

Teachers and primary caregivers' perceptions of recreational activities and social skills in children with Down Syndrome

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DECLARATIONS

I, Cara Mari Myburgh, with student number 22894616, declare that the information and findings in this research study is my own. As the article format regulations from the North-West University require that articles be included in dissertations, it is compulsory that this dissertation contains the two articles. This research study therefore fulfils the requirements set out for the Master of Health Science in Recreation within the research focus areas Physical Activity, Sport and Recreation (PhASRec), Faculty of Health Sciences at the North-West University.

C.M Myburgh: Main author of this research study which contains the proposal, literature review, article one and two and the concluding chapter. Responsibilities also included the collection, analysis and presentation of data.

Dr C Kriel: Supervisor, who reviewed and coordinated the research study as well as guided and supported the main author throughout the study. She also obtained ethical approval from HREC and managed certain correspondence regarding this research study.

Ms Y Stevens Co-supervisor, who cooperated with the head supervisor, assisted in reviewing the research study and provided support to the main author.

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ABSTRACT

Leisure and recreation are considered to be valuable contributors in the development of social skills, which finally improves well-being when maintained and have shown positive results among individuals with disabilities. Children with Down Syndrome (DS) are however perceived to participate in sedentary and home-based activities, from which they may not experience the social benefits associated with leisure and recreation participation. While DS causes various deficits in areas such as language development, which affect the individuals' social skills, children with DS have also been classified as being sociable. Not only is there contradiction in literature on this topic, but also restricted research on children with DS, specifically in the middle and late childhood years. It is also important that social skill problems are addressed at an early age, although assessing these skills amongst very young children with DS are difficult. Additionally, since individuals with DS who engage in leisure and recreation can have improved social skills and wellbeing, this topic needs to be researched further, especially from a South African (SA) context. This limited research creates a gap in SA's DS and recreation research field. Therefore, a research question was posed: "What is the teachers' and primary caregivers' evaluations and perceptions of recreational activities and social skills of 10- to 12-year-old children with DS in the North West Province?"

This study included two objectives and each had a separate research methodology. The first objective followed a quantitative research design, which consisted of the Matson Evaluation of Social Skills with Youngsters (MESSY) rating scale, to determine the social skills of children with DS. Observations by the teachers took place over five consecutive school days, where after the assessment tool was completed together with a supplementary question regarding the leisure and recreation programme areas that the children with DS participate in. During data analysis, a summary of the various and most participated leisure and recreational activities was compiled, while a statistical analysis determined the overall group results of 29 participants with DS between the ages of 10- and 12-years. For the second part of the study, an interpretive descriptive study design was used, by employing a qualitative approach. Semi-structured interviews were conducted with primary caregivers of 13 children with DS, after a data analysis resulted in two categories: (1) Social skills and (2) Leisure and recreation, each with various themes and sub-themes.

The study concluded that 10- to 12-year-old children with DS in the North West Province of SA exhibit slightly more appropriate or good social skills, as observed by teachers. They were also perceived by their primary caregivers to have challenges in verbal communication skills such as

appropriately opening and ending a conversation and setting boundaries for self-disclosure. Despite these verbal communication challenges, which can be related to their delay in speech and language development, the results did however indicate that the group had strengths in establishing friendships and a few non-verbal social skills (keeping eye contact and physical proximity during a conversation). Numerous differences in their ability to listen attentively, take turns appropriately, maintain good oral hygiene and handle conflict were found, as their behaviour was dependant on various situations. With regard to leisure and recreational activities, the children partook in various leisure and recreation activities, with fine arts (79.3%) and sports (55.1%) being the most participated in programme area activities at school. These school-based activities could however have been scheduled by the teacher and not freely chosen by the children, which in some way defeats the purpose of leisure and recreation. The activities the children mostly participated in at home was sports, followed by music, which by comparison was more freely chosen than activities at school. Sports as a highly rated activity among the children with DS provide opportunities to develop social skills, as it requires teamwork, social interaction and cooperation. This could contribute to the slightly more appropriate social skills they exhibit.

Not only does this study contribute to the DS and recreation body of knowledge in SA, but it also provides relevant and valuable information to teachers, family members, parents/primary caregivers as well as schools and institutions who work with children with DS. The recommendations for this study include further research on the social skills and recreational activities of children with DS. It is recommended to implement an intervention study that focusses on the final four steps of the Therapeutic Recreation (TR) process and to research the differences between (1) school-going and non-school going children with DS, (2) Severely Intellectually Disabled (SID) and Mild Mental Learning Disability school-going children, (3) typically developing 10- to 12-year-old children and same-age chronological children with DS.

Key words: Children, Down Syndrome, intellectual disability, recreation and leisure, social development, social interaction skills, social skills.

OPSOMMING

Vryetydsbesteding en rekreasie word as waardevolle bydraers tot die ontwikkeling van sosiale vaardighede beskou, wat op die ou einde welstand verbeter indien dit onderhou word en het al positiewe resultate onder individue met gestremdhede getoon. Dit is egter merkbaar dat kinders met Down-sindroom (DS) aan sedentere en tuisaktiwiteite deelneem, waaruit hulle heel moontlik nie die sosiale voordele verbonde aan die deelname aan vryetydsbesteding en rekreasie put nie. Terwyl DS verskillende tekorte op gebiede soos taalontwikkeling veroorsaak, wat die individu se sosiale vaardighede beïnvloed, word kinders met DS tog as gesellig geklassifiseer. Nie net is daar teenstrydigheid in die literatuur oor hierdie onderwerp nie, maar ook beperkte navorsing oor kinders met DS, veral in die middel en laat kinderjare. Dit is ook belangrik dat sosiale vaardigheds probleme op 'n vroeë ouderdom aangespreek word, alhoewel dit moeilik is om hierdie vaardighede onder baie jong kinders met DS te assesseer. Aangesien individue met DS se deelname aan vryetydsbesteding en rekreasie, sosiale vaardighede en welstand kan verbeter, moet hierdie onderwerp verder ondersoek word, veral vanuit 'n Suid-Afrikaanse (SA) konteks. Hierdie beperkte navorsing skep 'n gaping in SA se navorsingsveld vir DS en rekreasie. Daarom is 'n navorsingsvraag gestel: "Wat is die onderwysers en primêre versorgers se evaluasies en persepsies rakende rekreasieaktiwiteite en sosiale vaardighede van 10- tot 12-jarige kinders met DS in die Noordwes provinsie?"

Hierdie studie het twee doelstellings ingesluit, elkeen met 'n afsonderlike navorsingsmetodologie. Die eerste doelwit is nagevors deur middel van 'n kwantitatiewe navorsingsontwerp, wat uit die Matson Evaluation of Social Skills with Youngsters (MESSY) graderingskaal bestaan het, om die sosiale vaardighede van kinders met DS te bepaal. Waarnemings deur die onderwysers het oor vyf agtereenvolgende skooldae plaasgevind, waarna die graderingskaal voltooi is, tesame met 'n aanvullende vraag rakende die vryetydsbesteding- en rekreasieprogramareas waaraan die kinders met DS deelneem. Tydens data-analise, is 'n opsomming van die verskillende vryetydsbesteding- en rekreasieaktiwiteite en dié aktiwiteite waaraan die meeste deelgeneem is, saamgestel, terwyl 'n statistiese ontleding die algehele groepresultate van 29 deelnemers met DS tussen die ouderdom van 10 en 12 jaar bepaal het. Vir die tweede deel van die studie is 'n interpretatiewe beskrywende studie-ontwerp gebruik deur middel van 'n kwalitatiewe benadering. Semigestruktureerde onderhoude is met primêre versorgers van 13 kinders met DS gevoer, waarna 'n data-analise tot twee kategorieë, naamlik (1) Sosiale vaardighede en (2) Vryetydsbesteding en rekreasie gelei het, elk met verskillende temas en subtemas.

Die studie het tot die gevolgtrekking gekom dat 10- tot 12-jarige kinders met DS in die Noordwes provinsie van SA effens meer gepaste of goeie sosiale vaardighede het, soos deur onderwysers waargeneem. Hulle primêre versorgers het ook waargeneem dat hulle uitdagings in verbale kommunikasievaardighede het, soos om 'n gesprek op die regte manier te begin en te beëindig en om grense te stel vir openbaarmaking. Ten spyte van hierdie uitdagings in verbale kommunikasie, wat verband hou met die vertraging in spraak- en taalontwikkeling, dui die resultate egter aan dat die groep beter gevaar het in die vorming van vriendskappe en enkele nie-verbale sosiale vaardighede (oogkontak en fisiese nabyheid tydens 'n gesprek). Daar is talle verskille in hul vermoë om aandagtig te luister, toepaslik beurte te maak, goeie mondhygiëne te handhaaf en konflik te hanteer, aangesien hul gedrag afhanklik was van verskillende situasies. Wat vryetydsbesteding- en rekreasie-aktiwiteite op skool betref, neem die kinders aan verskillende aktiwiteite deel, met beeldende kuns (79,3%) en sport (55,1%) as die programareaaktiwiteite waaraan die meeste deelgeneem word. Hierdie skoolgebaseerde aktiwiteite is egter moontlik deur die onderwyser geskeduleer en nie vrylik deur die kinders gekies nie, wat op een of ander manier indruis teen die doel van vryetydsbesteding en rekreasie. Die aktiwiteite waaraan die kinders meestal tuis deelgeneem het, was sport, gevolg deur musiek, wat in vergelyking met aktiwiteite op skool meer vrylik gekies is. Sport, as 'n hoogs aangeskrewe aktiwiteit onder die kinders met DS, bied geleenthede om sosiale vaardighede te ontwikkel, aangesien dit spanwerk, sosiale interaksie en samewerking verg. Dit kan selfs bydra tot die effens meer gepaste sosiale vaardighede wat hulle toon.

Hierdie studie dra nie net by tot die bestaande inligting oor DS en rekreasie in SA nie, maar dit bied ook relevante en waardevolle inligting aan onderwysers, familieledes, ouers/primêre versorgers sowel as skole en instansies wat met kinders met DS werk. Die aanbevelings vir hierdie studie sluit verdere navorsing oor die sosiale vaardighede en rekreasie aktiwiteite van kinders met DS in. Die implementasie van 'n intervensiestudie word aanbeveel met die fokus op die laaste vier stappe van die terapeutiese rekreasie (TR)-proses en om die verskille tussen (1) skoolgaande en nie-skoolgaande kinders met DS, (2) *Severely Intellectually Disabled* (SID) en Mild Mental Learning Disability skoolgaande kinders, (3) tipiese ontwikkelende 10- tot 12-jarige kinders en dieselfde ouderdom chronologiese kinders met DS te ondersoek.

Sleuteltermes: Down Sindroom, intellektuele gestremdheid, kinders, rekreasie en vryetyd, sosiale interaksie vaardighede, sosiale ontwikkeling, sosiale vaardighede.

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LIST OF ABBREVIATIONS

The following abbreviations and acronyms were used throughout this dissertation.

ABBREVIATION	MEANING	PG NO
ADHD	Attention Deficit Hyperactivity Disorder	5
APIE	Assessment, Planning, Implementation and Evaluation	5
APIED	Assessment, Planning, Implementation, Evaluation and Documentation	5
ASD	Autism Spectrum Disorder	4
ATRA	American Therapeutic Recreation Association.....	29
CD	Celiac Disease	17
CP	Cerebral Palsy	4
DS	Down Syndrome	1
DSSA	Down Syndrome South Africa	2
HREC	Health Research Ethics Committee	56
ID	Intellectual Disability	1
MESSY	Matson Evaluation of Social Skills with Youngsters	6
NTRS	National Therapeutic Recreation Society	4
NW	North West Province	2
NWU	North-West University	8
OT	Occupational Therapy.....	102
PhASRec	Physical Activity, Sport and Recreation.....	49
SA	South Africa/South African	2
SD	Standard Deviation	57
SID	Severely Intellectually Disabled	54

ABBREVIATION	MEANING	PG NO
SLP	Social Learning Programme.....	33
SPSS	Statistical Package for the Social Sciences.....	50
TR	Therapeutic Recreation.....	1

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Social skills are seen as a set of interpersonal behaviours that empower individuals to initiate interactions and develop and maintain social relationships with others in various social contexts (Palmer, 2013:108 & 120). King *et al.* (2003:81) state that the demographic variables of supporting families could be increasing a child's social skills, which makes the child feel much more comfortable to participate in group-based leisure and recreational activities. Not only do recreational activities and programmes create a stimulating environment to develop relationships but it also has the potential to increase the interactions between children with intellectual disabilities (ID), their parents, educators and communities (Surujlal & Dhurup, 2009:35). Society does however perceive that these individuals cannot participate in activities that typically developing individuals do (Kosuwan *et al.*, 2014:713), as movement ability and social skills are the foremost predictors for informal leisure participation (Bult, 2012:72).

This chapter highlights the social skills aspects of children with Down Syndrome (DS), as well as the contribution of leisure and recreation on social skills. A case is stated on why it is necessary to focus on children with DS's social skills.

1.2 PROBLEM STATEMENT

In the middle and late childhood life stages, aged 7- to 12-years-old, social groups typically tend to be of the same sex, age and point of interest and have a frequent change in group members (Papalia *et al.*, 2012:338; Feigelman, 2015:83). In contrast to typically developing children, Sloper *et al.* (1990:243) indicated that only 15% of children with DS's interaction with both handicapped and non-handicapped friends, siblings, siblings' friends, relatives, and children of parents' friends, were of the same age, while 63% was with younger children. Sloper's findings also concur with Bacino and Lee (2016:612), emphasising that children with DS experience social difficulties such as limited expressive language and social development. Matson *et al.* (2010:555) state that problems regarding social skills were found to result in an extensive range of problems throughout the life span, although early identification of these problems makes provision for early intervention

and leads to a better prognosis. It is important for all children that their social and communicative skills are developed throughout their childhood years (Sigman *et al.*, 1999:1) as this is necessary for social acceptance and the healthy development of relationships from infancy to adulthood. Fidler (2005:86) states that the crucial areas which might pose potential problems for children with DS during childhood should be targeted before they become noticeable areas of weakness, which highlights necessary research on the interactions between various constraints experienced by the children. Even if the social development difficulties of children with DS can be addressed, DS should first be understood.

Worldwide, approximately 1 in every 733 babies are born with DS (Bacino & Lee, 2016:611). There are no official statistics on live births of children with DS in South Africa (SA), as most of the children born with DS are not diagnosed until around 6- to 9-months of age, especially in the rural areas of SA (Gates, 2018). Although, Gates (2018) states that Down Syndrome South Africa (DSSA) works on an estimate of ± 1 out of 500 live births. There is also no data available on the birth rate of children with DS in the North West Province (NW) (Gates, 2016), which makes it difficult to determine the occurrence of DS in the NW. According to the 2007 South African Statistical Release Community Survey, the NW has an estimation of 7,265 individuals with ID (Statistics South Africa, 2007:39), considering that DS is seen as a common chromosomal disorder that causes ID (Evenhuis *et al.*, 2001:177). "ID is characterised by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social and practical adaptive skills. This disability originates before age 18" (Schalock *et al.*, 2007:118).

Typically, during fertilisation, a sperm cell with 23 chromosomes will fertilise an egg with 23 chromosomes and ultimately have an embryo with 46 chromosomes (Haywood & Getchell, 2014:56). However, with DS, a sperm or an egg keeps the chromosome 21, resulting in every cell of the embryo having a full or partial extra copy of chromosome 21 in its body (Haywood & Getchell, 2014:56). There are three types of DS, namely Trisomy 21, Translocation and Mosaic DS (SDSA, 2001:4). Trisomy 21 DS is the most common type that occurs in approximately 95% of all DS cases and happens when one of the parents gives two chromosomes 21, instead of one, to the sperm or egg. Translocation DS on the other hand exists in about 4% of people with DS, where an extra chromosome 21 is joined or translocated to another chromosome. Unlike Trisomy 21 that has 47 chromosomes, Translocation DS only has 46 chromosomes, one being larger due to the extra chromosome attached to it (SDSA, 2001:4). The third type of DS is called Mosaic, where some cells in the body carry an extra chromosome 21 and other cells usually have two. This type of DS only occurs in about 1% of people with DS (SDSA, 2001:5).

A combination of defects is associated with DS and includes distinctive facial features, for example a flat, broad face, small ears and nose, upward slanting eyes with folds of skin at the corner of the eye and a small mouth (SDSA, 2001:6; Bacino & Lee, 2016:612). Other defects include short stature, short and broad hands with incurving fingers and a single crease across the palm, heart defects, hypotonia, incomplete or delayed sexual development, hyper flexibility of the joints as well as visual and hearing impairments (Mobily, 2002:18; Haywood & Getchell, 2014:56). Besides the physical defects associated with DS, other difficulties noticeable to DS might need to be considered.

According to Bacino and Lee (2016:612), children with DS also experience difficulties such as limited use of expressive language and social development. Among children, social development refers to how friendships and other relationships are developed, how a child handles conflict with peers and the process by which a child learns to interact with others around them (Anon, 2018). Besides, for an individual to handle social interaction and adjust to social situations, it requires various abilities and proclivities (Sigman *et al.*, 1999:9). Matson *et al.* (2011:798) and Sigman *et al.* (1999:1) emphasise that gaining and developing social skills over childhood years is essential for all children and adolescents. However, it should be considered that a great mental difference exists between preschool and primary school children in terms of their logical thinking, the ability to communicate effectively and their acquisition of knowledge (Payne & Barnett, 2006:236). As some children with DS do not speak at the age of 3-years-old (Abbeduto *et al.*, 2007:249), which contribute to their social development delay, it is difficult to assess social skills at a young age (Matson *et al.*, 2010:555). Thus, emphasising the reason for focusing on middle and late childhood in this study. During the middle and late childhood life stage, children spend more and more time with peers, which leads to a sense of self-competence and the development of interaction patterns (Payne & Barnett, 2006:236). According to Payne and Barnett (2006:236), children value being accepted by peers, but having personal friendships is seen as more important, although they struggle to master social norms.

