews with the parents and volunteers have captured different components of achievement that emerged as the result of engagement with the golf program.

An important achievement of the golf program that was noticed was the growth in confidence of the participants. Alex mentioned that “I felt happy, I felt proud of myself that I got a certificate” (Alex, Participant) (see Appendix U for a picture of Alex receiving the certificate).

Isaac’s mother expressed while discussing the benefits of the program that:

“Ya, he had a good time at it, that’s fine. Just the fact that he is interacting, having fun and gaining confidence and all this. That’s the most important aspect” (Isaac Mother, Parent).

Prince’s mother reiterated the same sentiment pertaining to confidence as well. She said,
"Eye contact was an issue for Prince, but in golf, he was straighter and taller and more confident in himself definitely... Normally he wouldn't be confident doing anything and he was like flourishing there you know" (Prince Mother, Parent).

Parents were able to witness the change in the participants, that is, their child becoming more confident. The satisfaction and the sense of achievement were very much evident in the face of the parents while expressing their thoughts about confidence. One of the volunteers also noticed Prince’s growing confidence; he said, “I will also remember the confidence that grows in Prince each week as he gets better and better” (Jones, Volunteer).

The parents loved the program, and not just because of the benefits that it imparted on the participants. They have realised that the program has opened opportunities for them to build friendships and it has created space for mutual sharing of information as well. The parents of Prince shared that,

“You get other hints and tips from them that there is horse riding on and we find out information and stuff you know. It’s not seeing how the kids get on, but to see how the parents get on as well you know” (Prince Mother, Parent).

Even though some of the participants went to the same school, their parents revealed that they had not met the other parents. Isaac’s mother expressed that,

“I became friends with Ryder’s mum and other boys’ mum .... These are the people who I never met like, because we don’t have the opportunity in the school. It was lovely to make friends through the program” (Isaac Mother, Parent).

The intensity of the benefits of the program has created very positive impacts for both the children and the parents. Along with the parents, volunteers also witnessed the dramatic change in the participants. Austin opined,

“You can see that they are well capable of dealing with anything and they can learn whatever they wanted to as long as they had the kind of push and help that they had” (Austin, Volunteer).

It was evident from the field observation as well that those participants were learning different techniques. The researcher noted, “Now he (Alex) likes putting and he also understands that he is hitting the ball fast” (Week 6, Field Notes). On another occasion, the researcher noted that,
“Overall, the changes that we see in the children are amazing after coming to the program. Though, we can’t be certain that the change is due to the program. But I strongly believe that it is a considerable part of the explanation” (Week 6, Field Notes).

The observation elicited was confirmed when Kennedy said the following about Neal, “He strikes me as a hyperactive, very difficult to control and strong man, but I noticed over five or six weeks, he became calmer and calmer” (Kennedy, Volunteer). Kennedy, also mentioned, “Dean .... started off almost emotionless and no eye contact.... he went from an almost emotionless to a young fellow who was constantly smiling” (Kennedy, Volunteer) (see Appendix U for picture of change in Dean).

The achievement was realised through how the participants have transformed into people who love golf. The coach mentioned the following pertaining to the development of the participants in the golf program,

“Group 1 had very good rhythm and got with each other very well and developed quickly. But the second group rhythm was broken up all the time. But as the weeks have gone on, the group 1 has reached their optimum performance about week eight, where group two, certainly getting used to each other and suddenly shot up through improving ...and they are also stronger players as well. If you had to take the best players from each group, you will certainly take more out of group two” (Coach, Post-Interview).

Participants have improved in their listening skills as well. Stephanie has mentioned in her comments that, “I could see massive difference and discipline with the children doing the golf. Once they are in, they are tuned into the coach and they are listening, specially doing the warm up everyone is involved” (Stephanie, Volunteer).

While discussing the improvements of the participants, the coach said the following about Alex, “Ok, Alex, good golfer. Short enough attention span. He has improved a lot, putting, chipping, and pitching. He has a good eye for the ball” (Coach, Post-Interview). Kennedy, who has been an active rugby coach for more than two decades, described his learning from the program as what matters the most is the:

“constant repetition and constant showing of what the skill is. So when I am coaching, I have to constantly reinforce what the technique is and let them know the difference between skill and technique” (Kennedy, Volunteer).
The program structure that was designed to address the repetitive element of autism proved to have far more reach than the initial purpose of catering to the participants with autism. The concept of repetition and constant demonstrating as a coaching technique, according to a veteran coach like Kennedy, is applicable to coaching competitive and senior players as well. He did not stop at describing the personal benefit that he acquired from the program. He was also keen to mention,

"These guys (participants) are as good as any adult learner or high handicap golfers in putting. Let us say the better ones. With bit more regular coaching they will be very good" (Kennedy, Volunteer).

It captures the impact the program made on the golf skills of the participants. Components of achievement were also demonstrated when the volunteers discussed their preconceptions about autism and how they changed. Pertaining to preconceptions, Austin said his "impression first was can they do it and they are autistic, so I am not sure they are able for this (golf)" (Austin, Volunteer). Kennedy expressed a similar notion about having doubts whether the participants could learn golf. He stated that:

"I was a little bit concerned in my own head about what I am doing here. You know, how this is going to work. The first thing that completely stuck me was a complete lack of coordination or as I perceived" (Kennedy, Volunteer).

He expressed the lack of motor coordination of the participants as a genuine concern to establish that he "couldn't see how these kids could do this (golf)" (Kennedy, Volunteer). He described the change in his attitude as, "Now I would be far more aware of their abilities rather than their disabilities. Certainly opened my eyes and expanded my horizons I suppose" (Kennedy, Volunteer).

While Kennedy had doubts, Stephanie noted:

"To be honest, what would have come to my mind would be screaming, shouting, disorientation, hyper and protect them. I mean it would be hands on and watching over them all the time" (Stephanie, Volunteer).

This is because she thought such characteristics as traits of autism in general. She also expressed concerns such as, "I didn't know whether I could handle the situation and I didn't know whether I had the experience necessary" (Stephanie, Volunteer). While looking at quotes pertaining to preconceptions, male volunteers were concerned about objective components like whether the participants are capable of learning and
understanding complex golf skills, whereas Stephanie was concerned about subjective components and personal ability. All the volunteers expressed that they moved a long way forward in their perceptions about participants with autism. For Stephanie, she described the change as:

"I guess my perception of autism has changed immensely. As I said earlier, those words of screaming and shouting are gone. Now when I think of autism, I think of the fun the boys have and the funny bits they come up with or you know the enjoyment they have. Ya, it's totally changed after being involved in the program" (Stephanie, Volunteer).

She admitted that she had experienced a total transition in her perceptions about individuals with autism. While describing the change in his perceptions, Kennedy reported,

"How do I feel now? Completely different. Looking from a coaching background, I am flabbergasted at what these kids are able to do. In fairness and to Coach as well, he is a good coach, patience is good. These guys have far greater ability. For me, on day one, I was looking at their disability and later the 'dis' is gone and I am looking at their ability" (Kennedy, Volunteer).

As a student from the Department of Health and Leisure Studies and specialising in Adapted Physical Activity, Stephanie expressed that the impact of the program on the participants was very evident and observable. She described the impact as:

"I could see massive difference and discipline with the children doing the golf. Once they are in, they are tuned into the coach and they are listening. Especially doing the warm up everyone is involved" (Stephanie, Volunteer).