There is a perception that children with behavioural, intellectual, physical and developmental disabilities have a lower social status and less social competence, compared to typically developing children, resulting in fewer friendships being formed (Solish *et al.*, 2010:226). However, it is important to note that children with DS learn, develop and increase their skills in the same way as typically developing children, but at a slower pace than children without DS (SDSA, 2001:16). In addition, Rynders *et al.* (2003:2) state that individuals with DS can increase active recreation participation if it is facilitated.

Recreation is viewed as purposeful, wholesome activity, assisting individuals to renew their spirit, rejuvenate themselves and restore their energy through positive leisure experiences (Edginton *et al.*, 2004:11). Leisure, on the other hand, is defined as free or unobligated time to refocus, renew, reinvent, change or transform oneself and does not involve life-sustaining functions or work (Leitner & Leitner, 2012:10 & 13). Boer (2010:1) emphasised that individuals with DS are social human beings who require work pursuits, friendships and leisure activities in order to also acquire independency and the fulfilment of life. Unfortunately, these individuals have historically been excluded from participation in leisure and recreation activities (Mobily, 2002:27), even though all individuals in society, including those with disabilities, illness or special needs, have the same rights to recreation participation (Daly & Kunstler, 2006:178). Possible recreation programme content, for the development of social interaction skills among individuals with ID, includes appropriately opening and ending conversations, the ability to listen attentively to a speaker, to have good oral hygiene, to maintain eye contact during a conversation, to have physical proximity while talking to others, to set boundaries for self-disclosure and to take turns at the appropriate time (Stumbo *et al.*, 2011:24). Social skills and activity skill development, leisure awareness and the appropriate use of leisure resources are all crucial factors to address when working with individuals with ID (Foosse & Ardovino, 2008:137).

Furthermore, it is emphasised that recreation and leisure are valuable contributors in the process of social development which purposefully serves today's society and the course of one's life (Parr *et al.*, 2006:358; Tapps & Baghurst, 2018:258). A study that focused on adults with Autism Spectrum Disorder (ASD) concluded that participation in a yearlong recreation programme resulted in high scores regarding social and communication skills (Pennsylvania State University, 2011). Each weekday, participants met for two hours and were allowed to choose among several activities which included exercises, games, events and crafts that promoted interactivity and engagement (Pennsylvania State University, 2011). In a systematic review completed by Bult *et al.* (2011:1525), it was found that there is a positive association between communication and leisure participation for children with Cerebral Palsy (CP) and physical disabilities. Consequently, Kunstler and Day (2010:4) asserted that leisure should be considered as a portable and unique modality of Therapeutic Recreation (TR) above any other form of therapy. Their assertion, therefore, is well outlined in the explanation of TR by the National Therapeutic Recreation Society (NTRS) (as cited by Kunstler & Daly, 2010:5): "TR uses treatment, education and recreation services to help people with illness, disabilities and other conditions to develop and use their leisure in ways that enhance their health, functional abilities, independence and quality of life".

Concurring with the NTRS, participants of TR include the individual who is challenged by social, psycho-development, illnesses and disability disorders (Shank, 2002:4; Carter & Van Andel,

2011:35). Although, Kunstler and Daly (2010:4) state that TR serves anyone who can benefit from the provision of TR services. TR is a comprehensive term that refers to the utilisation as well as the enhancement of leisure, where it allows us to choose activities that are personally rewarding and fun to participate in (Robertson & Long, 2008:4 & 5). The leisure component within TR, which is essential for the quality of life, is the most important characteristic that distinguishes TR from other human and health service disciplines (Wilhite, 2000:7). TR utilises a four-step process, APIE, referring to the steps as assessment, planning, implementation and evaluation (Daly & Kunstler, 2006:188), however, more recent studies refer to a five-step process, termed APIED which also includes the D-for documentation (ATRA, 2016; Woodford *et al.*, 2017:258). A variety of activities and interventions are used within TR to improve and enhance individuals' leisure, physical, cognitive, emotional as well as social development with the aim of individuals participating independently and fully in their life pursuits (ATRA, 2016). Furthermore, Kunstler and Daly (2010:130) mention that TR programmes have shown success with individuals who have social concerns, considering that TR can be used as a means to improve the social skills of children with DS.

Various studies address the impact of TR on social skills, indicating that TR has a positive effect on the social skills of individuals who participate in these programmes (Rothwell *et al.*, 2006:250; Shelton & Witt, 2011:25; Allsop *et al.*, 2013:45; Doll, 2014:14; De Vries *et al.*, 2015:233; García-Villamizar *et al.*, 2017:335; Shultz *et al.*, 2017:254; Woodford *et al.*, 2017:258). The participants within these studies consisted of individuals with chronic and mental illness, behaviour disorders and disabilities such as DS, CP, ASD and ID, ranging from 4- to 58-years of age. Six of these studies included children (up until 12 years) and only one indicated social skills results specific to an 11-year-old with DS (Shelton & Witt, 2011:25). Other studies included individuals between 12- to 21- and 4- to 45-years-old with DS, CP, ASD, Attention Deficit Hyperactivity Disorder (ADHD) and ID, but no specific age was recorded to the specific disabilities (Doll, 2014:7; Shultz *et al.*, 2017:244).

It would be insightful to consider the perceptions of parents whose children took part in the TR programmes regarding the outcomes thereof. According to Shelton and Witt (2011:25), parents felt that the therapeutic camp was a place where the children interacted with others, learned skills and gained experiences. Doll (2014:10) furthermore found that 40% of parents/caregivers of individuals with developmental disabilities thought of social skills improvement as the primary impact of programme participation. After asking the parents/caregivers to rate their perception of the social skills, self-efficacy/self-esteem and communication skills of the participants, they indicated that participation had a positive impact (Doll, 2014:15).

According to Rankin *et al.* (2016:273), it is not unusual for parents to have perceptions about their child/children's features and abilities, resulting in parents who perceive their child/children with DS as being either more or less sociable than what they are. Studies indicated that only a few parents perceive their children with DS as being sociable and that parents tend to be concerned about their children's social life (Hornby, 1995:107; Deakin, 2014:186). Although parents are concerned, it was concluded that the children were positive about themselves, even though they were aware of their negative social value (Deakin, 2014:243). Findings suggest that there is a link between parents' perception about their children, the way they respond to the needs of their children and how the child develops ways of responding in assisted performance-related situations (Newman, 2000:364). As part of responding to the child's needs, Connell and Prinz (2002:177) state that the interactions between a child and parent are positively related to the child's development of their receptive communication skills, their school readiness and social skills. Although it can be seen that the interactions between a parent and a child are related to the child's social skills, research on the social skills of children with DS should be considered.

Among the studies done on the social development and/or interaction skills of individuals with DS, only a few included children (Cornwell & Birch, 1969:341; Lucisano *et al.*, 2011:97; Hajar *et al.*, 2012:35; Lucisano *et al.*, 2013:116; Griffioen & Enders-Slegers, 2014:569; Rodrigues *et al.*, 2014:96; Ciocan *et al.*, 2016:156). Only four of the above-mentioned studies included 10- to 12-year-old children with DS (Cornwell & Birch, 1969:341; Hajar *et al.*, 2012:35; Griffioen & Enders-Slegers, 2014:572; Ciocan *et al.*, 2016:157). Furthermore, none of the aforementioned studies were completed in SA, nonetheless in the North West Province, emphasising the necessity of this study. Therefore, the research question of this study is as follows: What are the teachers' and primary caregivers' evaluations and perceptions of recreational activities and social skills of 10- to 12-year-old children with DS in the North West Province?

This study was started in one province with the intention to expand to other provinces. It also served as the first step within the TR process, as the purpose of this study was to assess and gain information on the social skills and recreational activities of 10- to 12-year-old children with Down Syndrome (DS) in the North West Province, through utilising the Matson Evaluation of Social Skills with Youngsters (MESSY) and semi-structured interviews (Appendix C). Teachers are trained in social skills of children with DS and are therefore required to complete the MESSY survey whilst the children are in an environment with their peers. Some of the children are in hostels, which emphasise that their primary caregivers are not permanently exposed to their children. A more accurate picture of the children's social skills could therefore be derived from semi-structured interviews instead of completing a questionnaire, as clarification could be gained as well as a better insight into the perceptions of the primary caregivers. The research outcomes

will not only contribute to the SA body of knowledge but also aid the parents, schools/teachers and the society/community of children with DS. They would gain a better understanding of the social skills ratings of children with DS, assist in how to handle and approach the children and aid in their planning of social skills development. Relevant information will serve as a foundation to determine the necessity in improving social skills or not, as well as for further research on this topic to develop a TR intervention where social skills for this specific population can be improved. The information on recreation activities will aid parents and teachers of children with DS to gain perspective regarding the recreational activities that is being used in schools and if their participation links to the level of their social skills. Hoppe (2005:10) states that it is important to take into account the suggestions, concerns and needs of parents while working with children with DS. If parents/guardians/primary caregivers do not have appropriate knowledge of their child's social development and abilities, they might not see the necessity of improving the social skills of children. Therefore, the parents'/guardians'/primary caregivers' perception of the social skills of the children was also investigated.

1.3 OBJECTIVES

The objectives of this study were:

1. To determine the social skills among children aged 10-12 years with DS in the North West Province, as evaluated by teachers.
2. To determine the primary caregivers' perceptions on the social skills and recreational activities among 10- to 12-year-old children with DS in the North West Province.

1.4 HYPOTHESES

This study is based on the following hypotheses:

1. Children aged 10-12 years with DS will exhibit more inappropriate social skills than appropriate social skills, as evaluated by the teachers.
2. No hypothesis for objective 2 since a qualitative research design was followed.

1.5 STRUCTURE OF THE DISSERTATION

This dissertation is structured in line with the 'article format' of the North-West University (NWU), where Chapters 3 and 4 are written as separate articles for specific academic journals and according to the "Information for authors" requirements of the scientific journal. Each article contains a separate method and results section, while Chapter 5 includes a conclusion and recommendations based on all the chapters. The references for Chapters 1, 2 and 5 are presented according to the 2020 NWU referencing guide for quoting sources.

- Chapter 1:** This chapter provided contextual information and an outline of the current research in the field. It also stated the problems and shortcomings from literature as well as introduced the objectives and structure of the dissertation.
- Chapter 2:** An overview of related literature is captured in this chapter, as it addresses the social skills and leisure and recreation participation of children with Down Syndrome as well as the impact of Therapeutic Recreation.
- Chapter 3:** This chapter (Article 1), titled *Teacher's evaluation of the social skills and recreation activities of 10- to 12-year-old children with Down Syndrome*, speaks to the first objective of the study, where it stipulates the results and discussion on the social skills among children aged 10-12 years with DS, as evaluated by teachers. It has been written according to the requirements as set out for the *South African Journal for Research in Sport, Physical education and Recreation*.
- Chapter 4:** Objective 2 is addressed in this chapter (Article 2), which is titled *The perceptions of primary caregivers on the social skills and recreational activities of children aged 10-12 years with Down Syndrome*. It provides the results of the perceptions of primary caregivers on the social skills and recreational activities of children aged 10-12 years. It is followed by a discussion of the results in relation to the objective. This chapter is written in accordance with the requirements for the *South African Journal for Research in Sport, Physical education and Recreation*.
- Chapter 5:** This closing chapter provides a summary of the entire study and draws conclusions on the answers to the research objectives. Limitations and recommendations for future studies are also discussed.

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CHAPTER 2

LITERATURE REVIEW

SOCIAL SKILLS OF CHILDREN WITH DOWN SYNDROME AND THE IMPACT OF THERAPEUTIC RECREATION

2.1 INTRODUCTION

Compared to cognition and language aspects, the social skills development of children with Down Syndrome (DS) appears to be a relative strength (Guralnick *et al.*, 2011:48) which they may use to compensate for other weaker domains of functioning (Fidler *et al.*, 2006:38). However, contradicting literature state that many individuals with disabilities often have difficulty in social skills as they cognitively and socially develop at a different rate compared to their typically developing peers and struggle to appropriately interact with these peers (Sneegas, 1989:34; Stumbo, 1994:78; Deakin, 2014:217). Individuals with disabilities may be missing out on quality leisure experiences, as social interaction is seen as the central part of leisure context (Sneegas, 1989:39; Stumbo, 1994:78). Thus, social skills may be the major targeted area for Therapeutic Recreation (TR) interventions (Sneegas, 1989:39) as the use of TR programmes amongst individuals with social concerns has been successful (Kunstler & Daly, 2010:130).

This chapter addresses various topics relevant to TR and the research question. DS as an intellectual disability (ID), its prevalence, existence and features are also explored. Following this is the concept of social skills and how it looks amongst typically developing children, children with ID and DS as well parent perceptions on social skills and explaining the concept of social skills development. Then leisure and recreation are explored within individuals with disabilities, their connection to social skills and also parents' perceptions with regard to leisure, recreation and social skills. Lastly, the concept of TR is explained, the TR process, its connection to social skills, followed by parent perceptions on TR and social skills.

2.2 DOWN SYNDROME

DS is described as the most common chromosomal disorder (Christianson *et al.*, 2006:15), where an estimate of 1 in 1,000 - 1,100 children are born with DS worldwide, leading up to a yearly birth

rate of approximately 3,000 to 5,000 children (United Nations, 2020). In middle- and low-income countries the DS birth rate prevalence reaches up to almost double the rate of high-income countries, with two to three per 1,000 live births (Christianson *et al.*, 2006:20 & 22). The high birth prevalence of DS in middle-income countries like South Africa (SA), is attributed to inaccessible family planning, numerous older women getting pregnant and scarce or absent prenatal screening, diagnosis and supplementary services (Christianson *et al.*, 2006:28).

DS is also seen as the most common recognisable form of ID which is caused by genetics (Bacino & Lee, 2016:611; Evenhuis *et al.*, 2001:177; Umadevi & Sukumaran, 2012:72). Schalock *et al.* (2007:118) identify ID as a disability that occurs before the age of 18, which limits intellectual functioning and adaptive behaviour, as seen in conceptual, practical and social adaptive skills. The 2007 South African Statistical Release Community Survey specified that the number of individuals with ID in the North West Province of SA is estimated at 7, 265 (Statistics South Africa, 2007:39). According to Gates (2018), there are no official statistics for the SA live births of children with DS, as most of the children are only diagnosed around 6 – 9 months of age, especially in the rural areas of SA. While Christianson *et al.* (2006:40) stated that there will be about 2,300 infants with DS who enter the SA health care system yearly, Down Syndrome South Africa (DSSA) works on an estimation of ± 1 out of 500 live births (Gates, 2016).

Usually, during fertilisation, a sperm cell with 23 chromosomes will fertilise an egg with 23 chromosomes and eventually form an embryo with 46 chromosomes (Haywood & Getchell, 2014:56). However, DS occurs when the sperm or egg retains chromosome 21, consequently causing every cell of the embryo to have a partial or full extra copy of chromosome 21 in its body (Boer & Moss, 2016:323; Down Syndrome Ireland, 2013:3; Haywood & Getchell, 2014:56). DS is categorised into Trisomy 21-, Translocation- and Mosaic DS (SDSA, 2001:4). The most common type of DS which is found in nearly 95% of all DS cases is Trisomy 21, which occurs when cells divide abnormally and when one of the parents give two chromosomes 21's to the sperm or egg, instead of one (Down Syndrome Ireland, 2013:3; SDSA, 2001:4). Consequently, a child with Trisomy 21 has three copies of chromosome 21 (Down Syndrome Ireland, 2013:5). When an extra chromosome 21 is translocated or joined to another chromosome, it is called Translocation DS and exists in about 4% of individuals with DS (Down Syndrome Ireland, 2013:5; SDSA, 2001:4). Also, unlike Trisomy 21 that has 47 chromosomes, Translocation DS only has 46 chromosomes, with one chromosome being larger than the other due to an extra chromosome attached to it (SDSA, 2001:4). Mosaic DS is caused by abnormal cell division after fertilisation, where the individual has a mixture of normal cells and two chromosomes 21 cells (Down Syndrome Ireland, 2013:5). Mosaic DS only occurs in approximately 1% of individuals with DS (SDSA, 2001:5).

Distinctive outer-appearance features of individuals with DS include a flat, broad face, upward slanting eyes with folds of skin at the corner of the eye, smaller ears, nose and mouth, short and broad hands with incurving fingers, a single crease across the palm as well as shorter and heavier stature than their age-matched typically developing peers (Bacino & Lee, 2016:612; Cohen, 2006:141; SDSA, 2001:6). Cohen (2006:141) also identifies thyroid disorders, Celiac Disease (CD) and atlantoaxial instability as three clinical conditions that are common in individuals with DS, which significantly affect health and quality of life. They also have heart defects, poor muscle tone, incomplete or delayed sexual development, hyper flexibility of the joints as well as visual and hearing impairments (Haywood & Getchell, 2014:56; Mobily, 2002:18), which can interfere with the progress in their social skills (SDSA, 2001:16).

2.3 SOCIAL SKILLS

It is said that a person's social skills influence the quality of social and personal life, determines the quality of functionality and the management of social situations (Jurevičienė *et al.*, 2012:42). Social skills are interpreted as a multidimensional concept that is created from structural components (communication-, emotional-, interaction-, participation- and social cognition skills) that integrate, overlap and supplement each other (Jurevičienė *et al.*, 2012:50). These inter-related structural components are constructed from appropriate behavioural abilities, for example appropriate verbal and non-verbal reactions, choosing behaviour in accordance with the situation and meeting the demand of behaviour as well as to express positive and negative feelings without losing social support (Jurevičienė *et al.*, 2012:43). Del Prette and Del Prette (2010:106) concur by acknowledging the concept of behaviour within social skills, as "it is a construct, inferred from the functional relations between the responses of two or more people in interaction, where the responses of one may be antecedent or consequent to the other's, in a dynamic and alternated fashion through the interactive process". Social skills are demonstrated through interpersonal contact which includes behaviours such as appreciating and praising others, arguing respectfully, avoiding unwanted responses, being in a group discussion, collaborating and cooperating with others, communicating effectively, completing agreements, expressing empathy, helping or seeking help, initiating and creating relationships, interacting and relating with individuals in various situations, introducing one's self, listening to others, meeting other people's needs as well as reading body language (Daraee *et al.*, 2016:513; Huitt & Dawson, 2011:10; Jurevičienė *et al.*, 2012:42 & 43). Emphasis is however placed on the importance of learning these social skills behaviours during childhood years (Daraee *et al.*, 2016:513).

2.3.1 Social skills of children

During the infancy life stage, typically developing children intentionally start communicating from 10 months of age and symbolically (with words and/or signs) any time between 12 and 18 months (Abbeduto *et al.*, 2007:249). With regard to the age of this study's population, the social groups of typically developing 7- to 12-year-old children (middle and late childhood) tend to be of the same age, sex, point of interest and changes group members frequently (Feigelman, 2015:83; Papalia *et al.*, 2012:338). Although they value to be accepted by peers, having personal friendships are more important to them (Payne & Barnett, 2006:236). As children then transition from middle school (ages 11-13) to high school (ages 14-18), their social skills become important for the development of appropriate interpersonal relationships (Tipton *et al.*, 2013:523).

However, the first positive or negative social behaviour patterns a child uses during interaction with peers, comes from the social relations that were acquired under the direct influence of the parents' educational styles (Blažević, 2016:45). Though it was found that the social skills of parents have a positive effect on their children's sociability, Okumura and Usui (2010:20) state that it is more relevant to same-gender situations. Children's difficulty to interact and master social norms are overcome by seeking the company of adults and older individuals, as the adults tend to be more supportive of the child's needs (Deakin, 2014:196; Payne & Barnett, 2006:236). Furthermore, Newman (2000:364) links the parents' response to their child's needs, their perceptions of their child and the development of the child's response during assisted performance-related situations. When parents encourage their children's efforts during middle and late childhood, a sense of perseverance increases, whereas a negative response results in a sense of inferiority. Nonetheless, beyond their parental social world, peers also contribute to attaining a sense of inferiority or perseverance, as they spend a lot of time together, which leads to an awareness of self-competence and the development of interaction patterns (Payne & Barnett, 2006:236). Although, to be able to interact socially and adjust to social situations, a few skills, which are not always easy to distinguish or to measure, are needed (Sigman *et al.*, 1999:9). If one lacks social skills, social interactions with peers as well as succeeding responses to social initiations and friendships are less (Cory *et al.*, 2006:145).

2.3.2 Social skills of children with DS

Children with disabilities form fewer friendships than typically developing children and may have friendships with younger children (Tipton *et al.*, 2013:523), which is attributed to a lower social status and less social competence (Solish *et al.*, 2010:226). Individuals with ID also have difficulty

with socialisation and often behave inappropriately in social situations, which then discourages other individuals to initiate or interact with the socially unskilled individual and finally results in isolation and rejection (Raymond & Matson, 1989:247, Umadevi & Sukumaran, 2012:74, Deakin, 2014:217). Furthermore, as individuals with ID mature from child- to adulthood, they face many challenges that are connected to their developing self, such as the establishment and maintenance of friendships and relationships with peers. Tipton *et al.* (2013:522) also found that adolescents with ID were less likely to have a consistent group of friends and spent less time with friends outside of school.

Specific to children with DS, it is stated that they are not understood when talking or they misinterpret what others tell them (Amadó *et al.*, 2012:37; Buckley, 1993:7), the majority interact with younger children and due to their poor response inhibition, they indiscriminately and inappropriately approach strangers (Porter *et al.*, 2007:2841; Sloper *et al.*, 1990:243). In a study on children with DS, there were at least 50% of the children reported characteristics like “lacks best friend” and “wishes to be sociable but fails to make relationships with friends” (Kent *et al.*, 1999:154). In another study by Oates (2009:42) the highest percentages for the number of friends and weekly interactions of children with DS indicated that they had no friends (33%) and occasionally participated in weekly friendship interactions (55.6%). Quality friendships however develop over time and are possibly influenced by social skills (Tipton *et al.*, 2013:522). To concur, as individuals with DS grow older, they are more likely to find their earnest friendships among other individuals with recognised special needs and should therefore have opportunities for socialisation (Shea, 2006:266).

Despite children with DS's social difficulties, the social strengths, as well as social similarities amongst typically developing children and children with DS, also need to be considered. Literature regarding social strengths is limited to infant/toddler years (birth to 2 years), early childhood (3 to 6 years) and adolescence (13 to 19 years). Thus, infants/toddlers (from birth to 2 years old) with DS displayed significant strength in nonverbal social interaction skills and even exhibited higher frequencies on all the social interaction behaviours, compared to typically developing peers (Mundy *et al.*, 1988:240). Also, common traits of typically developing peers that were also found in adolescents with DS was “wanting to be with friends” (Menear, 2007:63) and children with DS also demanded more interaction with children who have the same point of interest as them and shows a high prevalence of the behaviour “interacts with another child” (Lucisano *et al.*, 2013a:31 & 33). Contradicting to this research, the parents' views were found to be quite different.

2.3.3 Parent perceptions of social skills

Various views, concerns and discontentment amongst parents of children with DS and their children's social skills are found. It has been highlighted that there is some difference in parent and medical assessments of children with DS's social skills (Bhattacharya & Sidebotham, 2000:153; Hornby, 1995:114). Some parents of children with DS rated their child's speech and language as less impaired but their vision, behaviour, health, growth and personal care as significantly more, compared to the doctor's assessments (Bhattacharya & Sidebotham, 2000:153). Also, parental perceptions regarding the importance of social skills may differ; as some parents may see a certain skill as a deficit but may feel that it is not particularly important (Rankin *et al.*, 2016:273). Due to these differing perceptions, it is important for parents and other family members of individuals with disabilities to become more knowledgeable about their children's disability (Kosuwan *et al.*, 2014:715). This might provide more similarities amongst parent perceptions and medical health professional observations, which will ensure appropriate treatment and programme implementation. It can also help the children, as the parents might then understand their behaviour, experiences and know what skills they have.

Contradictory to the above-mentioned literature, some studies point out that some parents are knowledgeable about their children with DS and that their perceptions are similar to their children's measurements. Among DS researched groups, the parent report and child battery measurements highly correlated with regard to receptive and expressive language (Fidler *et al.*, 2006:41) and similarly, mother reports also corresponded to their adolescents with ID's reports concerning friendship quality (Tipton *et al.*, 2013:527). Mothers were also very concerned about their child's social life (Deakin, 2014:186), how different their child's relationships and interaction were compared to typically developing children (Deakin, 2014:196 & 198) as well as their relationships and social isolation from their peers (Deakin, 2014:217). The mothers believed that the reasons for some of these social problems were their child's disinterest in social interaction and difference in abilities and interests (Deakin, 2014:194), where the majority of parents thought it is DS that had affected their child's amount and quality of friendships (Oates, 2009:43).

In contrast, the comments of fathers were more positive than the actual assessments (Bhattacharya & Sidebotham, 2000:153; Hornby, 1995:114). Hornby (1995:110) found that fathers made frequent comments about their children with DS being active (23%), lovable (32%), naughty (27%) and sociable (21%), which might have been influenced by the tendency to present themselves in more socially positive desirable than negative way (Hornby, 1995:114).

Regardless of the numerous differing perceptions between parents and children, some positive literature can be considered. Mothers, for example, recognise that their children ask for and have

a desire for social interaction (Deakin, 2014:196). One mother reported on the improvement in her daughter's social life due to a special school that holds social benefits for children with ID (Deakin, 2014:189 & 238). A possible reason could be that children with DS frequently lag behind their aged-matched peers in developmental milestones (MacDonald *et al.*, 2012:12).

Furthermore, the development rate in children with DS is influenced by factors such as positive parental impacts, mother-child interaction patterns and social orientation characteristics which also benefit engagement and interaction with friends (Crawley & Spiker, 1983:1321; Guralnick *et al.*, 2011:51). Additionally, the quality of the parent-child interactions is positively related as well as significantly and uniquely associated with higher ratings of the child's development and performance in receptive communication and social skills (Connell & Prinz, 2002:187). While parents should ensure marital harmony, as it enhances their children's social and cognitive well-being (Falana *et al.*, 2002:158), it can be seen that single parent circumstances have the potential to influence their social skills development. One also needs to consider that, although children with DS can also learn, develop and increase skills equally to typically developing peers, the process of communication, cognitive, motor, self-help and social skills development might take longer (Alton *et al.*, 2012:8; SDSA, 2001:16). In other countries children with DS are attending mainstream pre- and primary schools and participating in social activities with typically developing peers, which is not the case in SA (Down Syndrome Inclusive Education Foundation, 2021). This might also be a reason for their lack of social skills, as Buckley *et al.* (2006:60) found that individuals with DS attending mainstream school gained some social development.

2.3.4 Social skills development

Umadevi and Sukumaran (2012:73) defined social development as “a multifaceted process in which children acquire competencies and behaviour that allow them to function within a social environment, in a manner that is beneficial to their well-being and to others as well”. However, for this study social development can be described as “how a child handles conflict with peers, how friendships and other relationships are established and the process by which interactions with others around them are learned” (Anon, 2018). Social development also reflects a level of social competence, is seen as a mantle for several aspects of child development and functioning and involves an intricate and delicate collaboration between elements like eye contact, imitation, joint attention, language and smiling and the individual's motor system (Sanson *et al.*, 2004:145; Soto-Icaza *et al.*, 2015:1; Tipton *et al.*, 2013:522).

For school-aged children with DS, it is found that opportunities to model, practice and improve social skills are being disregarded and friendships are suffering due to the children having DS (Oates, 2009:47). However, Down Syndrome Ireland (2013:9) states that most children with DS are very sociable, as they learn from social interaction with friends and family. Blažević (2016:47) agrees by stating that, during middle childhood, children's social development is under peer, school and family influence. Although social interaction and communication opportunities to facilitate friendships, increase in larger families, same-status interactions may not be available as within peer interactions (Oates, 2009:21; Schieffelin & Ochs, 1986:178). Since family context is seen as highly relevant to the social development in young children, even the different ways in which parents respond to their child's 'difficult' temper has an impact on a child's social developmental outcomes (Sanson *et al.*, 2004:152 & 153).

Early recognition of social skill problems and communication difficulties lead to a better prognosis and ensures early intervention, after which it then should be addressed effectively. If not recognised early and adequately addressed, it might result in an extensive range of complications throughout the life span, for instance undermining academic progress and socialisation (Alton *et al.*, 2012:10; Matson *et al.*, 2010:555). Also, the importance for all children and adolescents to gain and develop social and communicative skills throughout their childhood years is necessary for social acceptance and the development of healthy relationships from infancy to adulthood (Fidler, 2005:86; Matson *et al.*, 2011:798; Sigman *et al.*; 1999:1).

With regard to children with DS, areas that might pose potential problems should be addressed and targeted before they become noticeable areas of weakness (Fidler, 2005:87). If same-chronological-age-friendships amongst school-aged children with DS can be encouraged and socially acceptable responses within each child's social circle are identified and taught, it might increase the quality of relationships, provide longer-lasting friendships and greater feelings of acceptance (Feeley & Jones, 2007:158; Oates, 2009:20). A vital space to ensure optimal development for individuals with disabilities is found in inclusive pre-school and early primary school, where it provides opportunities for peer interaction, development of friendships and social skills (Lucisano *et al.*, 2013a:30; World Health Organization & Unicef, 2012:24). Supplementary, Dusseljee *et al.* (2011:12) found that people with ID who attended primary and secondary school (general or special), had more frequent social contact with friends compared to people with ID who only attended primary school. Umadevi and Sukumaran (2012:79) however found that for individuals with ID, the number of schooling years is an insignificant factor in the development of social skills.

It can be seen that literature on the social skills of individuals with DS is contradicting and even more so only a few included children (Ciocan *et al.*, 2016; Cornwell & Birch, 1969; Griffioen & Enders-Slegers, 2014; Hajar *et al.*, 2012; Kent *et al.*, 1999; Lucisano *et al.*, 2011; Lucisano *et al.*, 2013a; Lucisano *et al.*, 2013b; Rodrigues *et al.*, 2014), which not only emphasises the lack of research but also the need for more research on children with DS. Also, only five of the above-mentioned studies included 10- to 12-year-old children with DS (Ciocan *et al.*, 2016; Cornwell & Birch, 1969; Griffioen & Enders-Slegers, 2014; Hajar *et al.*, 2012; Kent *et al.*, 1999). Thus, it can be seen that there is limited research on 10- to 12-year-old children with DS.

Cory *et al.* (2006:146) emphasised the need for studies that examine the effects of innovative strategies designed to develop and enhance the social skills of individuals with disabilities. Opportunities to mingle with others during childhood and focused instruction during interactions with same-aged typically developing peers will enhance the social competence as well as conversation-, friendship- and positive interaction skills of individuals with ID (Umadevi & Sukumaran, 2012:73; Wehmeyer *et al.*, 2014:73). This might be difficult as Dusseljee *et al.* (2011:4) found that although individuals with mild or moderate ID show high participation in leisure activities, social contact and work, the majority hardly interact with people without ID. Leisure and recreational activities are however identified as the ideal vehicles to foster improved peer relationships with and without ID (Surujlal & Dhurup, 2009:33). Conversely, friendships are vital in facilitating children with DS's leisure participation (Oates, 2009:11). Within these leisure and recreational situations, it is then important to gain and develop social skills, as it can facilitate peer acceptance and friendships (Cory *et al.*, 2006:146). It can therefore be said that leisure and recreation participation play a vital role in peer relationships and social skills development.

2.4 LEISURE AND RECREATION

Leisure is a complex term to define, but for the purpose of this study it is considered as a state of mind and free time (Edginton, 2004:6). Edginton (2004:6) describes the state of mind as an attitude or behaviour that transpires during an activity, whereas "free time" is to recreate, refresh, refocus, reinvent, rest from daily routine and life-sustaining work as well as "time" to develop skills (Aliabadi *et al.*, 2013:257; Edim *et al.*, 2012:824; Leitner & Leitner, 2012:10 & 13).

Leisure is seen as a leading source of an individual's dedication, enjoyment, freedom of choice, fundamental rewards, happiness, risk, relaxation, ritual, privacy, sense of humour, spirituality and play (Russell & Jamieson, 2008:5). It also teaches individuals about things that are vital for growth and development, it provides satisfaction, wellness, high quality of life as well as emotional,

physical and social benefits, through physical fitness and social development opportunities (Russell & Jamieson, 2008:5; Shea, 2006:266). With regard to children, activities done in free time can (1) allow them to develop skills and engage in social contact with others, (2) be used to change attitudes and (3) is vital for healthy child development and parent-child relationship building (Bult, 2012:12; Gresse, 2013:23; Shikako-Thomas *et al.*, 2013:1001). It is however usually the parents' role to enable their child's leisure and play participation by providing accessible and appropriate play spaces, activities and play items that are suitable for the child's interest and skill level (Bourke-Taylor & Pallant, 2013:545). While a link between play and leisure is evident from Bourke-Taylor and Pallant's statement, as play can be defined as various behaviours that are guided by intrinsic motivation as well as freely chosen and directed by the individual (Burkhour & Almon, 2010:178). Not only is play necessary for cognitive and emotional development (Wenner, 2009:22), it also builds strong social skills and includes components such as social relationships and leisure (Oates, 2009:4; Burkhour & Almon, 2010:178).

As leisure is considered to be a state of mind as well as free time (Hurd & Anderson, 2010:10), the concept of free time is not only used when describing leisure but also recreation (Gresse, 2013:13). Edginton *et al.* (2004:11) view recreation as purposeful, wholesome activities, assisting individuals to rejuvenate themselves, renew their spirits and restore their energy through positive leisure experiences. Nevertheless, in difference to leisure, recreation is associated with being morally acceptable and does not only contribute to the individual but also to society as a whole. The outcome or reason for participating in recreation is also more important than the activity itself and can therefore be described as an activity that has socially redeeming values that people enjoy participating in during their free time (Hurd & Anderson, 2010:10).

Schwarzenegger *et al.* (2005:22) stated that recreation activity is important for personal life satisfaction and those who participate in recreation are notably happier and can live longer and healthier lives (Schwarzenegger *et al.*, 2005:17). Also, within recreation, leisure experiences are enriched to enhance the overall quality of life, potentially reaching a wide variety of predetermined outcomes (Gresse, 2013:13). Driver and Bruns (as cited by Edginton, 2004:18) identify five categories of benefits associated with leisure and recreation experiences namely:

1. Economic benefits (income, jobs, organisational wellness, sales, worker productivity).
2. Environmental benefits (appreciation for or understanding of nature, preservation/stewardship of cultural/natural resources).
3. Physical benefits (cardiovascular, muscle tone, strength, stress relief and wellness).
4. Psychological benefits (anger/anxiety/depression reduction, general mental health, improved academic/cognitive performance, leadership, optimistic emotion and mood

changes, personal development and growth, problem solving, self-actualisation, self-concept and self-esteem increase, spiritual gain, value clarification).