The comment also illustrates the interest the participants have developed towards the physical activity in general. While recounting her lived experience, she recognised the ability of the participants in the program. She said,

"They are well able to learn and they are independent. They are good in golf and they can become anything in life if we put time and patience into them... they are like normal kids more willing to do and learn whatever is the task at hand once they have the correct support with them (Stephanie, Volunteer).

Contrary to her previous description of individuals with autism as disorientated, now she has realised they can achieve anything if time and patience are invested. She pointed out that if something would stop them from being the best they can be, it would not be the lack of their ability to reach their potential, rather it is the unwillingness to understand and invest
the time, patience, and energy in the participants. Kennedy’s statement captures this reality:

“Maybe... as a society, it suits our lives not to know, not to care, and not to want to be involved. It’s the question of breaking down barriers and more barriers to bring down the better” (Kennedy, Volunteer).

The components of achievement were apparent in the words of the coach when he discussed the expected outcome of the program and his personal survival in the golf industry. During the pre-interview, when asked about the expected outcome, the coach said,

“If you get one of the eight to walk away and they are able to go and join a golf club and play golf without too much trouble – you have done well and you have done brilliant” (Coach, Pre-Interview).

As a PGA professional, the expression of a desire to witness the transition of the participants to the golf course was evident. As the next phase of the #GameON Autism™ Golf Program has rolled out already, one big achievement is that eight out of the twelve participants who participated in the programme are continuing golf in the second phase of the programme. It was not a surprise because parents were enquiring about the next phase constantly even by the eighth week of the program. The researcher noted in his observation, “Both Dean and Prince’s parents asked, ‘What’s the plan after December? Are we going to continue the sessions, come January?’” (Week 8, Field Notes).

One other achievement would be that three sessions of the program were conducted in the golf course. Initially during the interview before the program, the coach expressed the following about the general mind-set of Irish golf courses. He said,

“I have seen how open they are with the general children; will put it that way... But to bring these children (regular school children) to golf course or let the golf course allow you to do it in a controlled manner is very difficult. They all (golf courses) say yes, but nothing ever happens. It’s terrible and they are very narrow minded that way” (Coach, Pre-Interview).

However, as noted, three of twelve sessions were conducted in the golf course. The researcher noted the following in his observation regarding the golf course,

“The club made us feel welcomed. Being one of the clubs where rounds can be played all year round. The club giving permission to use their practice facility for
our training shows the open-mindedness in their operation. In the club house, refreshments were served for everyone who participated in the golf program" (Week 7, Field Notes).

The components of achievement are evident from the above description. The results of the current investigation are consistent with the other research findings (Kern et al., 2015; Smith, Ntoumanis and Duda, 2007; Low, 2014). In their recent findings, Lambert D’raven and Pasha-Zaidi (2016) established that achievement could be attained through what they call intrinsic motivators—'pursue tasks that are beyond their intellectual level to cater for individual pride'— and extrinsic motivators — ‘sought to accomplish tasks for satisfying the collective prides’. It could be argued that both intrinsic and extrinsic motivators played their part from the experiences of the stakeholders. Smith, Ntoumanis and Duda (2007) further argue that goal attainment (achievement) is directly proportional to satisfaction, which consecutively can predict psychological well-being. Therefore, it could be stated that achievement attained through participating in the #GameON Autism™ Golf Program is evidence for well-being/flourishing.

4.2.6 Summary
The purpose of the current section was to examine the impact of the #GameON Autism™ Golf Program on the participants with autism, their parents, golf coach, and the volunteers. The analysis of the qualitative data was based on flourishing theory or PERMA model as espoused by Seligman (2011). All of the five components of flourishing were evident from the lived experiences of the stakeholders. The evidence shows the presence of the entire facets of the PERMA model, and as reported by Croom (2015), it indicates the presence of an archetypical cognitive well-being/flourishing.

4.3 Conclusion
The current chapter addressed the objectives of the research. The quantitative data analysed focused on answering the objective of the progress of the participants in their athletic skills, golf skills and social communication skills. Salient outcomes from the data set are that the golf program has improved some elements of athletic skills and golf skills. However, the quantitative data analysis has shown that the program has not imparted statistically significant change in the social communication skills of the participants who participated in the golf program. However, the improvement in the social communication elements was evident from the qualitative descriptions as outlined by the participants, their parents, golf
coach and the volunteers. The qualitative data shows that the program has helped the participants towards experiencing flourishing. The analysis revealed evidence for the entire component of the PERMA model in the lived experiences of the stakeholders. The next chapter, Chapter 5, presents the recommendations, future research direction, and conclusion of the evaluation of the #GameON Autism™ Golf Program.
Chapter 5

Conclusion and Recommendations
Conclusion and Recommendations

5.0 Introduction
In the concluding chapter, the main findings of this study pursuant to the research questions are presented, followed by the conclusion synthesised from the findings of the study. Furthermore, recommendations based on the findings and research experience, and recommendations for future research are also presented.

5.1 Research Insight
The current research study addressed two research questions, and each will be presented along with the main findings pertaining to each of the research questions. The first research question was: Does the #GameON Autism™ Golf Program influence the athletic skills, golf skills and social communication skills of young people with autism? The impact of the program on some of the components of athletic skills (continuous lateral jump and ball throw) and golf skills (scoring, distance control and aiming at the target) of the participants was documented.

The second research question addressed in the research was: Does participating in the #GameON Autism™ Golf Program elicit potential for flourishing among the young people with autism, their parents, golf coach and volunteers? Among the children and the volunteers, the #GameON Autism™ Golf Program has elicited flourishing by emanating all of the aspects of the PERMA theory. Evidence for positive emotions experienced by the participants, their parents, volunteers, and golf coach emerged when expressing feelings like joy, interest, awe, hope, optimism, and amusement. The main aspects of engagement elicited from the lived experiences of the stakeholders who participated in the golf program are attention, flow and practice, contribution, best practices, commitment and appreciation. The evidence of relationship emerged during the discussions pertaining to supportive role of family, relations, and aspects of friendship. Evidence for meaning emerged when the participants discussed their understanding pertaining to their experiences in the golf program and when the volunteers expressed appreciation for the children and during their description of experiences pertaining to challenges they faced, their preconceptions and the changes in their perception. Finally, one participant expressed evidence of achievement when he described how proud he was when he got the certificate.
Achievements as revealed by the parents are the participants growing in confidence, making new friendships and improvement in eye contact.

To summarise, it can be stated that the #GameON Autism™ Golf Program has the potential to make an impact on the autism learning concepts like athletic skills, golf skills and social communication' skills of the participants. Furthermore, the #GameON Autism™ Golf Program has the potential to elicit flourishing amongst the participants, their parents, golf coach and volunteers as a result of participating in the program.

5.2 Recommendations

The recommendations presented are from the overall experiences of the researcher conducting the research and being a part of the current evaluation project. It is highly recommended that:

In the future, the #GameON Autism™ Golf Program should only be conducted as an out of school program. From the evaluation, it was observed that there is a substantial difference in the impact of the program when conducted as an out of school program compared to when conducted as an in school program. There are three reasons for insisting on this particular position. First, the in house school program does not give participants the opportunity and experience of getting ready for the golf program. Therefore, the participants miss the experience of looking forward for the golf day or the drive they take to come to golf course. Second, since the in house school program was scheduled in between their regular school activities, participants were tired or preoccupied with exhaustion due to the previous activities of the day. Third, in school the participants gets distracted in terms of special school programs, exhibitions, and birthday celebrations. Therefore, the suggestion was devised to ensure the participants are able to get the full benefit and experience of the #GameON Autism™ Golf Program.