5. Cultural/ social benefits¹. (social benefits, community/national pride, cultural development, family bonding/cohesion, social cohesion, cultural appreciation and understanding).

2.4.1 Leisure and recreation for individuals with disabilities

Although individuals with disabilities receive the same benefits from recreation participation, their lower intellectual ability, lack of choices and difficulty to follow rules, often hinder them from participating in active, organised, spontaneous activities and could result in sedentarism (Bult, 2012:62; Rynders *et al.*, 2003:5; Schwarzenegger *et al.*, 2005:27). Furthermore, due to the lack of skills among individuals with disabilities, opportunities to participate in leisure activities are frequently limited (Chan *et al.*, 2014:247). To confirm this, people with physical disabilities are not normally entitled to receive aids that facilitate sport and leisure activities (Kristén, 2003:2). Likewise, people with ID have less community participation in social life and interpersonal activities, due to comorbid disabilities, lack of support to participate in leisure activities, underdeveloped leisure skills, the absence of and changes in a social network as well as problems in health status (Dusseljee *et al.*, 2011:15).

Literature provides evidence on the effect of these barriers. The main recreational activity for individuals with ID living in a hospital-based environment, is joining the nurses over weekends on a long walk and having a picnic lunch (Foskett, 2014:27). Compared to same age typically developing peers, children with ID preferred, participated and enjoyed various recreational activities, but participated less in solitary recreational activities, as they needed additional support to complete the activities (King *et al.*, 2013:1859). These differences occur due to reduced cognitive, physical and social skills (King *et al.*, 2013:1854). However, children with ID prefer to partake in sedentary recreational activities, which are more likely done in solitary or with family members, than in physical or sporting recreational activities, because it is easier to master or due to fewer external barriers for participation (King *et al.*, 2013:1860).

Regarding children with DS, it is said that their growth and development are linked to recreational activity participation (Young *et al.*, 2016:9). However, the most frequent leisure pursuits of children with DS were participating in extended hours of watching television and/or going to the movies,

¹ The listed benefits are classified as social/cultural benefits of leisure and recreation, considering that Driver and Bruns (as cited by Edginton, 2004:18) groups cultural and social under the same category.

being on the computer playing games, doing pretend/imaginary play, building puzzles, drawing, colouring or doing crafts, listening to music, playing independently with toys and games (including board and card games), reading and writing, playing sports, shopping or running errands and spending time with family members (Hanson, 2003:360; MacDonald *et al.*, 2016:4; Oates, 2009:2). All the above mentioned are either home-based and/or solitary and/or sedentary activities (Oates, 2009:23). Thus, it can be seen that children with DS prefer sedentary and technological home-based activities over physical (bicycling, fishing, gardening, in-line skating, martial arts, racing, skateboarding, snow sports, non-team sports, track and field, water sports), self-improvement (chores, homework, library visits, reading, religious activities, shopping, volunteer work, writing letters or stories), skill-based (dancing, horseback riding, playing a musical instrument and learn to dance, do art, play music, sing) and social activities (entertaining others, hanging out, listening to music, making food, talking on the phone, going to a live event, the movies, a party and going on a day outing) and have limited active leisure participation (MacDonald *et al.*, 2016:3; Oates, 2009:22). Contradictory, Oates (2009:22) found that school-aged children with DS either participate in school provided physical leisure activities or structured and unstructured extracurricular activities in the community or at home. These individuals most probably have a substantial capacity for increasing active participation, where participation in physical (sports) activities can also be seen among older individuals with DS (Rynders *et al.*, 2003:2).

A possible contribution to children with DS's limited experiences and activity participation is the impact their disability (i.e., physical impairments) has on their development (Oates, 2009:12; Young *et al.*, 2016:17). For example, some skills like riding a bicycle are slower to develop due to low muscle tone that is associated with DS (Young *et al.*, 2016:14). Also, hospitalisation occurs quite frequently amongst children with DS, due to thyroid disorders, CD and atlantoaxial instability (Cohen, 2006:141), as well as infant, acquired respiratory-, congenital heart and gastrointestinal disease (Van Trotsenburg *et al.*, 2006:114). Therefore, for children with DS who spend a lot of time in a hospital, opportunities for leisure and social development are reduced due to absenteeism from school (Oates, 2009:16). While it is said that during school hours and leisure time, games, sports and movement could be used for habilitation and rehabilitation of young people to achieve stimulation and facilitate physical, mental and social ability training (Kristén, 2003:13).

People with DS have historically been excluded from participation in recreational activities (Mobily, 2002:27) and children who have negative experiences with societal inclusion may likely not show an inclination towards recreational activities (Surujlal & Dhurup, 2009:34). Consequently, an undesired lack of participation in recreational and social activities might then

result in a possible contribution to social adjustment problems and feelings of loneliness (King *et al.*, 2003:69). Therefore, contrary to general belief, all individuals in society, including those with illness, special needs, or disabilities have the same rights and should be allowed to participate in exercise and recreational activities as well as in the social and work sectors (Boer, 2010:14; Daly & Kunstler, 2006:178). Moreover, leisure activity instruction should be a priority for this population (Chan *et al.*, 2014:248), as individuals with DS are social human beings who require leisure opportunities, friendships and work activities, in order to also become independent and live full lives (Boer, 2010:1). Fortunately, literature states that there are now many more education, employment, family, social and recreation opportunities for individuals with DS (Down Syndrome Ireland, 2013:18).

However, emphasis is still placed on promoting inclusive active leisure programmes for children with DS and having an adult facilitate their recreational activities to encourage emotional gains as well as social interaction and skill development (Oates, 2009:22; Rynders *et al.*, 2003:6). Supporting individuals with ID to pursue areas of interest and develop them into hobbies, along with teaching the key components of social skills, might help them connect with others in the long run. Educational programmes should therefore introduce a variety of activities, such as board and card games, bowling, making crafts, painting, swimming, walking/hiking with others and functional activities such as baking, cooking and sewing (Shea, 2006:266). These programmes prepare individuals with ID to actively participate in the social life of their communities, which can result in school- and community-based extracurricular and leisure activity participation as well as the maintaining of diverse, high-quality social relationships with peers and school personnel (Wehmeyer *et al.*, 2014:80).

2.4.2 Leisure, recreation and social skills

The social benefit of recreation participation is quite evident, as it usually contains both elements of task skill and socialisation, it can provide a means for social interaction and can formally or informally be organised for social purposes, to be enjoyed with family and non-family members (Rynders *et al.*, 2003:6; Schwarzenegger *et al.*, 2005:26; Young *et al.*, 2016:9). Moreover, social involvement is seen as a primary leisure activity, a motivation to be involved in other leisure activities and an integral aspect of the leisure experience (Sneegas, 1989:30). Also, when social engagement and leisure activity is maintained, it improves well-being (Adams *et al.*, 2011:706; Russell & Jamieson, 2008:8), which is evident from a research study where numerous older adults reported positive well-being due to high participation in social and leisure activities (Adams *et al.*, 2011:683).

Additionally, through recreational activities, individuals with disabilities increase their frequency of fostering meaningful relationships and social interactions with peers with/without disabilities (Schwarzenegger *et al.*, 2005:28), which emphasises that active engagement in recreation can improve social bonds of individuals with disabilities (Schwarzenegger *et al.*, 2005:7). For example, after participating in a yearlong recreation programme, adults with Autism Spectrum Disorder (ASD) showed high scores in social and communication skills (Pennsylvania State University, 2011). The same is evident with leisure participation where children with Cerebral Palsy (CP) and physical disabilities showed a positive association between communication and leisure participation (Bult *et al.*, 2011:1525).

Regarding children with DS, it was found that the children who participated in extra-curricular school activities, imitated other children's behaviour (rather than the teacher's behaviour) and learned with their peers, which consequently developed their social skills (Lucisano *et al.*, 2013a:33). This therefore emphasises the importance for children with DS to interact with other children, as this is beneficial for their social skills development. Also, children with DS who function more independently in everyday activities have an increase in friendships and friendship interactions (Oates, 2009:48). Children with DS mostly desire social interaction with peers and siblings as well as enjoy doing activities such as reading books, watching a TV show or a movie and doing art-related activities with their siblings (Menear, 2007:64; Young *et al.*, 2016:13). Social interaction was also the desired outcome and the main reason for participating in physical activities (Menear, 2007:65). Thus, parents concluded that it is either by understanding the point of the activity or the motivation from siblings/peers that will encourage physical activity and prevent sedentary participation (Menear, 2007:65).

2.4.3 Parent perceptions on leisure, recreation and social skills

Parents recognise organised sports (physical activity) as a channel for recreation, instead of an obligation and are interested in encouraging their children with DS to participate in organised sports in the future (Young *et al.*, 2016:14). They also feel that inclusive participation with individuals with and without disabilities hold immediate and long-term health and socialisation benefits as they learn social norms and appropriate social behaviour (Menear, 2007:63; Mayer & Anderson, 2014:161). Moreover, children with DS's exposure to positive inclusion experiences at an early age were assumed to have led to high expectations from families (Young *et al.*, 2016:17). Considering that low expectations from the people the children interact with, lead them to believe that they have little control over their own lives and eventually contribute to limited development (Kosuwan *et al.*, 2014:713). Parents of children with ID should therefore, at an early stage, identify

and overcome barriers with regard to their involvement in their children's recreation activities and go through orientation and training to improve the effectiveness of their involvement (Surujlal & Dhurup, 2009:45).

Parents should consult sport and recreation specialists regularly, as this will help their children with ID to acquire communication-, organisation-, problem-solving- and social skills as well as develop innovative ideas for the improvement in the quality of life (Surujlal & Dhurup, 2009:44). Parents also elaborated on the bond between themselves and their children strengthening, due to recreation events and they also shared the same feelings with educators on the fact that recreation broadened their child's experiences (assumably the social skills experiences) (Surujlal & Dhurup, 2009:43). Parents are therefore recommended to be actively involved with educators from the planning to the implementation phases of recreation activities (Surujlal & Dhurup, 2009:33).

It can therefore be confirmed that parents contribute to their child with DS's social friendships and leisure experiences (Oates, 2009:2) and that leisure and recreation are seen as vehicles and valuable contributors in the social, cultural and individual development that purposefully serve the course of one's life (Parr *et al.*, 2006:358; Tapps & Baghurst, 2018:258). Additionally, the fulfilment gained from leisure and recreation participation, is so essential that it is frequently used for therapeutic purposes (Russell & Jamieson, 2008:5).

2.5 THERAPEUTIC RECREATION (TR)

TR² is a comprehensive term that refers to the utilisation and improvement of leisure, which is essential for quality of life (Robertson & Long, 2008:5; Wilhite, 2000:7). Leisure is seen as the most unique modality of TR that distinguishes it from any other form of therapy (Kunstler & Daly, 2010:4), given the nature of TR in the realm of leisure functioning, participation and enjoyment (Anderson & Heyne, 2013:90).

According to American Therapeutic Recreation Association (ATRA), TR serves individuals of all ages with brain injuries, psychiatric disorders, developmental and physical disabilities and more age-specific individuals like paediatric patients, youth at risk and older adults (ATRA, 2016). Anderson and Heyne (2012:131) state that it is not so much the disability or illness (which can be compounding) that triggers the need for TR services, but the need for external assistance in

² Both the concepts Therapeutic Recreation (TR) and Recreation Therapy (RT) are used within the field of Recreation.

transferring the consequences of a negative life experience that prohibits a person from experiencing leisure. Additionally, Kunstler and Daly (2010:4) state that TR serves anyone who can benefit from the services it provides.

TR is a systematic process that enhances leisure, cognitive, emotional, physical and social development which will assist individuals to pursue participation in full and independent chosen life pursuits (ATRA, 2016). It also offers a distinct purposeful intervention, directed to achieving an outcome or purpose (Kunstler & Daly, 2010:7). Not only does TR use a variety of recreational activities and interventions to address assessed needs but it also allows individuals to choose personally rewarding and fun activities to participate in (Robertson & Long, 2008:5). For example, a recovery camp provided numerous physical and mentally challenging TR activities for participants to collaborate and engage in (Moxham *et al.*, 2015:66). TR sessions also consist of a variety of active (aerobics, frisbee, koosh ball, relays, soccer softball kick ball and volleyball) and passive (arts and crafts, board games, group murals, trivia, word games) activities that are selected based on systematically gathered and combined information from participants' assessments (Pestle *et al.*, 1998:32; Daly & Kunstler, 2006:188).

2.5.1 The TR process

Assessment, planning, implementation and evaluation (APIE) are considered as the four steps of the TR process (Daly & Kunstler, 2006:188), although more recent studies make use of the term APIED (assessment, planning, implementation, evaluation and documentation) (ATRA, 2016; Woodford *et al.*, 2017:258). This process is a systematic method (see Figure 2.1) that illustrates the core of the TR profession and defines the practice, regardless of the setting (LeConey *et al.*, 2000:71; Tiger, 2016:283). Sylvester *et al.* (2001:29) suggest that throughout the TR process, individuals should be empowered to form purposeful relationships, create a choice of identity and express themselves through cultural, political and social media. While the TR process is widely used in hospital and long-term care facilities, LeConey *et al.* (2000:71) implied that it is also useful in recreation agencies and schools where leisure education and recreation participation is offered.

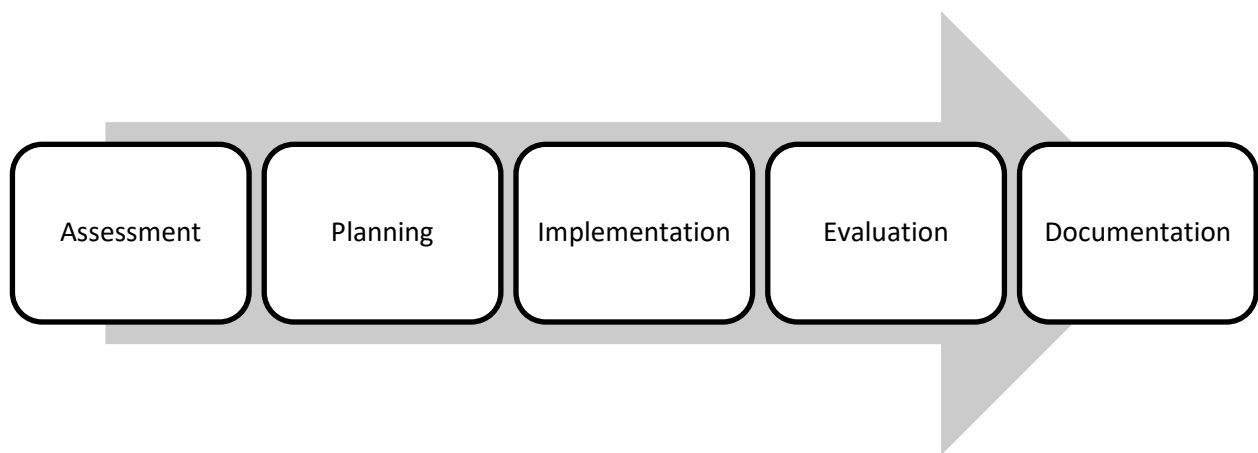


Figure 2.1 Schematic presentation of the TR process (LeConey *et al.*, 2000:74 & 75; Daly & Kunstler, 2006:188 - 191; Anderson & Heyne, 2013:94; Tiger, 2016:288)

Assessment is not only described as the first step but also the cornerstone of the TR process, where its importance lies in establishing the helping relationship with participants and influencing the course of action (Anderson & Heyne, 2013:90). This systematic process includes gathering and combining information about the individual, after which a personalised treatment or service plan is developed (Daly & Kunstler, 2006:188). Anderson and Heyne (2013:94) note that the assessment is guided by assumptions and principles. The various information sought from individuals is specific to their leisure functioning as well as their ability and level of cognitive, emotional, physical and social functioning, which is related to their TR participation capabilities and areas of improvement (Daly & Kunstler, 2006:188). It is however necessary to gain thorough and accurate information about the individual, as this could compromise the quality of the assessment (LeConey *et al.*, 2000:72). As a result of the assessment, specific goals and objectives to change functional ability and leisure-related behaviours are developed and the programmes are designed to address these objectives (Daly & Kunstler, 2006:188).

The next step of the TR process is *planning*, which refers to the actual development of the individual's personalised treatment or service plan (Daly & Kunstler, 2006:188). It consists of an assessment summary, goals and objectives that promote independent recreation functioning, the selection and scheduling of activities and if required, a discharge plan (Daly & Kunstler, 2006:188; LeConey *et al.*, 2000:74).

Implementation is the third step and involves the coordination and execution of the individual's personalised plan through individual or group TR activity participation (Daly & Kunstler,

2006:190). It also includes formative evaluation, where information about the activities, individual and programme is documented (LeConey *et al.*, 2000:75). From this information, additional adjustments to the treatment plan may be needed, to ensure that maximum benefits are derived from participation and that implementation is successful (Daly & Kunstler, 2006:190).

The second last step in the TR process includes formative *evaluation* (during implementation) and summative evaluation (after completion of the programme), to see if personal goals were met and if changes need to be made to the programme (Daly & Kunstler, 2006:191). During the conduction of this phase, the TR professional can administer questionnaires, review documentation, observe the individual during the activities, interview the participant and even speak to family members, caregivers as well as TR personnel (LeConey *et al.*, 2000:75). During participation, the individual will in all probability succeed in meeting the outcomes and may even gain unplanned benefits, which is unique to the individual and relate to the enjoyment, personal significance and quality of the experience (Daly & Kunstler, 2006:191). However, it might also happen that the programme does not produce the desired outcome, due to factors such as a change in the individual's condition, new medication usage, unrevealed information during the assessment, unsupportive families as well as inappropriate leadership techniques, lack skills and inconsistency from the TR personnel (Daly & Kunstler, 2006:191). LeConey *et al.* (2000:75) therefore suggest conducting a mid-term evaluation, as this will be helpful if necessary, adjustments need to be made to the individual's programme plan.

Lastly, *documentation* includes noting or documenting information about individuals who received the service/treatment which reflects the topic, interventions and responses to treatment associated with their goals/objectives as well as a progress statement (Tiger, 2016:288). The author also mentions another type of documentation, called a summary report, where pre-post test scores can be used as evidence to determine an individual's progress or regression (Tiger, 2016:288). All evaluations are documented and reviewed to identify the strengths and weaknesses of the programme and to determine if any changes need to be made (Tiger, 2016:288).

2.5.2 TR and social skills

A variety of literature indicate that TR programmes had a positive effect on the social skills of individuals ranging from 2- to 58-years-old with various illness/diseases, disorders and disabilities (Cory *et al.*, 2006; Rothwell *et al.*, 2006; Shelton & Witt, 2011; Allsop *et al.*, 2013; Doll, 2014; De Vries *et al.*, 2015; García-Villamizar *et al.*, 2017; Shultz *et al.*, 2017; Woodford *et al.*, 2017). To

elaborate, one study found that the health-related quality of life (physical, psychological and social functioning) of adolescents living with cancer, diabetes mellitus and juvenile immune arthritis (Békési *et al.*, 2011:2), was positively impacted by a TR camping programme (Békési *et al.*, 2011:1). Devine and Ripp (2017:vii) recorded that individuals with ASD, who utilise appropriate individualised TR supports and interventions, can learn lifelong leisure skills and develop social skills for successful participation in different recreational contexts. Mishin *et al.* (2015:183) completed a study on promoting health through biking programmes, where the recreation therapists recognised that youth with developmental disabilities (including individuals with DS) achieved a variety of social, cognitive as well as physical outcomes through leisure bicycle riding (Mishin *et al.*, 2015:185). During a Recovery Camp, the concept of TR positively contributed to each element of recovery, where participants with mental illness perceived an increase in confidence, growth in social connections and enhancement in individual responsibility (Moxham *et al.*, 2015:72) and highlights the potential effect of TR activity on social connectedness (Moxham *et al.*, 2015:70).

Sneegas (1989:39) therefore mentions that TR programmes should try to assist individuals in developing the confidence, opportunities and skills for satisfying social interaction experiences. One theory used in TR to teach appropriate social interaction skills and independent functioning is Social-Learning (Pestle *et al.*, 1998:31). The Social Learning Programme (SLP) consists of basic academic classes, cognitive behavioural group therapy, functional living skills classes, occupational training, socialisation periods, social skills training, TR sessions and training on problem-solving skills (Pestle *et al.*, 1998:29). Even though the SLP consists of social skills training and TR sessions, Pestle *et al.* (1998:32) mention that SLP, social skills and TR share a similar goal, which is to improve individuals' social interactions for independent functioning and more appropriate behaviour.

Based on TR literature and the results of a SLP study on individuals with Schizophrenia, it is the involvement in TR, within the SLP that provided residents natural opportunities such as eating at a restaurant, shopping, sports programme participation and visiting public parks, to ensure appropriate social interaction with others (Pestle *et al.*, 1998:38). Though the researchers mention that it was the integration of TR activities and SLP that made the TR sessions in the study unique (Pestle *et al.*, 1998:32), they also emphasise that the amount of published TR research studies that validate that social learning is limited (Pestle *et al.*, 1998:31). Similarly, it is said that although the TR field places primary importance on social skill development and socialisation, research in this area is inconclusive (Anderson & Allen, 1985:473).

The literature emphasises the role, need and benefits of TR specific to individuals with social disorders (Carter & Van Andel, 2011:35; Shank, 2002:4). Sneegas (1989:30) explained that within TR, social skill development plays an important role in therapy, leisure education and recreation participation services and should be facilitated, as it relates to the leisure ability of the individual (Sneegas, 1989:36). Also, individuals with social disorders are a common population served by TR, as they can benefit from TR participation and should therefore be assisted to experience a more satisfying leisure lifestyle (Sneegas, 1989:30; Stumbo, 1994:68).

2.5.3 Parent perceptions of TR and social skills

The assistance, support and encouragement from networks, such as friends and family members, influence an individual's choice to participate in segregated and/or inclusive recreational activities. For example, one participant spoke of the importance of these support networks and the ways they have helped him ski in an inclusive setting (Mayer & Anderson, 2014:159). Even though no changes were found in the social skills of children with ADHD, DS, mild mental retardation and visual impairment who participated in a TR programme, parents still emphasised their support for the intervention as they agreed that "I have noticed changes in my child's social skills since this program began" (Cory *et al.*, 2006:158). In another study, parents whose children participated in a therapeutic camp recognised that their children interacted with others, gained experiences and learned skills (Shelton & Witt, 2011:25). Also, Doll (2014:10) found that 40% of parents/caregivers of individuals with developmental disabilities perceived that participation in a TR programme had a positive impact on the social skills, self-efficacy/self-esteem and communication skills of the participants (Doll, 2014:15).

From the aforementioned studies based on parental perceptions and influence as well as the impact of TR on social skills development, it can be seen that not only is research on children limited, especially on 10- to 12-year-old children with DS. Although these studies included 12- to 21 and 4- to 45 years old individuals with DS, CP, ASD, ADHD and ID, no specific age was recorded to the specific disabilities (Doll, 2014:7; Shultz *et al.*, 2017:244). Literature that indicates TR participation develops social skills and has a positive impact on social concerns are evident, but research on TR and the social skills of 10- to 12-year-old children with DS are limited. Also, as it is said that TR is not well established in Australia and even less so on people with a mental illness (Moxham *et al.*, 2015:62), this can also be said for SA. Devine and Ripp (2017:vii) therefore emphasise the need to contribute to the TR body of knowledge through research and documentation of effective interventions.

Apart from contributing to the TR body of knowledge, it is also necessary to provide more SA-based information on the social skills and leisure and recreation activities of children with DS. Based on the forementioned literature, there are contradicting findings regarding the social skills of children with DS, as some researchers identify it as a strength and other literature point out that children with DS tend to have a delay in social skills development, struggle with social interaction and that they show inappropriate social behaviour (Mundy *et al.*, 1988:240; Oates, 2009:15; Solish *et al.*, 2010:226; Guralnick *et al.*, 2011:48; Amadó *et al.*, 2012:37; Down Syndrome Ireland, 2013:9; Lucisano *et al.*, 2013a:31 & 33; Bacino & Lee, 2016:612). Fortunately, children with DS can be taught and like typically developing individuals, they can and do learn throughout their lifetime, if the opportunity is given (Down Syndrome South Africa, 2020). Thus, through physical fitness and social development opportunities within leisure experiences, individuals can gain emotional, physical and social benefits (Russell & Jamieson, 2008:5; Shea, 2006:266). Also, as children with DS have historically been excluded from leisure and recreation participation (Mobily, 2002:27), inclusive opportunities have shown to benefit the children. According to DSSA (2020), when children with DS form part of inclusive settings, they perform better in their academics; their peers learn to accept, support and understand their disability; it provides models for typical as well as age-appropriate behaviour and offers opportunities to develop relationships. Thus, as leisure and recreation activities contribute to cultural, individual and social skill development, it can then be utilised within inclusive settings for children with DS who have social skill problems. Although children with DS participate in leisure and recreation activities, it is mostly sedentary, home-based, less active leisure activities rather than physical activities (MacDonald *et al.*, 2016:3; Oates, 2009:22), which seem to not focus on or require inclusivity and should therefore be something to investigate from a SA context.

2.6 SUMMARY

The reviewed literature not only highlights the lack of research but also various contradictions with regard to the social skills of children with DS. Some researchers state that children with DS struggle with social interaction and lack social skills, whereas others mention that children with DS are sociable human beings who learn this skill from friends and family. Apart from the literature relating to individuals with DS's social skills strengths and weaknesses, it was not SA-based and not specifically focused on early and middle childhood (10- to 12-year-old), as it is more difficult to assess the social skills of younger children (Matson *et al.*, 2010:555), which emphasises the necessity for this study. The standard of living, mortality rates of children with DS, needs, economics and human development in SA differ from other countries and provides more reason

to gain information on the social skills and recreational activities of the children with DS in SA, which might lead to providing a TR intervention programme sometime in the future. The use of leisure and recreation can either be considered to address inappropriate social skills or the lack in social skills or it could be encouraged to increase existing sociability. As previous studies found that leisure and recreation play a vital role in social skills development and have been beneficial in various individuals' lives such as older adults and individuals with disabilities (physical, ASD, CP and DS). However, children with DS tend to participate more frequently in sedentary, home-based leisure and recreation activities than in team-orientated physical activities that promote social interaction. For this reason, it is therefore possible that children with DS may not gain the social benefits associated with leisure and recreation participation. Parents mentioned that the sedentary participation could be due to either not understanding the point of the activities or the lack of motivation from peers or siblings as they might spend more time alone than amongst other people. Though parent perceptions provide relevant information, differences in children with DS, parents and countries need to be considered.

Thus, to gain knowledge and fill the SA-based gap on the social skills and recreational activities of 10 to 12-year-old children with DS in the North West Province of SA, a quantitative and qualitative study design was used. Both Chapters 3 and 4 focus on answering the research question that states: What is the teachers' and primary caregivers' evaluations and perceptions of recreational activities and social skills of 10- to 12-year-old children with DS in the North West Province? This provides a broad idea of what their social skills look like and what leisure and recreation activities they prefer to participate in or are given opportunities for.

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CHAPTER 3

ARTICLE 1

TEACHER'S EVALUATION OF THE SOCIAL SKILLS AND RECREATION ACTIVITIES OF 10- TO 12-YEAR-OLD CHILDREN WITH DOWN SYNDROME

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Short Title: Social skills and recreation activities of DS

This article will be submitted for publication to be considered in *South African Journal for Research in Sport, Physical Education and Recreation* (Appendix A). The article is submitted according to the specific guidelines for the journal. There were exceptions made for the prescribed font, line-spacing, margins, figures and tables to adhere to the NWU guidelines, in order to ensure uniformity and comprehensibility of the dissertation.

ABSTRACT

As children with Down Syndrome (DS) are perceived to be sociable and enjoying social interaction, they are also found to lag in developmental milestones relating to communication and social skills. Apart from school being a vehicle in developing social skills, leisure and recreation participation are also seen as valuable contributions to the social skills development of children. The study aimed to determine the social skills as well as the recreation activities of 29, 10- to 12-year-old children with DS. The Matson Evaluation of Social Skills with Youngsters (MESSY) was used by the teachers as an observational rating scale over five consecutive school days whereafter the Statistical Package for the Social Sciences (SPSS) IBM software, Version 25 was used to determine the group social skills. The teacher also completed a supplementary question with regards to the children's recreational activities, after which it was analysed in Excel. Results indicated that the children with DS show slightly more Appropriate than Inappropriate Social Skills and that they are most likely to participate in fine arts.

Keywords: Children; Down Syndrome; Leisure; Recreation; Recreational activities; Social development; Social skills.

TEACHER'S EVALUATION OF THE SOCIAL SKILLS AND RECREATION ACTIVITIES OF 10- TO 12-YEAR-OLD CHILDREN WITH DOWN SYNDROME

INTRODUCTION

Down Syndrome (DS) is seen as the most common chromosomal disorder and recognisable form of Intellectual Disability (ID) (Evenhuis *et al.*, 2001; Umadevi & Sukumaran, 2012) and causes children to frequently lag in developmental milestones (MacDonald *et al.*, 2012). Compared to their typically developing peers who start communicating from 10 months old and symbolically (with words and/or signs) between 12 and 18 months old (Abbeduto *et al.*, 2007), they usually experience substantial language and speech delay (Down Syndrome Ireland, 2013). The development of communicative and social skills is important throughout childhood years (Sigman *et al.*, 1999; Matson *et al.*, 2011), as it is needed for social acceptance and the development of healthy relationships from infancy to adulthood (Fidler, 2005). Social skills are referred to as the various sets of abilities that allow an individual to communicate and interact with other people (Soto-Icaza *et al.*, 2015). It also includes behaviours such as arguing respectfully, being in a group discussion, collaborating and cooperating with others, completing agreements, expressing empathy, helping or seeking help, initiating a relationship, introducing one's self, listening to others, reading body language as well as appreciating and praising others (Huitt & Dawson, 2011; Daraee *et al.*, 2016). Sigman *et al.* (1999) however note that, to be able to adjust to social situations and interact socially, individuals need several skills, abilities and tendencies, which are not always easy to distinguish or to measure.

Physical impairments (such as visual and hearing impairments) associated with DS can interfere with social skills development (SDSA, 2001) where communication, social, cognitive, motor and self-help development are slower in children and young individuals with DS (Alton *et al.*, 2012). They have fewer successful responses to succeeding friendships, social initiations and interactions with peers and other individuals, due to their lack of skills, difficulty in social communication, not being understood when talking and not understanding the minds of others (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Amadó *et al.*, 2012). On the other hand, Down Syndrome Ireland (2013) state that children with DS are very sociable, as they learn from social interaction with friends and family and they can learn, develop and increase their skills, similar to typically developing children (SDSA, 2001). Nevertheless, areas that might pose potential problems for children with DS (i.e. communication difficulties, behaviour and social skills) can result in an extensive range of complications (undermines academic progress and socialisation) throughout the life span and should therefore be addressed and targeted before they become noticeable areas of weakness (Fidler, 2005; Matson *et al.*, 2010; Alton *et al.*, 2012). Oates (2009)

also encourages same-chronological-age-friendships amongst school-aged children with DS, as it might increase the quality of relationships that will provide longer-lasting friendships and greater feelings of acceptance by others. It might also benefit a child with DS if socially acceptable responses within each child's social circle are identified and taught (Feeley & Jones, 2007).

A vital space to ensure optimal development for individuals with disabilities is found in inclusive pre-school and early primary schooling, as it provides opportunities for peer interaction and becomes an important space for the development of social skills and friendships (World Health Organization & Unicef, 2012; Lucisano *et al.*, 2013b). Regrettably, for school-aged children with DS, the opportunities to practice and model social skills are being missed, resulting in friendships suffering and opportunities being lost (Oates, 2009). This could be attributable to frequent hospitalisation, as infant acquired respiratory-, congenital heart and gastrointestinal disease (van Trotsenburg *et al.*, 2006), as well as thyroid disorders, Celiac Disease and atlantoaxial instability (Cohen, 2006) are common amongst children with DS. Therefore, frequent hospitalisation, which leads to absenteeism from school can be seen as one of the reasons why children with DS have reduced leisure and social development opportunities (Oates, 2009).

Apart from school, which is an important space to develop social skills, Shea (2006) states that activities done in one's leisure time also provide opportunities to develop social skills. It not only allows children to engage in social contact with others but is also vital for physical fitness and healthy child and parent-child relationship development (Bult, 2012; Gresse, 2013; Shikako-Thomas *et al.*, 2013). Moreover, games, sports and movement could be used during both school hours and leisure time to achieve stimulation and facilitate physical, mental and social abilities training of young people (Kristén, 2003). While leisure is reflected as a state of mind as well as free time (Hurd & Anderson, 2010), the concept of free time is also used when recreation is described (Gresse, 2013). Recreation is seen as focussed, wholesome activities, that support individuals in rejuvenating and renewing their spirits as well as restore their energy through positive leisure experiences (Edginton *et al.*, 2004). Unlike leisure, it is the outcome from recreation participation that is more important than the activity itself. Recreation can therefore be described as an activity with socially redeeming values that people enjoy participating in during their free time (Hurd & Anderson, 2010).

Surujlal and Dhurup (2009) identify recreational activities as the ideal vehicles to foster improved peer relationships with individuals with and without ID. More specific to children with DS, it was found that their social skills developed through learning from and imitating other children's behaviour while participating in extra-curricular school activities (Lucisano *et al.*, 2013a). One study also confirmed that individuals (including DS), who participated in inclusive recreation

programmes, experienced benefits such as having social expectations and the ability to learn social norms as well as developing or maintaining relationships with typically developing peers or individuals with disabilities (Mayer & Anderson, 2014). It can therefore be confirmed that leisure and recreation have social value and serve today's society and the course of one's life in a purposeful manner (Parr *et al.*, 2006; Tapps & Baghurst, 2018).

The majority of available literature regarding the social skills of children with DS focusses on their social deficits (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Alton *et al.*, 2012; Amadó *et al.*, 2012) and not so much on their potentially good, sociable abilities (SDSA, 2001; Down Syndrome Ireland, 2013). It is, however, evident that, through school-based leisure and recreation opportunities, their social skills can be improved and are said to be addressed at a young age. Moreover, none of these literature studies were compiled in South Africa (SA), let alone in the North West Province. With the benefit of leisure and recreation participation on the social skills of children with DS, the absence of SA-based research on this population and how it will aid teachers in dealing with the children in their class, the necessity of this study is emphasised. Assessing young children with DS's social skills are quite difficult (Matson *et al.*, 2010), due to some of the children not yet speaking at the age of 3-years-old (Abbeduto *et al.*, 2007). It is therefore easier to assess older children with DS, such as those in middle and late childhood. It is also important for all children to develop their social skills throughout their childhood years (Sigman *et al.*, 1999:1), thus early recognition of problem areas is necessary and should be addressed before it becomes a weakness (Fidler, 2005).