Even though the program was designed (in the USA) to be conducted in the outdoors, especially on a golf course, the programme was started indoors (due to Irish weather) and then the participants were introduced to the golf course environment gradually. Therefore, it is prudent to start the program indoors, allowing the participants to get used to each other and golf, and then gradually progress to the golf course. It was documented that the program resulted in many positive emotions among the participants in the natural and serene golf course environment.
The program should include only those individuals who are moderate and high functioning on the autism spectrum, (without a dual diagnosis of intellectual disability). The current evaluation revealed that the #GameON Autism™ Golf Program did not make a difference in the children who are non-verbal and low on the autism spectrum, or in other words, it is safe to say that the program in its current form is not suitable for low functioning individuals on the autism spectrum.

The structure of the golf skill assessment should be revised completely with the addition of more in-depth questions and should incorporate ratios from 1 to 10 in the assessment form instead of Yes and No, as providing scale adds to the robustness and will help to capture the degree of progression evident in the golf skills of the participants. The post program assessment of the social/communication skills should be completed either by the golf coach or by the volunteers. Since the parents are not involved in the actual implementation of the program, they may not be completely aware of the actual changes in the participants, as they progress through the weekly programme.

More standardised assessment tools that are already tested for having high face validity and the inter-rater reliability can replace the athletic skill assessment tool used in the programme. Some of the prominent tools that could be considered are the Bruininks-Oseretsky Test of Motor Proficiency – 2\textsuperscript{nd} edition (Wuang et.al. 2010), the Test of Gross Motor Development (Todd and Reid, 2006) and the Motor Performance Test (MOPER) (Pan, 2011).

The program should incorporate a post session refreshment time for the participants and their parents to socialise with each other. The current evaluation implemented the post session refreshment time, and that was well received and appreciated by the parents.

The program should include post-session feedback time for the golf coach, the volunteers and the program organiser. The current evaluation executed the feedback sessions and it immensely helped in terms of the program implementation, and the relationships developed between the coach, team of volunteers, participants and also the parents, who were kept informed regularly of their child’s progress.

5.3 Future Research Direction
To develop the current understanding of the impact of the #GameON Autism™ Golf Program on the individuals with autism and to enumerate the potential the #GameON
Autism™ Golf Program has in imparting human flourishing, the following direction for future research is suggested:

- The current evaluation study can be replicated in more sites in Ireland to understand the consistency of the results observed in each of the sites.
- The current evaluation can be simulated separately with medium functioning and high functioning individuals with autism and ID.
- Replicate the current evaluation study using standardised assessment tools for athletic skills assessment.
- The current evaluation research can be repeated using a different demography of participants, especially individuals with Down syndrome.
- The current evaluation study can be reproduced with a control group to ascertain that impact is solely due to the golf program.
- An expansion of the study to focus more specifically on PERMA applied to the experiences of the families and the volunteers would be a worthwhile endeavour.

5.4 Conclusion

The current evaluation study using an interpretative phenomenological analysis examined the impact of the #GameON Autism™ Golf Program on young people with autism, their parents, golf coach, and volunteers. The research findings have established that the #GameON Autism™ Golf Program has improved some of the components of athletic skills (continuous lateral jump and ball throw) and golf skills (scoring, distance control and aiming at the target) of the participants. Furthermore, the research also established that the #GameON Autism™ Golf Program has the potential to elicit flourishing among the participants involved in the evaluation project. Therefore, the research has established the potential for golf as a therapeutic alternative for individuals with autism in imparting autism specific learning concepts like athletic skills, social communication skills, and achieving human flourishing.
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Bibliography


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Appendices
Appendix A: Social/Communication Assessment

SOCIAL/COMMUNICATION ASSESSMENT:
Ernie Els #GameON Autism™ Golf Program

Social/Communication Assessment:
Participant's Name: ____________________
Date: ____________________
Assessor's Name: ____________________

Please read each item below and rate the degree to which it describes the participant's behavior. If you have not seen the participant perform a particular skill or behavior, circle 1, indicating NEVER. If the participant frequently performs the described skill or behavior, circle 5, indicating FREQUENTLY. If the participant performs this behavior between these 2 extremes, circle 2, 3, or 4 indicating your best estimate of the rate of occurrence of the skill. If you are unable to determine a rating due to not having observed the behavior, circle NA

**Circle only 1 number for each skill.**

1 = Never Performs Skill  
5 = Frequently Performs Skill

<table>
<thead>
<tr>
<th>Communication Skills: Receptive</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participant listens and responds to individual instruction with only 1 reminder/prompt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant listens and responds to group instructions with only 1 reminder/prompt.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Communication Skills: Expressive**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participant asks for help with words, signs, pictures, or gestures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant responds to peer or adult interactions using words, signs, pictures or gestures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant responds to simple questions using words, signs, pictures, or gestures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Social Skills**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participant waits for his/her turn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant shares equipment/materials.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant interacts well with others by keeping personal space.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant demonstrates sportsmanship by cheering on a peer, showing interest/awareness of a peer's turn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>The participant is able to stay calm or be easily calmed when he/she is frustrated (missing a shot, waiting for a turn, accepting when it is time to stay)</td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The participant obtains sensory input or sensory reduction as needed (takes a break as needed, seeks out shade, gets a drink of water)</td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The participant uses a golf club safely</td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motor Skills</strong></td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The participant demonstrates motor coordination (body parts working together, hand-eye coordination, jumping, hopping, throwing, balancing)</td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The participant demonstrates motor planning (seeing it, feeling it, doing it)</td>
<td>1 2 3 4 5 N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ATHLETIC ASSESSMENT:
Ernie Els #GameON Autism™ Golf Program

Athletic Assessment:
Participant's Name: ________________
Date: ________________
Assessor's Name: ________________

RESULTS TABLE

<table>
<thead>
<tr>
<th>TASK</th>
<th>PRE</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Jump</td>
<td>Distance 1: ______</td>
<td>Distance 1: ______</td>
</tr>
<tr>
<td></td>
<td>Distance 2: ______</td>
<td>Distance 2: ______</td>
</tr>
<tr>
<td>Continuous Lateral Jumps</td>
<td># of Jumps ______</td>
<td># of Jumps ______</td>
</tr>
<tr>
<td>Ball Throw</td>
<td>Distance 1: ______</td>
<td>Distance 1: ______</td>
</tr>
<tr>
<td></td>
<td>Distance 2: ______</td>
<td>Distance 2: ______</td>
</tr>
<tr>
<td>Plank/V-Sit</td>
<td>Time: ______</td>
<td>Time: ______</td>
</tr>
</tbody>
</table>

**Long Jump:**
Circle YES or NO
1. Did the participant jump? YES / NO
2. Did the participant jump with 2 feet? YES / NO
3. Did the participant jump and land on 2 feet? YES / NO
4. Did the participant use his/her arms to jump? YES / NO

IF 0-1 YES: **Level 1**
IF 2-3 YES: **Level 2**
IF ALL YES: **Level 3**
Continuous Jumps:
Circle YES or NO
1. Did the participant jump? YES / NO
2. Did the participant jump off 1 foot? YES / NO
3. Did the participant land on 1 foot? YES / NO
4. Did the participant use his/her arms to jump? YES / NO

IF 0-1 YES: Level 1
IF 2-3 YES: Level 2
IF ALL YES: Level 3

Ball Throw:
Circle YES or NO
1. Did the participant throw the ball?
2. Did the participant twist his/her torso to throw?
3. Did the participant use his/her legs or feet to throw?
4. Did the participant step forward with the opposite foot to throw?

IF 0-1 YES: Level 1
IF 2-3 YES: Level 2
IF ALL YES: Level 3

Plank Hold:
Circle YES or NO
1. Did the participant attempt a plank?
2. Was the participant able to hold himself/herself up?
3. Did the participant extend his/her arms?
4. Did the participant keep his/her back flat and in a straight line?

IF 0-1 YES: Level 1
IF 2-3 YES: Level 2
IF ALL YES: Level 3

TAKE THE AVERAGE LEVEL SCORE FOR ALL 4 ASSESSMENTS. THIS AVERAGE IS THE LEVEL THE PARTICIPANT WILL BEGIN THE PROGRAM IN.
PRE- LEVEL: ________  POST- LEVEL: ________
GOLF ASSESSMENT:

Ernie Els #GameON Autism™ Golf Program

Golf Assessment:
Participant’s Name: ____________________
Date: __________________
Assessor’s Name: ____________________

<table>
<thead>
<tr>
<th>TASK</th>
<th>PRE</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRIP</strong></td>
<td>2 hands: YES / NO</td>
<td>2 hands: YES / NO</td>
</tr>
<tr>
<td></td>
<td>2 hands touching: YES / NO</td>
<td>2 hands touching: YES / NO</td>
</tr>
<tr>
<td><strong>SCORING</strong></td>
<td># of PUTTS:</td>
<td># of PUTTS:</td>
</tr>
<tr>
<td><strong>DISTANCE CONTROL</strong></td>
<td>Zone 1 (5 ft.): YES / NO</td>
<td>Zone 1 (5 ft.): YES / NO</td>
</tr>
<tr>
<td></td>
<td>Zone 2 (10 ft.): YES / NO</td>
<td>Zone 2 (10 ft.): YES / NO</td>
</tr>
<tr>
<td><strong>AIMING TO TARGET</strong></td>
<td>Target 1: YES / NO</td>
<td>Target 1: YES / NO</td>
</tr>
<tr>
<td></td>
<td>Target 2: YES / NO</td>
<td>Target 2: YES / NO</td>
</tr>
</tbody>
</table>

**Grip:** The goal is for the participant to have 2 hands on the club, preferably hands close together and touching. However, a 1-handed grip is acceptable if that is what the participant’s ability allows for or if that is what the participant prefers best.

**TASK:** Monitor participant’s grips throughout the course of the session.
Circle YES or NO

1. Did the participant use 1 hand to grip the club? **YES / NO**
2. Did the participant use both hands to grip the club?  **YES / NO**
3. Were both hands touching when gripping the club?  **YES / NO**
4. Did the participant use a reverse handed grip?  **YES / NO**

**Scoring:** The goal is for the participant to understand the basic concept of scoring—to put the ball in the hole in the fewest amount of strokes.

**TASK:** Have participants putt from 10 ft. away and keep their score. Have participants keep track of their own score, and instructors should be keeping track of the participant's scores as well. Circle **YES** or **NO**

1. Did the participant understand the task: putt the ball into the hole?  **YES / NO**
2. Did the participant understand the task: putt the ball into the hole in the fewest amount of strokes?  **YES / NO**
3. Did the participant putt the ball into the hole?  **YES / NO**
4. Did the participant put the ball into the hole without putting?  **YES / NO**
5. Did the participant correctly keep count of his/her score?  **YES / NO**

**Distance Control:** The goal is for the participant to understand the basic variables of distance control: swing length and swing speed.

**TASK:** Create 2 putting stations to test for distance control. The first putt should be 5 ft. long. Using flagging tape, create a square that is 3 x 3 ft. and note if the participant was able to putt their ball and get the ball to stop inside that square (Zone 1). The second putt should be 10 ft. long. Using flagging tape, create a square that is 3 x 3 ft. and note if the participant was able to putt their ball and get the ball to stop inside that square (Zone 2). Circle **YES** or **NO**

1. Did the participant putt the ball inside Zone 1?  **YES / NO**
2. Did the participant putt the ball inside Zone 2?  **YES / NO**
3. Did the participant make a bigger swing to putt the ball inside Zone 2?  **YES / NO**
4. Did the participants swing harder or faster to putt the ball inside Zone 2?  **YES / NO**
Aiming to the Target: The goal is for the participant to understand the basic variables of alignment: club face alignment and direction of body.

TASK: Create 2 chipping stations to test for the participant’s ability to aim to the target. The participant should remain in the same hitting stall. For the first chip, create a target that is in the “right direction,” approximately 5 - 10 yds. away. Using flagging tape, create a boundary around that target that is 5 x 5 ft. Be sure that if the participant was able to chip the ball into that boundary, that you refer to only their aim, not their distance control. For the second chip, create a target that is in the “left direction” approximately 5 - 10 yds. away. Using flagging tape, create a boundary around that target that is 5 x 5 ft. Be sure that if the participant was able to chip the ball into that boundary, that you refer to only their aim, not their distance control. Circle YES or NO

1. Did the participant chip the ball inside the “right direction” boundary? YES / NO
2. Did the participant chip the ball inside the “left direction” boundary? YES / NO
3. Did the participant change the direction of the club face to chip to targets? YES / NO
4. Did the participant change the direction of his/her body to chip to targets? YES / NO
Appendix D: Declaration Form for Researcher, Volunteers and Golf Coaches

<table>
<thead>
<tr>
<th>Personal Details</th>
<th>Name of Researcher/Volunteer/Golf Coach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male □ Female □</td>
</tr>
<tr>
<td>Professional Qualification</td>
<td></td>
</tr>
<tr>
<td>Profession</td>
<td></td>
</tr>
</tbody>
</table>

**Declaration**

I declare that –

- I am Garda vetted (form attached) and have no criminal records in my name;
- I understand that I will be working with children with autism and I have undergone code of ethics and good practice training;
- To ensure quality of the #GameON program implementation, I have undergone training on communicating effectively with children with autism;
- I have attended the autism 101 webinar conducted by Els for Autism Foundation, Florida, U.S.A;
- I have undergone training on implementing the #GameON program and I am aware of the safety precautions and procedures involved in the implementation. I understand that I have to read the safety precautions and procedures myself and read it to participants before every session;
- All the particulars in this form are correct to the best of my knowledge and belief;

Signature __________________________  Date ___________________

**NOTE:** It is unethical to make a false declaration for the purposes of being part of this research.
Appendix E: Letter of Invitation for School Head

Date: ..........................

Dear Headmistress/Headmaster,

I am a student undertaking a Masters (by Research) in the Department of Health and Leisure Studies at the Institute of Technology, Tralee. My research title is: Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation. The programme consists of group lessons with specially designed golf instruction incorporated with autism focused learning concepts as a supplement to existing autism therapies. The concepts taught centre around four key autism-learning concepts: communication skills, regulatory skills, motor skills and social skills. This research aims to show how the golf course can be a therapeutic environment, how the #GameON programme impacts on the individual child, the PGA coach and the family and their recreational opportunities. Given the lifelong nature of the game, this could offer a valuable intervention and recreation opportunity for children and adults with autism. This research is part of a three-site evaluation of the #GameON Autism Golf programme and is the only evaluation outside of the US.