PURPOSE OF THE RESEARCH

The purpose of this study was to answer the following question: What are the teachers' and primary caregivers' evaluations and perceptions of recreational activities and social skills of 10- to 12-year-old children with DS in the North West Province?

METHODOLOGY

Study design

A quantitative observational study design was used to determine the social skills and recreation activities of children with DS. Observations took place over five consecutive school days,

whereafter a social skills rating scale and a supplementary question on recreation activities were completed.

Participants

The inclusion criteria for participation in this quantitative study consisted of individuals (1) with DS as their only diagnosis; (2) who were between the ages of 10- and 12-years during data collection and (3) whose parents/guardians resided in the North West Province (NW). If a child could not answer the questions on the child assent document or did not adhere to the inclusion criteria, they were excluded from the study.

Finally, the participants for this study consisted of 29 purposely selected male (n=11) and female (n=18), 10- to 12-year-old children with DS, attending Severely Intellectually Disabled (SID) Special Schools in the North West Province. From the 29 children who participated in the study, the specific ages during data collection (before 1 December 2019) were as follows: 10 years old (n=14); 11 years old (n=5) and 12 years old (n=10). With regard to race, the majority of the children (n=28) were classified as South African/Black/African/Tswana and only one (n=1) was classified as White.

For the individuals who served as the observers/informants during the study, inclusion criteria were stipulated as individuals: (1) who were seen as the children with DS's regular teacher; (2) who were willing to observe the child/children with DS and answer a supplementary question regarding their recreational activities and (3) who spoke and/or understood either Afrikaans, English or Setswana. If an individual did not adhere to the inclusion criteria, they were excluded from participating as the observer /informant. After recruitment, 20 teachers acted as observers/informants in the study, with a teacher-child ratio for observations of 1:1 (for 13 teachers), 1:2 (for 5 teachers) and 1:3 (for 2 teachers). The ratios differed, as some teachers had more than one 10-to 12-year-old child with DS in his/her class to observe.

Measuring instruments

The Matson Evaluation of Social Skills with Youngsters (MESSY) measurement (see Appendix C) was used as an observation instrument to assess the social skills of the children with DS (Matson *et al.*, 2010). The purpose of this instrument is to assess the Appropriate and Inappropriate Social Skills of individuals between the ages of 4 and 18 years (Matson & Wilkins,

2009; Matson *et al.*, 2011). In some studies, the authors used both the terms “social skills” and “social behaviours” when they referred to the aim of the MESSY (Deniz *et al.*, 2009; Kalyva & Agaliotis, 2009; Matson *et al.*, 2010; Matson *et al.*, 2013; Prieur *et al.*, 2016; Weeland *et al.*, 2017). From these studies, it can be understood that an observation of the Appropriate and Inappropriate social skill behaviours is done to determine the overall social skills of the youngsters.

The MESSY displays promising psychometric properties to assess the social skills in young children, even if it has been demonstrated as more difficult to assess the social skills in younger children (2- to 5-year-old) than in older (6- to 16-year-old) children (Matson *et al.*, 2010). This rating scale has also been used with special populations such as those with Autism Spectrum Disorder, visually impaired individuals and people with bipolar disorder (Matson & Wilkins, 2009). Matson and Barrett (1993) also recommend the MESSY as the leading paper-and-pencil measure to evaluate the social skills of individuals with ID. However, Lecavalier and Butter (2009) emphasise that it would be helpful to have additional studies done on youngsters with ID. Therefore, this study could be supportive of broadening the MESSY’s usability.

The MESSY was developed to gain information from multiple respondents on the frequency of a wide range of positive and negative social behaviours (Bell-Dolan & Allan, 1998; Matson & Wilkins, 2009). This instrument consists of two forms: a self-rating scale with 62 items and a parent and teacher rating scale with 64 items (Matson *et al.*, 2010). For the purpose of this study, the parent and teacher form were used. This decision concurs with two studies, one by Matson *et al.* (2010) and the other one by Teodoro *et al.* (2005), where only one form was used (either parent- or self-report). Furthermore, according to Matson (1990), any adult who knows the child reasonably well is competent to use the teacher rating form. The selected informants/observers were used in this study to complete the MESSY.

Together with the MESSY, the teachers were asked to fill out a supplementary question with regard to the child’s recreational activities during the five-day observation, provided by the school or which formed part of school activities or leisure time at school. This information provided an idea of which activities were presented at the schools, which may be used to explain research findings. The supplementary question that was given to the teachers consisted of the 14 Activity Areas, as identified and compiled by Russell and Jamieson (2008).

Scoring of the MESSY

A 5-point Likert scale, ranging from 1 to 5, was used to rate the items (Bell-Dolan & Allan, 1998). The scoring of the Likert scale was as follows: 1 not at all, 2 seldom, 3 sometimes, 4 often and 5 very much. According to Matson *et al.* (1983), as cited by Matson *et al.* (2013), the teacher rating form consists of three factors: Inappropriate Assertiveness/Impulsiveness-, Appropriate Social Skills and Miscellaneous. The method that was used for calculation is discussed in Table 3, under Factor Descriptive Statistics.

With regard to the reliability of the MESSY, it indicates that the internal reliability is 0.80 for the total score, 0.54-0.89 across factors as well as 0.94 and 0.98 for teacher version factors. Test-retest showed 0.76 for the total score and 0.49-0.80 across factors. For the validity of the MESSY, it correlates with teacher nominations and direct observation of social competence and significantly correlates with the AML Behaviour Rating Scale, Teenage Inventory of Social Skills and measures of depression. It differentiates a range of diverse children groups from controls (e.g. juvenile sex offenders, incarcerated adolescent males, autistic children, peer-rejected and popular children, chronically ill children, visually and hearing-impaired children and psychiatric populations [e.g. bipolar disorder, depression]) and has a low correlation (0.37) with the List of Social Situation Problems (Matson & Wilkins, 2009).

Ethical considerations

Permission from the Health Research Ethics Committee (HREC) of the North-West University was obtained for this study (NWU-00126-18-A1). The North West Department of Education was contacted for obtaining legal authorisation and approval to recruit participants from the SID Special Schools in the NW (Appendix B). Thereafter, the principals from each SID school were contacted to gain the number of children who adhere to the inclusion criteria. From the responses of the principals, the researcher then developed a list of the schools that verbally confirmed to have 10- to 12-year-old children with DS. The principals from the list were again contacted to obtain permission for the recruitment of participants and a letter of goodwill was requested from him/her and the school's governing bodies. A document was sent to the schools to gather the following information about the children: names; birthdates; diagnosis and place of parent residence. The researcher also asked the principal to assign an independent person to take responsibility for all correspondence and asked permission to use an assigned location at the school for information and training sessions.

The independent person from each school was asked to contact the parents/guardians of the identified children and invite them to an information session. As each independent person confirmed the interest in this session with the researcher, days were assigned to meet with the various groups of parents/guardians. The researcher ensured that the study's purpose and procedure were explained to the recruited participants. It was also emphasised that participation was voluntary and that participants were free to withdraw at any time without any consequence. The parents/guardians had the option of giving parental consent (Appendix B) on the same day of the information session or take one week to decide. Due to the children being a vulnerable population, the parents/guardians/teachers had to carefully explain the study to the children, after which the children were guided in giving either verbal, signed (if able), or fingerprint assent. This written consent and child assent (Appendix B) were given to the participants before any further steps were taken. After these documents were obtained, the children's teachers were invited to an information and training session. Here, the teachers were given the option to also give consent (Appendix B) on the same day or take one week to decide if they would like to act as the informant.

After completion of the study, a feedback session will be scheduled with the parents/guardians where the group's results will be discussed. These feedback sessions will be held at the schools where the participants were recruited from. The principals of each school will be responsible to identify the specific setting for these feedback sessions. Reports will be handed to the parents/guardians who indicated on the parental permission form that they would like to receive a report on their child's results. For further questions on the results, the parents/guardians will be advised to contact the researcher. In the event of a child who has extremely low levels of social skills, an information sheet on how it can be improved will be provided. The researcher will also provide the teachers with some in-class activities or suggestions on how they can address and improve their social skills. Thus, there are no direct benefits for the participants, but potential indirect benefits such as their contribution to research which is relevant to social skills and them gaining knowledge about the gaps in social development skills among children with DS. These sessions will however be done within the COVID 19 limits and regulations as required by the government.

Data analysis

Social skills

Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS IBM software available on the NWU network Version 25).

Firstly, descriptive statistics for each item were calculated, which included frequencies and percentages for all the data (categorical and continuous variables) and mean and standard deviations for the continuous data. The reliability of the three social skills factors (Appropriate, Inappropriate and Miscellaneous) was tested using Cronbach's Alpha. If the reliability does not hold, the scores for the three social skills factors as well as total social skills cannot be calculated. It was thus necessary to first calculate the reliability before moving on to calculate the scores to reach the objective.

After the reliability was tested, the scores for appropriate, inappropriate and total social skills factors were calculated. The total social skills score was determined by reversing the Appropriate Social Skills subscale ratings and adding its total score to the Inappropriate Social Skills subscale total score and Miscellaneous total score (Kalyva & Agaliotis, 2009; Matson *et al.*, 2010). To determine their social skills, descriptive statistics for the three social skills factors and total social skills were done. By calculating the means of the three social skills factors and total social skills, the average social skills level of the whole group was determined.

Recreational activities

The supplementary question consisted of a table, outlining the recreational activity areas, specific examples and a "comment" column where observations were reported and later transferred to a computer programme (Excel). This information was analysed by identifying the number of children who participated in each activity area. The specific activities that were reported by the teachers were summarised according to the classifications and examples set out by Russell and Jamieson (2008).

RESULTS

Social Skills Reliability

Table 1 provides a summary of the reliability of the Appropriate, Inappropriate and Miscellaneous Social Skills Factors, with specific reference to the inter-item correlation analysis as well as the mean ($\bar{x}$) and standard deviation (SD) scores required for the factor descriptive statistics.

Table 1. RELIABILITY VALUES (INTER-ITEM CORRELATION) AND FACTOR DESCRIPTIVE (MEAN AND STANDARD DEVIATION) SCORES FOR INAPPROPRIATE, APPROPRIATE AND MISCELLANEOUS SOCIAL SKILLS FACTORS

Social skills factors	MESSY item numbers	Inter-item correlation*	Mean (SD)
Inappropriate	2-9, 11-17, 21-24, 27, 29-32, 35-36, 38, 42-44, 48-49, 52-53, 55, 57-58, 60-64	0.33	2.01 (0.67)
Appropriate	1, 10, 18-19, 25-26, 28, 33-34, 37, 39-41, 45, 47, 50-51, 54, 56, 59	0.28	2.73 (0.67)
Miscellaneous	20, 46	0.68	1.79 (0.91)

*Inter-item correlation: 0.1 - 0.5 = Sufficient correlation. Smaller than 0.1 or larger than 0.5 = no correlation.

The Cronbach's Alpha for the MESSY in this study was remarkably high for the Inappropriate Social Skills behaviours ($\alpha = 0.95$) and slightly lower for the Appropriate Social Skills behaviours ($\alpha = 0.89$) and Miscellaneous items ($\alpha = 0.81$). Considering that the guideline value is at least $\alpha = 0.6$, all three factors are deemed to be reliable. The inter-item correlation indicates that there are sufficient correlations between the items of the Inappropriate Factor as well as the Appropriate Factor (Table 1). Although a high inter-item correlation score of 0.68 was found for the Miscellaneous Factor, it emphasises that the items are repetitive.

Social Skills Descriptive Statistics

Although the MESSY consists of three factors (Inappropriate, Appropriate and Miscellaneous Social Skills), the rating scale consisted of the 64 social skills behaviours that were observed by the teachers. The 64 items were all disarranged in the outline that was provided to the teachers. Table 2 provides an outline of the MESSY item numbers, item descriptions as well as the Likert Scale frequency and percentage (%) scores, mean ($\bar{x}$) and standard deviation (SD) scores amongst all 29 children.

Table 2. NUMBER AND PERCENTAGE (%) OF RESPONSES PER FREQUENCY AS WELL AS THE MEAN AND STANDARD DEVIATION SCORES FOR EACH ITEM OBSERVED AS A GROUP

Item no.	Item description	Frequency (%)					Mean (SD)
		1	2	3	4	5	
		Not at all	Seldom	Some-times	Often	Very much	
Factor 1: Inappropriate Social Skills							
2	Threatens others	12 (41.4)	5 (17.2)	6 (20.7)	4 (13.8)	2 (6.9)	2.28 (1.33)
3	Easily angered	10 (34.5)	8 (27.6)	3 (10.3)	8 (27.6)	0 (0.0)	2.31 (1.23)
4	Bossy	14 (48.4)	3 (10.3)	5 (17.2)	5 (17.2)	2 (6.9)	2.24 (1.41)
5	Complains often	9 (31.1)	7 (24.1)	4 (13.8)	6 (20.7)	3 (10.3)	2.55 (1.40)
6	Interrupts others while speaking	11 (37.9)	9 (31.0)	6 (20.7)	2 (6.9)	1 (3.5)	2.07 (1.10)
7	Takes things without permission	13 (44.8)	9 (31.1)	3 (10.3)	2 (6.9)	2 (6.9)	2.00 (1.22)
8	Braggs	15 (53.5)	4 (14.3)	5 (17.9)	3 (10.7)	1 (3.6)	1.96 (1.23)
9	Hits when angry	12 (41.4)	5 (17.2)	4 (13.8)	4 (13.8)	4 (13.8)	2.41 (1.50)
11	Gives others dirty looks	15 (51.7)	8 (27.6)	5 (17.2)	1 (3.5)	0 (0.0)	1.72 (0.88)
12	Feels angry when someone does well	26 (89.7)	2 (6.9)	1 (3.4)	0 (0.0)	0 (0.0)	1.14 (0.44)
13	Picks out other's faults	16 (55.2)	7 (24.1)	3 (10.3)	2 (6.9)	1 (3.5)	1.79 (1.11)
14	Wants to be first	14 (48.3)	4 (13.8)	6 (20.7)	3 (10.3)	2 (6.9)	2.14 (1.33)
15	Breaks promises	16 (57.1)	6 (21.4)	4 (14.3)	1 (3.6)	1 (3.6)	1.75 (1.08)
16	Lies	14 (48.4)	8 (27.6)	5 (17.2)	1 (3.4)	1 (3.4)	1.86 (1.06)
17	Picks on others	15 (51.7)	7 (24.1)	4 (13.8)	1 (3.5)	2 (6.9)	1.90 (1.21)
21	Purposely hurts others' feelings	16 (55.2)	7 (24.1)	2 (6.9)	3 (10.3)	1 (3.5)	1.83 (1.17)
22	Sore loser	18 (62.1)	7 (24.1)	3 (10.3)	0 (0.0)	1 (3.5)	1.59 (0.95)
23	Teases others	13 (44.9)	7 (24.1)	5 (17.2)	4 (13.8)	0 (0.0)	2.00 (1.10)
24	Blames others	13 (44.8)	7 (24.1)	6 (20.7)	2 (6.9)	1 (3.5)	2.00 (1.13)

Item no.	Item description	Frequency (%)					Mean (SD)
		1	2	3	4	5	
		Not at all	Seldom	Some-times	Often	Very much	
27	Thinks he/she knows all	19 (67.8)	5 (17.9)	3 (10.7)	0 (0.0)	1 (3.6)	1.54 (0.96)
29	Stubborn	10 (35.8)	4 (14.3)	6 (21.4)	2 (7.1)	6 (21.4)	2.64 (1.57)
30	Acts better than others	18 (62.1)	7 (24.1)	3 (10.3)	1 (3.5)	0 (0.0)	1.55 (0.83)
31	Shows feelings	3 (10.3)	8 (27.6)	13 (44.9)	3 (10.3)	2 (6.9)	2.76 (1.02)
32	Falsely thinks others are picking on him	13 (44.9)	9 (31.0)	3 (10.3)	4 (13.8)	0 (0.0)	1.93 (1.07)
35	Makes sounds that bother others	18 (62.1)	4 (13.8)	2 (6.9)	2 (6.9)	3 (10.3)	1.90 (1.40)
36	Braggs when wins	12 (41.5)	7 (24.1)	5 (17.2)	5 (17.2)	0 (0.0)	2.10 (1.14)
38	Speaks loudly	13 (46.4)	7 (25.0)	4 (14.3)	1 (3.6)	3 (10.7)	2.07 (1.33)
42	Defends self	7 (24.1)	6 (20.7)	7 (24.1)	5 (17.2)	4 (13.9)	2.76 (1.38)
43	Always thinks bad will happen	18 (69.2)	4 (15.4)	3 (11.5)	1 (3.9)	0 (0.0)	1.50 (0.86)
44	Tries to be better than others	17 (58.6)	7 (24.1)	4 (13.8)	1 (3.5)	0 (0.0)	1.62 (0.86)
48	Gets upset when has to wait	18 (62.1)	6 (20.7)	1 (3.4)	2 (6.9)	2 (6.9)	1.76 (1.24)
49	Enjoys being leader	13 (44.8)	4 (13.8)	5 (17.2)	6 (20.7)	1 (3.5)	2.24 (1.33)
52	Frequently gets into fights	11 (37.9)	8 (27.7)	2 (6.9)	5 (17.2)	3 (10.3)	2.34 (1.42)
53	Jealous of others	19 (65.5)	4 (13.8)	3 (10.3)	2 (6.9)	1 (3.5)	1.69 (1.14)
55	Tried to get other to do what he/she wants	12 (42.8)	10 (35.7)	1 (3.6)	4 (14.3)	1 (3.6)	2.00 (1.19)
57	Wears out welcome	9 (32.1)	7 (25.0)	3 (10.7)	4 (14.3)	5 (17.9)	2.61 (1.52)
58	Explains more than necessary	17 (58.6)	6 (20.7)	5 (17.2)	1 (3.5)	0 (0.0)	1.66 (0.90)
60	Hurts others to get what he/she wants	15 (51.9)	3 (10.3)	3 (10.3)	5 (17.2)	3 (10.3)	2.24 (1.50)
61	Talks about problems	17 (58.7)	7 (24.1)	2 (6.9)	3 (10.3)	0 (0.0)	1.69 (1.00)
62	Thinks winning is everything	13 (46.5)	9 (32.1)	3 (10.7)	2 (7.1)	1 (3.6)	1.89 (1.10)
63	Hurts others by teasing	13 (44.8)	4 (13.8)	5 (17.2)	6 (20.7)	1 (3.5)	2.24 (1.33)
64	Seeks revenge	15 (51.7)	6 (20.7)	6 (20.7)	0 (0.0)	2 (6.9)	1.90 (1.18)