Prior to undertaking the study, I need your agreement/consent to approach and engage with the children with autism from your school to take part in the study. I would appreciate if you would distribute the enclosed flyer for parents. Following parental expression of interest, I will follow with the enclosed information sheets for parents and children, with informed consent forms for the parents and assent forms for the children. With your assistance I hope to recruit 10-12 children with autism between the age group 12 and 17 for the study.

I can assure you that the study will not disrupt the children’s school schedule in any way and any data collected will remain confidential. This study has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee.

My research is supervised by,
Should you have any questions or need any clarifications regarding the research, please feel free to contact my supervisors or me.

Yours Sincerely

(Jerrome Suganthy Selvaraj)
Appendix F: Information leaflet for School Head & Parents/Guardians

Evaluation of the impact of the Ernie Els #GameON Autism™ Golf programme on individuals with autism spectrum disorder, their coaches and families.

Date: ....................

Dear Parent/Guardian,

This research information leaflet contains a detailed description of the #GameON Autism™ Golf Program and the research activities that will be employed in the process of the evaluation of the #GameON Autism™ Golf Program.

#GameON Autism™ Golf Program

The Golf program is a 12 group session initiative, each group session lasts for approximately 60 minutes and consists of different lesson plans that focus on teaching golf with an integrated emphasis on autism learning concepts such as social, communication, regulatory and motor skills (Table 1). The 12 sessions run over a period of six weeks, with two sessions conducted every week (Tuesday and Thursday). The integral feature of the program package characterizes numerous elements of evidence based such as ‘exercise, reinforcements, prompting, visual supports, modelling, video modelling, social narratives, and antecedent-based interventions (like priming, environmental arrangement, choice, and modified/varied instruction). The program is designed to teach golf with a seamlessly incorporated lesson plan that augments self-confidence and self-esteem of an individual with autism in a fun, welcoming and supportive environment.

Methodology
The evaluation will involve conducting some pre & post-programme assessments with your child, as follows:
1) Social & Communication Assessment (completed by teacher, parent or SNA)
2) Athletic Assessment (PGA coaches, researcher & research assistants)
3) Golf Assessment (PGA coaches)

The qualitative assessment will involve post programme interviews with parents, golf coaches and volunteers. The interview with parents will take an hour approximately, and
will be recorded, for later data analysis. The central focus of this investigation is to evaluate the Ernie Els #GameON Autism golf initiative whilst also acting as a catalyst to the ‘inclusivising’ of the golf environment as a recreational space for all.

#GameON Autism™ Golf Program

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Title</th>
<th>Golf Technique</th>
<th>Learning Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week #1</td>
<td>Session #1</td>
<td>Assessment + All basics</td>
<td>✓ Try Every Activity</td>
</tr>
<tr>
<td></td>
<td>Session #2</td>
<td>Small Swings</td>
<td>✓ Make Proper Grip</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Following Directions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Distance Control</td>
</tr>
<tr>
<td>Week #2</td>
<td>Session #3</td>
<td>Big Swings</td>
<td>✓ Keep your cool</td>
</tr>
<tr>
<td></td>
<td>Session #4</td>
<td>The Smallest/Biggest Swings</td>
<td>✓ Getting the Ball to the Air</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Getting Body Parts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Working together</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Aiming at the Target</td>
</tr>
<tr>
<td>Week #3</td>
<td>Session #5</td>
<td>A Smaller/Bigger Swing</td>
<td>✓ Taking Turns and Sharing</td>
</tr>
<tr>
<td></td>
<td>Session #6</td>
<td>Small Swings</td>
<td>✓ Taking Practice Swings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Respond and Asking for Help</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Distance Control</td>
</tr>
<tr>
<td>Week #4</td>
<td>Session #7</td>
<td>Big Swings</td>
<td>✓ Getting Comfortable</td>
</tr>
<tr>
<td></td>
<td>Session #8</td>
<td>The Smallest/Biggest Swings + Assessment</td>
<td>✓ Getting the Ball to the Air</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Seeing, Feeling and Doing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Aiming to the Target</td>
</tr>
<tr>
<td>Week #5</td>
<td>Session #9</td>
<td>All Swings</td>
<td>✓ Working with Others</td>
</tr>
<tr>
<td></td>
<td>Session #10</td>
<td>Small Swings</td>
<td>✓ Taking Practice Swings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Communicating with Coach</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>✓ Distance Control</td>
</tr>
<tr>
<td>Week #6</td>
<td>Session #11</td>
<td>The Smallest/Biggest Swings</td>
<td>✓ Getting the Body in Sync</td>
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<tr>
<td></td>
<td>Session #12</td>
<td>All Swings + Assessment</td>
<td>✓ Aiming at the Target</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Having Fun with Friends</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Putting it all Together</td>
</tr>
</tbody>
</table>

My research is supervised by:
<table>
<thead>
<tr>
<th>Ms. Edel Randles, Lecturer, Department of Health and Leisure, Institute of Technology, Tralee, Co. Kerry</th>
<th>Dr. Jackie Gallagher, Lecturer, Department of Health and Leisure, Institute of Technology, Tralee, Co. Kerry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email: [REDACTED]</td>
<td>Email: [REDACTED]</td>
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<tr>
<td>Phone: [REDACTED]</td>
<td>Phone: [REDACTED]</td>
</tr>
</tbody>
</table>

Should you have any questions or need any clarifications regarding the research, please feel free to contact me or my supervisors.

Yours Sincerely

(Jerrome Suganthy Selvaraj)

Email: [REDACTED]
Phone: [REDACTED]
Appendix G: Consent form (Parents for Children)

Evaluation of the impact of the Ernie Els #GameON Autism™ Golf programme on individuals with autism spectrum disorder, their coaches and families”.

Date: .....................

This informed consent form is for parents of children with autism participating in this research entitled: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”.

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you agree that your child may participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Title of Project: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”

<table>
<thead>
<tr>
<th>Chief Investigator</th>
<th>Ms. Edel Randles, Lecturer, Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Email: [redacted] Phone: [redacted]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Researcher</th>
<th>Mr. Jerrome Suganthy Selvaraj, Masters (by Research) Student, Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Email: [redacted] Phone: [redacted]</td>
</tr>
</tbody>
</table>
You are invited to give permission for your child to participate in a study that evaluates the impact of the Ernie Els #GameON Autism™ Golf program on individuals with autism spectrum disorder, their coaches and families. As a participant in this study, your child will be taking part in the 12-week #GameON Autism™ Golf programme. For a detailed description of the #GameON Autism™ Golf program, please refer to the study information sheet. The program is not a “drop off” service, so it is mandatory that one of the parents/teachers or SNAs should be with the child for every session. All of the participants will take part in three sets of assessments evaluating their progress in social/communication, athletic and golf skills. There will be a pre-test (1st session) and a post-test (12th session) evaluation.

Participation in this study is voluntary, and will take approximately one hour of your and your child’s time during each session. By volunteering for this study, you will learn about your child’s interest in the game of golf and you can convert this into a family recreation opportunity. In addition, you will receive a detailed feedback sheet about the study. There are no financial rewards for participation. You may decline to allow your child to participate in a particular activity that is presented during the study if you so wish. Further, you may decide to withdraw your child from the #GameON Autism™ Golf program and from this study at any time by advising the researcher, and may do so without any penalty. We request that you complete the enclosed PAR Q Children’s Checklist, prior to your child’s engagement in the programme.

All information we generate pertaining to your child is considered completely confidential; the name of your child will not be included or in any other way associated, with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written reports arising from this research. Data collected during this study will be retained indefinitely, in a locked office and locked filing cabinet, to which only researchers associated with this study have access. There are no known or anticipated risks associated to participation in this study.

I would like to assure you that this study has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee. However, the final decision about
participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact the Chair of the either the Clinical Research Ethics Committee of the Cork Teaching Hospitals or The Institute of Technology Tralee Research Ethics Committee.

| The Chair, Clinical Research Ethics Committee of the Cork Teaching Hospitals, Lancaster Hall, 6 Little Hanover Street, Cork. Co. Cork. |

Thank you for giving consent for your child to participate in this research project.

Part II: Certificate of Consent

I agree to give permission for my child (.................................................................) to participate in the study titled “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation” being conducted by Ms. Edel Randles (Chief Investigator) and Mr. Jerrome Suganthy Selvaraj (Student Researcher) of the Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry. I agree to complete the PAR Q Children’s Checklist, prior to my child’s engagement in physical activity. I have made this decision based on the information I have read in the ‘Information leaflet and Information Letter’ and have had the opportunity to receive any additional details I required about the study. I declare that my child is medically capable to take part in #GameON Autism™ Golf program and I am aware that a parent, teacher or SNA should stay with the child for every session.

I give consent for my child to appear in any photographs that may be taken during the programme. I also give consent for the researcher to record (audio) my child for collecting data for this research study.

I understand that I may withdraw this consent at any time by telling the researcher without penalty. I also understand that this project has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology, Tralee - Co. Kerry.
Technology Tralee Research Ethics Committee, and that I may contact this office if I have any concerns or comments resulting from my involvement in the study.

Participant's Name *(please print)*

Participant's Signature __________________________ Date __________

Student Researcher's Signature __________________________ Date __________

Researcher's Title __________________________

Department __________________________

Chief Investigator's Signature __________________________ Date __________

Faculty Advisor's Title __________________________

Department __________________________
Hi! I am Jerrome

I am a trained Social Worker. Now I am studying in a College.

I Love playing sports and teaching new activities to children

My Favourite sports are Cricket and Golf

Do you Play any of these Sport?
Do you want to learn how to Play Golf?

We can teach you how to Play Golf!

If you join our golf training, you can bring either you mom, dad or guardian with you. Your parents can help you in training.
I am doing research on how children like you enjoy learning golf. I am planning to write a story about how you enjoyed learning golf.

Some of your school friends will also be coming for the training with their parents. It will be a fun time.
For writing your story, I need to ask a few questions about how you enjoyed the golf training.

When I talk to you about your experiences, your Mom/ Dad or Teacher will be with you. If you do not feel like talking to me, I can come back some other day.
I want to use a tape recorder, it will help me to write the story about you correctly. Is it ok with you if I use a tape recorder?

I will share your story with other children to encourage them to learn golf. I will also share your story in a magazine called a Journal. I will not include your name.
Your story might help other children to learn golf. If you have any question, don’t hesitate to ask your mom, dad or me.

THANK YOU
VERY MUCH

My name is ......................................, I would like to share my story with Jerrome. I understand that he will record our conversation so that he can write my story.

I am happy to let Jerrome audio tape me 😊 or 😊

I would like to draw some pictures for Jerrome and let him use my photographs taken during golf training 😊 or 😊

I understand that Jerrome will share my story with lots of other people 😊 or 😊

I understand that if I do not want to talk to Jerrome, I can ask him to leave 😊 or 😊

Signature ...................................... Date: ..........................
Appendix I: Information Leaflet and Informed Consent (Parents)

Evaluation of the impact of the Ernie Els #GameON Autism™ Golf programme on individuals with autism spectrum disorder, their coaches and families”.

Date: .....................

This informed consent form is for parents participating in this research entitled: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”.

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you agree participate in this research)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Title of Project: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”

<table>
<thead>
<tr>
<th>Chief Investigator</th>
<th>Ms.Edel Randles,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lecturer,</td>
</tr>
<tr>
<td></td>
<td>Department of Health and Leisure,</td>
</tr>
<tr>
<td></td>
<td>Institute of Technology, Tralee - Co. Kerry.</td>
</tr>
<tr>
<td>Email</td>
<td>[redacted]</td>
</tr>
<tr>
<td>Phone</td>
<td>[redacted]</td>
</tr>
</tbody>
</table>

| Student Researcher | Mr.Jerrome Suganthy Selvaraj, |
|--------------------| Masters (by Research) Student, |
|                    | Department of Health and Leisure, |
|                    | Institute of Technology, Tralee - Co. Kerry. |
| Email              | [redacted]     |
| Phone              | [redacted]     |
You are invited to participate in a study that evaluates the impact of the Ernie Els #GameON Autism™ Golf program on individuals with autism spectrum disorder, their coaches and families. For a detailed description of the #GameON Autism™ Golf program, please refer the study information leaflet. The program is not a drop in service, so it is mandatory that a parent/teacher or SNA will be with the child for every session.

Participation in this study is voluntary, and will take approximately one hour of your and your child’s time during each session. By volunteering for this study, you will be interviewed for approximately an hour, about your child’s experience in the #GameON Autism™ Golf program. Furthermore, we will discuss about how your child’s participation in the #GameON Autism™ Golf program has influenced your family. In addition, you will receive a detailed feedback sheet about the study. There are no financial benefits associated with participation. You may decline to answer any questions that is presented during the study if you so wish. Further, you may decide to withdraw from this study at any time by advising the researcher, and may do so without any penalty.

All information we generate pertaining to you and your family experiences are considered completely confidential; your name will not be included or in any other way associated, with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written reports of this research. Data collected during this study will be stored on a password safe computer and in a locked office and locked filing cabinet to which only researchers associated with this study have access. The data will be destroyed after a period of three years from the date of final document submission.

I would like to assure you that this study has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact the Chair of the either the Clinical Research Ethics Committee of the Cork Teaching Hospitals or The Institute of Technology Tralee Research Ethics Committee.
| The Chair, |
|-----------------|------------------|
| The Institute of Technology Tralee |
| Research Ethics Committee, |
| Development Office, |
| Institute of Technology, Tralee. |
| Co. Kerry. |

| The Chair, |
|-----------------|------------------|
| Clinical Research Ethics Committee of the Cork |
| Teaching Hospitals, |
| Lancaster Hall, |
| 6 Little Hanover Street, |
| Cork. |
| Co. Cork. |

Thank you for giving consent to participate in this research project.

---

**Part II: Certificate of Consent**

I (.................................................................) agree to participate in the study titled “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation” being conducted by Ms. Edel Randles (Chief Investigator) and Mr.Jerrome Suganthy Selvaraj (Student Researcher) of the Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry. I have made this decision based on the information I have read in the ‘Research Information sheet and Information leaflet’ and have had the opportunity to receive any additional details I wanted about the study. I am aware that a parent should stay with the child for every session.

I give consent to appear in possible photographs that may be taken, during interview or while being with my child in the #GameON Autism™ Programme. I also give consent for the researcher to record (audio) me for collecting data for this research study.