Item no.	Item description	Frequency (%)					Mean (SD)
		1	2	3	4	5	
		Not at all	Seldom	Some-times	Often	Very much	
Factor 2: Appropriate Social Skills							
1	Makes others laugh	2 (6.9)	7 (24.1)	10 (34.5)	9 (31.0)	1 (3.5)	3.00 (1.00)
10	Helps someone who is hurt	2 (6.9)	11 (37.9)	8 (27.6)	7 (24.1)	1 (3.5)	2.79 (1.01)
18	Initiates conversation	12 (41.4)	7 (24.1)	7 (24.1)	2 (6.9)	1 (3.5)	2.07 (1.13)
19	Says “thank you”	3 (10.3)	2 (6.9)	7 (24.1)	6 (20.8)	11 (37.9)	3.69 (1.34)
25	Sticks up for others	15 (51.7)	9 (31.0)	1 (3.5)	4 (13.8)	0 (0.0)	1.79 (1.05)
26	Looks at others when speaking	1 (3.4)	11 (37.9)	10 (34.6)	6 (20.7)	1 (3.4)	2.83 (0.93)
28	Smiles at others	3 (10.3)	5 (17.2)	7 (24.1)	8 (27.7)	6 (20.7)	3.31 (1.28)
33	Thinks good things will happen	11 (39.3)	7 (25.0)	7 (25.0)	2 (7.1)	1 (3.6)	2.11 (1.13)
34	Works well on team	7 (24.1)	4 (13.8)	8 (27.6)	6 (20.7)	4 (13.8)	2.86 (1.38)
37	Takes care of others' property	8 (27.6)	6 (20.7)	6 (20.7)	8 (27.6)	1 (3.4)	2.59 (1.27)
39	Calls people by name	7 (24.1)	4 (13.9)	7 (24.1)	7 (24.1)	4 (13.8)	2.90 (1.40)
40	Asks to help others	11 (39.3)	5 (17.9)	6 (21.4)	6 (21.4)	0 (0.0)	2.25 (1.21)
41	Feels good when helping others	5 (17.2)	7 (24.1)	9 (31.2)	5 (17.2)	3 (10.3)	2.79 (1.24)
45	Asks others questions	11 (37.9)	9 (31.0)	6 (20.7)	1 (3.5)	2 (6.9)	2.10 (1.18)
47	Feels sorry when hurts others	5 (17.9)	8 (28.5)	7 (25.0)	5 (17.9)	3 (10.7)	2.75 (1.27)
50	Plays games with other children	1 (3.5)	1 (3.5)	13 (44.8)	7 (24.1)	7 (24.1)	3.62 (1.01)
51	Follows rules in game	4 (13.8)	7 (24.1)	9 (31.1)	7 (24.1)	2 (6.9)	2.86 (1.16)
54	Does nice things for others	7 (24.1)	9 (31.2)	5 (17.2)	5 (17.2)	3 (10.3)	2.59 (1.32)
56	Makes small talk (e.g., How are you?)	9 (31.1)	4 (13.8)	10 (34.5)	3 (10.3)	3 (10.3)	2.55 (1.33)
59	Friendly to new people	3 (10.3)	8 (27.6)	9 (31.1)	5 (17.2)	4 (13.8)	2.97 (1.21)

Item no.	Item description	Frequency (%)					Mean (SD)
		1	2	3	4	5	
		Not at all	Seldom	Some-times	Often	Very much	
Factor 3: Miscellaneous Social Skills							
20	Afraid to speak to others	14 (48.3)	7 (24.1)	6 (20.7)	2 (6.9)	0 (0.0)	1.86 (0.99)
46	Feels lonely	17 (58.7)	5 (17.2)	5 (17.2)	2 (6.9)	0 (0.0)	1.72 (1.00)

The highest corresponding social skill behaviours observed by the teachers were found under the “not at all” frequency category, which indicates that over the five-day-observation period, a high percentage of the children did not show the following behaviours: item 12 “feels angry when someone does well” (89.7%), item 43 “always thinks bad will happen” (69.2%), item 27 “thinks he/she knows all” (67.8%), item 53 “jealous of others” (65.5%) and item 22 “sore loser”, item 30 “acts better than others”, as well as item 35 “makes sounds that bother others” (62.1%).

Factor 1’s top five mean scores indicate that, on average, the children sometimes “show feelings” (item 31, $\bar{x}$ = 2.76), “defend self” (item 42, $\bar{x}$ = 2.76), are “stubborn” (item 29, $\bar{x}$ = 2.64), “wear out welcome” (item 57, $\bar{x}$ = 2.61) and “complain often” (item 5, $\bar{x}$ = 2.55). It can be seen from the lowest five mean scores for Factor 1, that, on average, the children with DS never “feel angry when someone does well” (item 12, $\bar{x}$ = 1.14), seldomly “always thinks bad will happen” (item 43, $\bar{x}$ = 1.50), “thinks he/she knows all” (item 27, $\bar{x}$ = 1.54), “acts better than others” (item 30, $\bar{x}$ = 1.55) and are a “sore loser” (item 22, $\bar{x}$ = 1.59).

With regard to Factor 2, on average, the participants were found to often “say thank you” (item 19, $\bar{x}$ = 3.69) and “play games with other children” (item 50, $\bar{x}$ = 3.62). They sometimes “smile at others” (item 28, $\bar{x}$ = 3.31), “make others laugh” (item 1, $\bar{x}$ = 3.00) and are “friendly to new people” (item 59, $\bar{x}$ = 2.97). The five lowest mean items for Factor 2 that were found, emphasise that, on average, the children seldom “stick up for others” (item 25, $\bar{x}$ = 1.79), “initiate conversation” (item 18, $\bar{x}$ = 2.07), “ask others questions” (item 45, $\bar{x}$ = 2.10) “think good things will happen” (item 33, $\bar{x}$ = 2.11) and “ask to help others” (item 40, $\bar{x}$ = 2.25).

The Miscellaneous Factor only consists of two items and although most of the children do not show these two behaviours, on average, the children are observed to seldom be “afraid to speak to others” (item 20, $\bar{x}$ = 1.86) and “feel lonely” (item 46, $\bar{x}$ = 1.72).

Factor Descriptive Statistics

Factor descriptive analysis was done to determine the average total social skills presented by the children, using the mean subtotal scores that were calculated for each social skills factor (Table 3). The calculation procedure that was followed was derived from the study by Kalyva and Agaliotis (2009).

Table 3. FACTOR DESCRIPTIVE ANALYSIS OF THE MEANS FOR INAPPROPRIATE, APPROPRIATE AND MISCELLANEOUS FACTORS, TOGETHER WITH THE TOTAL SOCIAL SKILLS MEAN SCORE

Social skills factor	Lowest	Mean	Highest
Appropriate (reversed)	20	54.42 (65.58)	100
Inappropriate	42	+ 84.17	210
Miscellaneous	2	+ 3.58	10
Total social skills	64	153.33	320

To determine the total social skills score, the subtotal mean for Appropriate Social Skills ratings were reversed by subtracting the subtotal mean Appropriate Social Skills score (54.42) from 120, which is gained by adding the lowest and highest scores [20 + 100]. Then, adding the reversed Appropriate Social Skills subtotal score (65.58) to the subtotal mean Inappropriate Social Skills subscale (84.17) and subtotal mean Miscellaneous score (3.58) (Kalyva & Agaliotis, 2009).

The highest total mean social skills score that could have been obtained was 320 and the lowest score 64, with an average score of 192. The total mean social skills score that was calculated for this study was 153.3, which indicates that children with DS have more “good” social skills (Appropriate Social Skills) than social impairments (Inappropriate Social Skills).

Recreational Activities

The recreational activities which the children participated in during the 5-day observation period were analysed according to the outlined activity areas from Russell and Jamieson (2008). Although these authors' outline was used as a guideline, the classification of these activities is

arbitrary (Russell & Jamieson, 2008). Examples were stated, after which an overview of the most to least participated in activity area and different activities was compiled (see Table 4).

Table 4. REPORTED RECREATIONAL ACTIVITIES DURING THE 5-DAY OBSERVATION

Activity area	Number of children (%)	Specific activities
Fine arts	23 (79.3)	Painting, tracing, clay modelling, drawing, colouring, paper making
Sports	16 (55.1)	Athletics (track & field), gymnastics, netball & soccer (catch, throw, kick)
Dance	14 (48.2)	School concert, free, expressive, social, hip-hop
Music	14 (48.2)	Listening, rhythm games, instruments, vocal
Intellectual or literary	12 (41.3)	Puzzles, writing, picture reading
Social recreation	10 (34.5)	Social dance, parties, church
Drama	8 (27.6)	Make-believe, storytelling, mime
Hobbies	5 (17.2)	Cleaning, educational (computers), collecting
Aquatics	3 (10.3)	Swimming
Travel	3 (10.3)	School trips
Crafts	2 (6.9)	Threading, weaving
Adventure	1 (3.4)	Playground swings, leg races
Outdoors and nature	0 (0.0)	N/A
Volunteer services	0 (0.0)	N/A

DISCUSSION

It was found that, on average, children with DS “sometimes” exhibit Appropriate Social Skills and “seldom” Inappropriate Social Skills. In the end, from the data that was captured and analysed, it was calculated that the group of 29 children with DS scored just below the average (as explained in 3.3.3). This group of children can therefore be classified as showing more Appropriate Social Skills than Inappropriate Social Skills. It should however be noted that their mean total score of 153.33 out of 320 (48%) was just below average (192), which could mean that they only exhibit slightly more Appropriate Social Skills than Inappropriate Social Skills.

These results contradict studies stating that children with DS and ID have a lack of skills, lower social status, less social competence, inappropriate behaviour in social situations, trouble in social communication, are incomprehensible when talking and do not understand the minds of others (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Solish *et al.*, 2010; Amadó *et al.*, 2012; Umadevi & Sukumaran, 2012). The findings from this study are different from publications on populations from other countries, as they were not only focussed on individuals with various disabilities (including ID and DS) but also included individuals varying in age (from 4- to 17-years-old and adults). Thus, the results from these studies would not be relevant to this SA-based study since (1) there is no specific literature that referred to the social skills of 10- to 12-year-old children with DS, (2) there is a big difference in the social skills of a 4-year-old and a 17-year-old child with DS, (3) the setting and family set-up of the children differ and (4) their exposure to social skills and leisure opportunities at their school environment vary. Literature does however state that children with DS have been described as very sociable or something like "extrovert," "friendly" or "outgoing" and that they enjoy social interaction with friends and family as well as learn from these individuals (Hornby, 1995; Down Syndrome Ireland, 2013). The last mentioned literature concurs with this study results, as it was found that the top five Appropriate Social Skills behaviours of the average 10- to 12-year-old child with DS include "says thank you", "plays games with other children", "smiles at others", "makes others laugh" and "friendly to new people".

As "plays games with other children" was the second-highest average (mean) social skills behaviour reported in this study, it concurs with literature stating that engagement in a diversity of leisure activities allows children to develop skills and engage in social contact with others (Bult, 2012; Shikako-Thomas *et al.*, 2013). Kristén (2003) states that, during school hours, games, sports and movement could be used to facilitate mental, physical and social abilities training. Thus, in the teachers' reports on the average social skill behaviour, "plays games with other children", as well as the leisure and recreational activities during school hours, a similarity in literature and this study results can be seen.

With regard to the leisure and recreation activities, there were two activity areas with non-participation, indicating that none of the 29 children participated in volunteer services and outdoors/nature activities. This might be due to their schools not offering these activities or the fact that the teachers do not incorporate them into their teaching curriculum. The activity that most of the children (79.3%) participate in at school is fine arts, with activities such as painting, drawing, colouring, clay modelling, tracing and papermaking. The second most participated activity (55.1%) is sports (physical activity) such as athletics (track and field), gymnastics, netball and soccer (catch, throw, kick) and complies with literature emphasising that school-aged children with DS participate in school provided physical leisure activities (Oates, 2009). However, it is

contradicting to a study that states that children with DS more frequently participate in a variety of recreational activities than in physical activities (MacDonald *et al.*, 2016). From these results, it can therefore be seen that special schools do provide leisure and recreation opportunities, however, data also indicated that some children either do not like participating in or do not participate at all in some of the activities. This conclusion is in line with literature that highlights the occurrence of sedentarism due to difficulty in following rules and lack of choices (Rynders *et al.*, 2003; Schwarzenegger *et al.*, 2005).

RECOMMENDATIONS

From what was found in this study's results, the teachers might have been biased when completing the MESSY and score the children higher, since they are responsible for teaching the children social skills. Although the researcher spoke to the teachers about honesty, a recommendation might be to have a class assistant or other teacher also observe and complete the MESSY. Another limitation was that participants were recruited based on inclusion criteria and all children with DS whom complied with the criteria were included. In the end, there were only 29 children who met the inclusion criteria, which means that the results might not be generalisable and representative of the NW. Firstly, it is suggested that the MESSY is used in a comparative study between children with DS and their same-aged typically developing peers. This will provide significant statistics on the specific differences and similarities with regard to social skills and leisure and recreational activities amongst the children with DS. Another research recommendation is to assess the social skills and leisure and recreational activities of children with DS who do not attend school and how it compares to school-attending children with DS. Also, while the MESSY is considered to be a teacher/parent report, it is recommended that the parents of the children with DS are asked to also complete the MESSY to compare differences and similarities between teachers and parents as well as school-based and home-based behaviour and skills. Research regarding the differences and similarities between children with DS in various provinces of SA is also recommended, as the leisure and recreation opportunities, the standard of living, number of schools and children with DS differ from province to province. This recommendation could also aid in gaining more statistically significant results with regard to this population's social skills and leisure and recreation participation, as the sample size will be bigger.

CONCLUSIONS

It can be concluded that children with DS exhibit similar behaviours relating to Appropriate and Inappropriate Social Skills but lean more towards having appropriate or good social skills. These results contradict the majority of literature on the social skills problems of individuals with ID and DS but concur with literature stating that they are very sociable and enjoy social interaction. Furthermore, it can be seen that the participants from this study experience satisfying social interactions, as it was found that they sometimes exhibit Appropriate Social Skills. Lastly, the opportunities provided at school to participate in leisure and recreational activities might be a reason for representing good and Appropriate Social Skills. These results may concur and confirm that leisure and recreation have social value and purposefully serve the society and the direction of one's life.

This information aid individuals in their knowledge about children with DS and how to treat and work with them. It gives insight to the teacher on the specific need of the child in their class and the level of social skill functioning as well as help them to develop leisure and recreational activities to address social skills problems or improve these skills. This data and results can be seen as relevant because it addresses the specific topic and focuses on a population that has not yet been researched before.

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CHAPTER 4

ARTICLE 2

THE PERCEPTIONS OF PRIMARY CAREGIVERS ON THE SOCIAL SKILLS AND RECREATIONAL ACTIVITIES OF CHILDREN AGED 10-12 YEARS WITH DOWN SYNDROME

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Short Title: Parent perceptions on social skills and recreation activities

This article will be submitted for publication to be considered in *South African Journal for Research in Sport, Physical Education and Recreation* (Appendix A). The article is submitted according to the specific guidelines for the journal. There were exceptions made for the prescribed font, line-spacing, margins, figures and tables to adhere to the NWU guidelines, in order to ensure uniformity and comprehensibility of the dissertation.

ABSTRACT

Children with Down Syndrome (DS) are known to have fewer responses to social initiations and interactions with peers and other people, which results in difficulties with social relationships. Children with DS are described as being “very sociable” and this is also evident from previous research, where parents of children with DS have different perceptions and views, as some are concerned about their child’s social life and others see them as sociable individuals. Yet, leisure and recreation have social value which purposefully serves today’s society and the direction of an individual’s life. This study aimed to determine the primary caregivers’ perceptions of the social skills and recreational activities of their 10- to 12-year-old children with DS. Semi-structured interviews were conducted with 13 primary caregivers, whereafter data was analysed through content analysis. Two major categories were identified from the data, each with various themes and sub-themes. The primary caregivers perceived their children to have relative strengths in making friends, as well as non-verbal social skills such as physical proximity and keeping eye contact during a conversation, compared to verbal communication skills in opening and ending a conversation and setting boundaries for self-disclosure. The children’s behaviour in the majority of social skills were however dependant on various situations, where a certain social skill was sometimes seen as a strength and other times they seem to struggle with the same skill. One of the major areas which primary caregivers identified as barriers to social interaction was their difficulty in speech. With regard to recreational activities, the primary caregivers mentioned that, at home, their children mainly participate in sports followed by music, drama, fine arts and intellectual/ literary activities. Most of the children with DS have also never experienced exclusion from participating in leisure and recreation activities.