I understand that I may withdraw this consent at any time by telling the researcher without penalty.I also understand that this project has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee, and that I may contact this office if I have any concerns or comments resulting from my involvement in the study.
Appendix J: Golf Coach Consent Form

Evaluation of the impact of the Ernie Els #GameON Autism™ Golf programme on individuals with autism spectrum disorder, their coaches and families".

Date: ....................

This informed consent form is for the golf coaches participating in this research entitled: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”.

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you agree to participate in this research)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Title of Project: “Evaluation of the Ernie Els #GameON Autism™ Programme: A Phenomenological Investigation”

<table>
<thead>
<tr>
<th>Chief Investigator</th>
<th>Ms.Edel Randles, Lecturer, Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry.</th>
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<td>Phone:</td>
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<table>
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<tr>
<th>Student Researcher</th>
<th>Mr.Jerrome Suganthy Selvaraj, Masters (by Research) Student, Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry.</th>
</tr>
</thead>
<tbody>
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<td>Email:</td>
<td>[REDACTED]</td>
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<tr>
<td>Phone:</td>
<td>[REDACTED]</td>
</tr>
</tbody>
</table>
You are invited to participate in a study that evaluates the impact of the Ernie Els #GameON Autism™ Golf program on individuals with autism spectrum disorder, their coaches and families. As a participant and as a golf coach, you will be taking part in the 6-week #GameON Autism™ Golf programme. For a detailed description of the #GameON Autism™ Golf program, please refer the study Information leaflet. You will have to evaluate the children for three sets of assessments appraising their abilities in athletic and golf skills. There will be a pre-test (1st session) and a post-test (12th session) evaluation.

Participation in this study is voluntary, and will take approximately one hour of your time to coach the children during each session. By volunteering for this study, you will be interviewed for approximately an hour, about your experience of being part of the #GameON Autism™ Golf program. Furthermore, we will discuss impact the #GameON Autism™ Golf program had towards your perception (before and after participation) about children with autism. In addition, you will receive a detailed feedback sheet about the study. There are no monetary benefits for participation. You may decline to answer any questions that is presented during the study if you so wish. Further, you may decide to withdraw from this study at any time by advising the researcher, and may do so without any penalty.

All information we generate pertaining to you is considered completely confidential; your name will not be included or in any other way associated, with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written reports of this research. Data collected during this study will be stored on a password safe computer in a locked office and locked filing cabinet to which only researchers associated with this study have access. The data will be destroyed after a period of three years from the date of final document submission.

I would like to assure you that this study has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact the Chair of the either the Clinical Research Ethics Committee of the Cork Teaching Hospitals or The Institute of Technology Tralee Research Ethics Committee.
Thank you for giving consent to participate in this research project.

Part II: Certificate of Consent

I (.................................................................) agree to participate in the study titled “Evaluation of the Ernie Els #GameON Autism™ Golf Programme: A Phenomenological Investigation” being conducted by Ms. Edel Randles (Chief Investigator) and Mr. Jerrome Suganthy Selvaraj (Student Researcher) of the Department of Health and Leisure, Institute of Technology, Tralee - Co. Kerry. I have made this decision based on the information I have read in the ‘Research Information sheet and Information Leaflet’ and have had the opportunity to receive any additional details I wanted about the study. I am aware that as a golf coach, I will have to attend all 12 sessions and I am expected to do pre-test (1st session) and post-test (12th session) evaluations of the children for two sets of assessments, appraising their abilities in athletic and golf skill progression. I also agree to take part in a post interview following each programme.

I give consent to appear in possible photographs during the interview or while with children in the #GameON Autism™ Programme. I also give consent for the researcher to record (audio) me for collecting data for this research study.
I understand that I may withdraw this consent at any time by telling the researcher without penalty. I also understand that this project has been reviewed and approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals and The Institute of Technology Tralee Research Ethics Committee, and that I may contact this office if I have any concerns or comments resulting from my involvement in the study.

Participant’s Name (please print) ________________________________

Participant’s Signature ________________________________ Date ____________

Student Researcher’s Signature ________________________________ Date ____________

Researcher’s Title ________________________________

Department ________________________________

Chief Investigator’s Signature ________________________________ Date ____________

Faculty Advisor’s Title ________________________________

Department ________________________________
Appendix K: PAR-Q Participant Checklist
Department of Health and Leisure
Institute of Technology – Tralee.
(Completed by a Parent/Guardian of Child before taking part in #GameON Autism\textsuperscript{TM} Golf Program)

NAME OF CHILD..............................................................................................

CHILD DATE OF BIRTH ..............................................  CHILD'S AGE:..............

As your child is to be a participant in #GameON Autism\textsuperscript{TM} Golf project, would you please complete the following physical activity readiness questionnaire for your child.

Has the test procedure(s) that your child will participate in been fully explained to you? – Yes/No (Tick)

Any information contained herein will be treated as confidential

<table>
<thead>
<tr>
<th>Question</th>
<th>Please tick appropriate box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has your doctor ever said that your child has a heart condition and that your child should only do physical activity recommended by a doctor?</td>
<td>☐ YES ☐ NO</td>
</tr>
<tr>
<td>Does your child ever experience chest pain during physical activity?</td>
<td>☐ YES ☐ NO</td>
</tr>
<tr>
<td>Does your child ever lose balance because of dizziness or do they ever lose consciousness?</td>
<td>☐ YES ☐ NO</td>
</tr>
<tr>
<td>Does your child have a bone or joint problem that could be made worse by a change in their physical activity participation?</td>
<td>☐ YES ☐ NO</td>
</tr>
<tr>
<td>Does your child have uncontrolled asthma (i.e. asthma that is not easily controlled by an inhaler)?</td>
<td>☐ YES ☐ NO</td>
</tr>
<tr>
<td>Is your doctor currently prescribing any medication for your child’s blood pressure or a heart condition?</td>
<td>☐ YES ☐ NO</td>
</tr>
</tbody>
</table>
Do you know of any other reasons why your child should not undergo physical activity? This might include diabetes, a recent injury, or serious illness. □ YES □ NO

If you have answered NO to all questions in the table then you can be reasonably sure that your child can take part in the physical activity requirement of this project.

I .................................................. declare that the above information is correct at the time of completing this questionnaire on date …../……/…….

Please note: If your child’s health changes so that you can answer YES to any of the above questions notify the investigators and consult with your doctor regarding the level of physical activity that your child can participate.

__________________________________________________________________________

If you answered YES to one or more questions:

Talk to your doctor in person discussing with him/her those questions you answered yes.

Ask your doctor if your child is able to participate in the physical activity requirements of the project.

Doctor’s Name.................................................. Date ............................................

Doctor’s Signature ..............................................

Student Researcher’s Signature ____________________________ Date ________________

Researcher’s Title ______________________________________

Department ________________________________

Chief Investigator’s Signature ____________________________ Date ________________

Faculty Advisor’s Title _________________________________

Department ____________________________
Appendix: L (Interview Schedule - Stakeholders)

Before turning on the recorder, the stakeholders was reminded of the following using the pictures in the consent form:

- The interviewee has right to decline to answer any question and to withdraw from the research at any time without giving a reason.
- Reiterate the steps that will be taken to protect their identity
- Confirm consent
- Explain they can write the answer to any/all of the questions

Interview Questions – Children

Greetings and Welcoming - Hi {participant name}, a very short self-introduction. Thank you very much for allowing me to talk to you for 15 minutes. Participant name, I am going to ask you some questions now.

- Participant Name, did you like/enjoy the Golf program?
- Tell me, what are the activities that made you happy or joyful from the program?
- Participant Name, was there anything that you did not like about the Golf program?
- Participant Name, What is your favourite activity? Why?
- According to you, was the duration of the golf program long or short?
- Are you excited on Saturday mornings to get ready for golf?
- Tell me, do you remember important instructions golf coach gave you?
- Participant Name, do you chat with the golf coach or volunteers?
- Do you have friends in the GameON golf program?
- Do you talk to your brothers or sisters/ friends in school about the golf program?
- Participant Name, do you practise golf at home/school?
- Will you continue playing golf even after the program?
- Will you like to play golf with your mom/dad/brothers or sisters?
- What is your favourite shot that you learned in GameON program?
- Were all shots easy to play?
- Tell me about your experience of playing in a golf club?
- Participant Name, how did you feel when you got you completion certificate?
Interview Questions – Parents

Greetings and Welcoming!

- Tell me about yourself, a brief introduction?
- When did you first know about the diagnosis?
- What was your reaction?
- Did you feel stressed and where you able to accept the diagnosis?
- How you managed to cope with the stress, you individually and as a family?
- Did you have to make adjustments, say social/financial after the diagnosis?
- What is your child’s famous recreation?
- How did you came to know about the #GameON Programme?
- What was your child’s reaction after the first day?
- Where you able to see any change in your child’s communication after participating in the programme?
- Was there changes in the way of social interaction of your child?
- Do you see change in his motor performance?
- Did your child enjoyed coming to the programme? If yes, describe?
- Can you describe your child’s relationship with his/her siblings? Do you find any difference in relationship after participating in the programme?
- Do you feel golf can be a family recreation? Especially after you child participation in the programme?
- Will you recommend the programme to another family with a child with autism? If yes, why?
- Is there anything else you would want to add?

Interview Questions – Golf Coach

Greetings and Welcoming!

- Tell me about yourself, a brief introduction?
- What do you think about ASD?
- Is this your first time in coaching children with autism? If yes, how you became interested in coaching children with autism? If no, please describe your previous experiences?
- Describe your experience in coaching children with autism?
- Where you confident about coaching children with autism? If yes, why?
• What are the things you felt as challenging while implementing the programme?
• Are there any changes in the skill level of children participated in the program?
• Did you feel any change in your perception about children with autism?
• Did you had any opportunity to share your experience with your friends from golf community? What was their initial reaction?
• What is your general perception about what golf community think about inclusion?

**Interview Questions – Volunteers**

Greetings and Welcoming!

• Have you volunteered before? If Yes, Please elaborate.
• Why did you get involved in the GameON program?
• What were your expectations regarding this volunteering opportunity?
• Have you worked with children with ASD before?
• What are your impressions about the GameON program?
• Describe your experience of GameON program?
  What do you like the most? Why? What do you like the least? Why? (P&E)
• Tell me about your initial observations about the children? Has it changed now?
• Describe your engagement with the children?
• What do you feel as your contribution to the program?
• Tell me about your preparations (if any) for the GameON sessions?
• Did you receive any support in your role as a volunteer? If yes, explain?
• What would you say that motivated you toward continuous participation?
• Were there any challenges you had to overcome?
• Can you describe the emotions that you had throughout the GameON program?
• Has your involvement in GameON program influenced other aspects of your life or vice versa?
• What do you think you have learned from participating in GameON program? Explain?
• How do you see these learnings help you in the future?
• If a similar opportunity arises in the future to work with children with ASD, will you participate as a volunteer?
• Is there anything else that you would like to add?
Concluding the Interview

- Thanking the participant for their time and contribution.
- It will be ensured that they have the researchers contact details and will be encouraged to follow up with the researcher after the interview if they have any questions.
Appendix: M (Participants - Primary Coding)

Ye the golf was fun, I had a great time at it and I learnt so much from it. I learnt so much experience from the golf and I hope someday I could become a good golfer.
Appendix: N (Parents - Primary Coding)

Reference 2 - 0.63% Coverage
Eye contact was an issue for [BLANK]. But in golf he was straighter and taller and more confident in him self definitely.

Reference 3 - 1.19% Coverage
Normally he wouldn’t be confident doing anything and he was like flourishing there you know. We were watching him, the times he was turning and even the way he was standing was like a professional holding the club.

Reference 4 - 1.13% Coverage
I suppose he would have been meeting [BLANK] at school. But because of the golf program now the two of them have arranged to go to town and go to picture and pizza after words. That wouldn’t have happened in the school.

Reference 5 - 0.38% Coverage
I suppose he is matured as well. And he has [BLANK] as friends as well now.
Appendix: O (Volunteers - Primary Coding)

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<tr>
<th>Name</th>
<th>Sources</th>
<th>References</th>
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<td>Transition</td>
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</table>

Reference 1 - 0.95% Coverage

children who are milder and moderate on the spectrum they can cope very well and they can learn it. And I believe some of the children will pick up golf forever you know.

Reference 2 - 0.74% Coverage

I think he did enjoy it. He didn't run after his mother or anything like that. He stayed on the golf course and he listened as well.

Reference 3 - 0.93% Coverage

I think that may be paths of my career might be to be a Montessori teacher for people with intellectual disability. Now I have a keen interest in working with them.
Appendix: P (Coach - Primary Coding)

It's certainly a very good activity and I would certainly favour it rather walking at the side of the mountain and rock claiming Jesus, but golf course in general has lot of safe areas. While they are out in the open, they get used to the open and the sceneries and I think it's great.
Appendix: Q (Participants - Secondary Coding)

Reference 1 - 1.56% Coverage
Ya, like don't move after u hit the ball up and turn ur left foot and so.

Reference 2 - 1.71% Coverage
Like like, end of the handle should be pointing at c and for chipping r something should be pointing away from you.

Reference 3 - 0.61% Coverage
Coz its much bigger and much space.

Reference 4 - 1.33% Coverage
Anything else? About the breeze or grass?

Reference 5 - 1.84% Coverage
I really didn't take any notice of that.
Appendix: R (Parents - Secondary Coding)

Drag selection here to code to a new node.

U know he is taught by professionals, so he is getting the extra care that he could possibly get which he won’t if has to go anywhere else. It is specifically tailored to children with learning difficulties and I thought it was absolutely excellent.
Appendix: S (Volunteers - Secondary Coding)

As I said earlier, those words of screaming and shouting is gone. Now when I think of autism, I think of fun the boys have and the funny bits they come up with or you know the enjoyment they have. Ya it’s totally changed after being involved in the program.
Appendix: T (Coach - Secondary Coding)

Reference 3 - 0.45% Coverage
well may be a small use of video analysis would have been a good thing

Reference 4 - 2.27% Coverage
Especially where you had a program, where you could have split the screen showing someone doing it correctly against what they were doing. That's may be something to think about for the future. It would be quite easy for me to take loads of photos and swing position. Right this is what you should be doing and this is what you are doing and that's possible.

Reference 5 - 2.75% Coverage
In a group when they were firing the ball and Neal was doing it early on. Now he has got lot, a lot, and lot better now. That I am not sure whether its from the understanding of the game or his mom asking him not to do that. I think it's the culmination of the both. At one point he smashed it and he turned around and saw his mother and gave a cheeky smile. And then he went ahead and chipped it in. And what are we talking again?