Keywords: Children; Down Syndrome; Leisure; Parent influence; Parent perceptions; Recreation; Social skills.

THE PERCEPTIONS OF PRIMARY CAREGIVERS ON THE SOCIAL SKILLS AND RECREATIONAL ACTIVITIES OF CHILDREN AGED 10-12 YEARS WITH DOWN SYNDROME

INTRODUCTION

Children with Down Syndrome (DS) are known to experience difficulties in social relationships, as they have fewer responses to social initiations and interactions with peers and other individuals (Cory *et al.*, 2006). This may be contributed to misinterpretation of what others are saying, not being understood when talking, difficulty in social communication and conveying information in effective ways as well as lack of social skills (Buckley, 1993; Cory *et al.*, 2006; Abbeduto *et al.*, 2007; Oates, 2009; Amadó *et al.*, 2012). The concept of *social skills* is described as a variety of abilities that allow an individual to talk and engage with other people (Soto-Icaza *et al.*, 2015). It includes behaviours such as arguing respectfully, being in a group discussion, collaborating and cooperating with others, completing agreements, initiating a relationship as well as listening to others (Huitt & Dawson, 2011; Daraee *et al.*, 2016).

During middle and late childhood (7- to 12-year-old), typically developing children's social world beyond family and parents contribute to attaining a sense of inferiority or determination, which might explain a child's tendency to spend more time with peers (Payne & Barnett, 2006). Furthermore, the social groups of these typically developing children tend to be of the same age and sex and frequently change in-group members (Papalia *et al.*, 2012; Feigelman, 2015). Although children value being accepted by peers, it is more important to them to have personal friendships (Newman, 2000; Payne and Barnett, 2006). Yet, social skills influence the development of quality friendship and become important for appropriate interpersonal relationship development during the transition from late childhood to adolescence (Tipton *et al.*, 2013).

Compared to typically developing children, Deakin (2014) emphasised that mothers of children with DS were genuinely concerned about how different their child's relationships and interactions were. The mothers were also worried and unhappy about their child's social life, difficulties in social relationships, social isolation from peers and lack of friendships with typically developing peers (Deakin, 2014). They perceived that the reasons for these social problems were their child's disinterest in social interaction and difference in abilities and interests (Deakin, 2014). From another study, the majority of parents thought it was DS that had affected their child's quantity and quality of friendships (Oates, 2009).

The doubt of the accuracy of parent perceptions as well as differences in parent perception and assessment results are strongly emphasised by researchers (Hornby, 1995; Bhattacharya &

Sidebotham, 2000; Rankin *et al.* 2016). Hornby (1995) found that fathers made frequent comments about their children with DS being active, lovable and sociable, which might have been influenced by the tendency to present themselves in a more socially positive and desirable than negative way. These perceptions concur with Down Syndrome Ireland (2013) stating that children with DS are very sociable as they learn from social interaction with friends and family. Moreover, Rankin *et al.* (2016) state that parental perceptions regarding the importance of social skills may differ as some parents can see a certain skill as a deficit but may feel that it is not particularly important. In a study, parents of children with DS rated their child's speech and language as less impaired compared to the doctor's assessment (Bhattacharya & Sidebotham, 2000). Contradictory, some parents' perceptions from another study correlated with their children's measurements where the parent report and child battery measurements were similar with regard to receptive and expressive language (Fidler *et al.*, 2006). With these contradictions in literature, it is suggested that parents and other family members of individuals with disabilities should become more knowledgeable about their children's disability (Kosuwan *et al.*, 2014). This could assist parents in portraying accurate information about their children, which will result in gaining necessary guidelines for daily interacting with their children as well as during leisure time.

Activities done during leisure time is also considered to provide opportunities for social development, where children engage in social contact with others (Shea, 2006; Bult, 2012; Shikako-Thomas *et al.*, 2013). Leisure is a complex term to define and could mean different things to different people, however, for this study, leisure is described as a state of mind and free time (Edginton, 2004). Leisure have also been stated to border on recreation (Edim *et al.*, 2012), which are viewed as good and purposeful activities that assist individuals to rejuvenate themselves, renew their spirit and restore their energy through positive leisure experiences (Edginton *et al.*, 2004). Yet, unlike leisure, recreation is linked to being morally acceptable and contributing, not only to the individual but also to society as a whole. The outcome or motive to participate in recreation is more important than the activity itself and can consequently be described as an activity with social value that people enjoy participating in during their free time (Hurd & Anderson, 2010).

Intellectual, physical, or social limitations can however cause a potential physically active recreation participant to become a sedentary spectator, due to the difficulty of following rules (Rynders *et al.*, 2003). Individuals with DS's physical impairments (slightly enlarged tongue and hearing problems) also contribute to their limited use of expressive language, language acquisition and difficulty to produce precise speech sounds (SDSA, 2001; Bacino & Lee, 2016), which might explain why they were historically excluded from leisure and recreational activities (Mobily, 2002). The way an individual behaves in social situations will also influence the way

others respond to them and if one has social difficulties, it will discourage others to initiate or engage in inclusive activities (Raymond & Matson, 1989).

Parents of children with DS feel that participation with typically developing individuals and individuals with disabilities hold immediate and long-term social and health benefits (Menear, 2007). Parents of children with ID are therefore recommended to be actively involved with educators from the planning to the implementation phases of recreational activities and should consult sport and recreation specialists regularly, as this will help their children to acquire communication, organisation, problem-solving and social skills as well as develop innovative ideas for the improvement in their quality of life (Surujlal & Dhurup, 2009). Parents also felt that recreation broadened their child's experiences (assumably the social skills experiences) and strengthened the bond between themselves and their children (Surujlal & Dhurup, 2009), which concurs with Gresse (2013) who stated that leisure contributes to building healthy parent-child relationships.

Therefore, despite individuals with DS's impairments in certain social skill areas, it can be seen that leisure and recreation play a role in developing these social skills (Parr *et al.*, 2006; Tapps & Baghurst, 2018). These individuals are social human beings who require to live full lives, have opportunities for forming friendships and participate in leisure activities (Boer, 2010). Parents have however been found to have differing perceptions of their children's social skills. Some might perceive and describe their child as better in certain skills than they really are (Hornby, 1995), with a possible reason of not wanting other individuals to think that they have bad parenting skills. They might also perceive and describe their child as having bad social skills, as they link it to their child's disability, disinterest in social interaction and difference in abilities and interest (Oates, 2009; Deakin, 2014).

PURPOSE OF THE RESEARCH

The purpose of this research was to determine the primary caregivers' perceptions on the social skills and recreational activities among 10- to 12-year-old children with DS in the North West Province.

CENTRAL CONCEPTIONAL THEORETICAL FRAMEWORK

The conceptual framework is guided by reviewed literature, and is based on the premise that the primary caregivers' perceptions on their children's social skills are good and that they sufficiently participate in recreational activities. Various perceptions and views on social skills and recreational activities will be obtained from primary caregivers to address this premise.

METHODOLOGY

Study design

An interpretive descriptive qualitative approach was used to determine the perceptions of the primary caregivers on the social skills and recreational activities of children with DS.

Participants

Participants were selected through purposive sampling. Firstly, permission from the North-West Department of Education and various Severe Intellectual Disability Special Schools was obtained to conduct the study. The principals of each school were asked to assign an independent person to liaise information between the researcher and participants. Thereafter, primary caregivers of 10- to 12-year-old children were invited to attend an information session at the school. The researcher shared information about the study, after which the primary caregivers were given two weeks to decide whether or not they would want to participate and sign the informed consent document (Appendix B). Individuals who (1) had been present in the child with DS's life from early childhood (3–6 years old) until the conduction of this study; (2) resided in the North West Province; (3) were over 18 years old and (4) spoke and/or understood Afrikaans, English or Setswana, were allowed to participate as a primary caregiver. It is necessary to gain perceptions from the person who knows the child the best, thus emphasising inclusion of the primary caregiver and not the parent. By having uninvolved parents participate in the research, it would affect the results of the study. After the recruitment process, 13 interviews were conducted, from which the relationship to the child was as follows: parent/mother (n=9); guardian/family member (n=4).

Data collection instrument

Semi-structured one-on-one interviews were used. The interview questions (Appendix C) were compiled from the literature and the duration of the interviews was between 30 and 75 minutes as some of the interviews had a translator who interpreted each question and response. Data saturation was reached after 11 interviews and an additional two interviews were conducted to confirm the findings.

Ethical considerations

The researcher obtained permission for this study from the Health Research Ethics Committee (HREC) of the North-West University (NWU-00126-18-A1). Before participants were included in the study, the researcher explained the purpose and procedure of the study and emphasised that participation was voluntary and that participants were free to withdraw at any time without any consequence.

After the completion of the study, a feedback session would be scheduled with the primary caregiver where the group's results would be discussed. These feedback sessions would be held at the schools where the participants were recruited. The primary caregiver who indicated that they would like to receive a report on their child's results would be handed to them. For further questions on the results, the primary caregiver would be advised to contact the researcher. If it was determined that the child had extremely low levels of social skills and leisure and recreation participation, an information sheet on how it could be addressed would be provided. Thus, there were no direct benefits for the participants, but potential indirect benefits such as their contribution to research which is relevant to social skills and them gaining knowledge about the gaps in social development skills among children with DS.

Data analysis

The recorded semi-structured one-on-one interviews were transcribed by the researcher herself. Data was analysed by using the content analysis process that consists of three phases, namely preparation, organisation and reporting, where self-critical thinking was needed at each phase (Elo & Kyngäs, 2008; Elo *et al.*, 2014). ATLAS.ti 9, a computer programme, was used to manage and organise the data. Thereafter, the research outcomes, transcribed interviews, codes and the process that was used to code the data were sent to an independent co-coder. After coding the data, the researcher and the co-coder discussed the findings. The differences in various codes

that were found between the researcher and co-coder were discussed until a conclusion was agreed upon and necessary changes were made.

RESULTS AND DISCUSSION

The results that are presented next reflect the findings of the primary caregiver's perceptions on the social skills and recreational activities of their 10- to 12-year-old children with DS. Data analysis resulted in the identification of the following two categories: 1) social skills and 2) leisure and recreation with corresponding themes (Table 1).

Table 1. OVERVIEW OF CATEGORIES AND THEMES

Category	Theme
Social skills	Social skill behaviours
	Application of social skills
	Social group
Leisure and recreation	Participation
	Society's openness to the child's involvement

The principal findings from each theme are discussed utilising supporting quotes from primary caregivers and connections to existing literature.

Category 1: Social skills

Theme 1.1: Social skill behaviours

Stumbo *et al.* (2011) mention that social development relates to skills such as being able to appropriately open and end conversations, take turns at the appropriate time, set boundaries for self-disclosure, listen attentively, have good oral hygiene as well as keep eye contact and have physical proximity during conversations. It also relates to how a child handles conflict with peers and how friendships and other relationships are established (Anon, 2018). These social skills have an impact on the development of valuable friendships and appropriate interpersonal relationships during the transition from late childhood to adolescence (Tipton *et al.*, 2013). The primary caregivers were therefore asked to provide their opinion regarding these social interaction skills of their children, after which sub-themes were created (Table 2).

Table 2. THE SOCIAL INTERACTION SUB-THEMES

• Have physical proximity during conversation • Keep eye contact • Establishing friendships • Conflict handling	• Take turns at the appropriate time • Listen attentively • Oral hygiene • Set boundaries for self-disclosure • Open and end a conversation
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Children with DS display significant strength in non-verbal social skills (Down Syndrome Ireland, 2013; Mundy *et al.*, 1988). Data concurs, as a great deal of the children were perceived to maintain appropriate **physical proximity** during a conversation, which was to stand close.

“Most of the time she is close with us. Ja, most of the time she is next to me. Even if we are talking, even if like now, I’m going to fetch her, when we are at home, most of the time she will sit next to me or next to her younger brother” (primary caregiver 3).

Nonetheless, their ability to keep a close, appropriate distance, is more evident than data on either standing far or remarkably close, like in the case of primary caregiver 11 where her child *“wants to be here [between her feet] and then listening, just look at you in your eyes and even your mouth, yes”*. This child’s behaviour links to the non-verbal social skill of **keeping eye contact** during conversations. It was found that the majority of the children could keep eye contact, although for some children it was difficult. This was not because they did not want to look at an individual, but for reasons like *“her eyes are always having some tears in it, that is why she prefers to keep her head down”* (primary caregiver 3) and *“her eyes don’t stay still, they are not stationary”* (primary caregiver 5).

Despite their strengths in the above-mentioned non-verbal social skills, the children with DS were found to be exceptionally good in **establishing friendships**, as the largest share of primary caregivers quoted similarly that *“he just makes friends easily and does not even struggle to make friends”* (primary caregiver 8). Some primary caregivers described their children as *“very socialising”* (primary caregiver 6) and *“friendly”* (primary caregiver 5), which concurs with a study by Hornby (1995). This contributes to their ability in making friends and interacting with/approaching anyone. Some of the participants, however, showed varying behaviours as to how and with whom they chose to interact or play.

“She observes first and then looks at the person and tries to study this person and then later, maybe, she will try to engage with that person” (primary caregiver 10).

“He loves to play with the female friends instead of playing with male friends. He’s a bit choosy when it comes to male people that he wants to be around with” (primary caregiver 7).

“She is able to play with people that she knows, especially the friends that she usually plays with, but if she goes to a different place, it becomes a problem because now she feels a bit shy because of the condition that she’s living in” (primary caregiver 4).

One primary caregiver even reported that *“sometimes he gets involved in a fight with other kids, but he does come to a sense of playing very well with the kids”* (primary caregiver 1), which highlights a behaviour that was found in all the children, which is fighting/beating/hitting others. This usually happens (1) when they get angry, (2) if younger friends do not want to do something, or (3) when they are not going to win an argument. This last reason links to the social skills of how children with DS **handle conflict**. It was found that the children responded in different ways, as some would walk away because they either (1) did not like it, (2) were afraid but *“doesn’t know how to retaliate back”* (primary caregiver 10) or (3) got angry but did not retaliate. Others would become angry/aggressive and either (1) fought, (2) swear, (3) used conflicting words, (4) showed verbal dominance, or (5) threw tantrums.

Despite the differing responses within the group of children with DS, it was also found that a child would sometimes respond in a certain way and other times differently, depending on the situation at hand.

“...in terms of her having a verbal conflict, she just walks away and then she wouldn’t respond on what she had said. But when it comes to the physical conflict, that includes fighting, she does respond and fight back. If they “klap”, she “klap terug” (primary caregiver 11).

“he does listen and then he does give turns when it comes to speaking. But sometimes he’s not consistent with that. Sometimes, if you speak to him, he will just listen to you, but he will just leave it there and then in fact pretend that he doesn’t even hear you” (primary caregiver 9).

Primary caregiver 9’s quote relates to other social skills that were reported on, namely **appropriately taking turns** during a conversation and **listening attentively**. While only a few children were perceived to be able to appropriately take turns while in a conversation, most of the

primary caregivers reported that the children's ability to listen attentively was dependent on the situation. This primary caregiver also referred to her child's ability to listen attentively, which was also found to differ in the majority of the children. These differences might have occurred due to the misunderstanding or misinterpretation of the skill, as some answers pointed to when given tasks rather than during a conversation. For example, when a child listened but (1) acted on their own time or (2) did not respond with actions. Their listening ability was also dependant on situations such as losing concentration, listening to adults, but not younger children and only listening when interested in what was being said.

This type of response from primary caregivers' answers also occurred concerning **oral hygiene**. Poor oral health (discoloured teeth, oral malodour and periodontal disease) contributes to an individual's struggle in social acceptance (Davies *et al.*, 2000), which could lead to difficulty in social interaction as well as developing and maintaining friendships. Some children were seen to be good with maintaining good oral hygiene, as primary caregiver 11 explained that *"she knows, every day if she's going to school and even on weekends, to brush her teeth so she takes a small glass, go outside and brushes her teeth"*, while others were perceived to struggle with this skill. The reason for this behaviour is not because they do not want to have good oral hygiene, but because they are either functionally incapable of brushing their teeth and require assistance or they struggle with remembering to do so.

Certain social skills were found to be a challenge for most of the children in this study. One of these was **setting boundaries for self-disclosure**. The term *self-disclosure* entails telling others about your ambitions, thoughts, hopes, preferences and what your fears and feelings are (Anon, 2021). Being able to share this information is important for initiating and maintaining relationships (Greene *et al.*, 2006). The children with DS are however perceived to not disclose personal information, as explained by primary caregiver 1 *"He is not a person who always shares what his feelings are or what his goals are"*. This indicates that there is no need in setting boundaries because they do not disclose information.

Secondly, most of the children were perceived as not being able to **appropriately open and end a conversation**. Primary caregiver 5 explained this behaviour and elaborated on the reason for this behaviour: *"She can start a conversation, it's easy for her but then, to finish it, is another thing. Child 8 can talk, she knows how to start a conversation and then she can go through with it, but then along the way, she will just keep quiet. Unless maybe it's something that caught her attention so much that she can finish the conversation"*. This therefore indicates that children are not able to open and end a conversation, as some cannot start a conversation, nor end it or that

they sometimes start a conversation but not end it appropriately, due to not finishing their sentences or losing interest in the conversation.

Theme 1.2: Application of social skills

After data was gained on the children with DS's social skill behaviours, relevant information followed concerning the application of the social skills as mentioned in theme 1.1. Sub-themes were created to emphasise this data (Table 3).

Table 3. THE APPLICATION OF SOCIAL SKILLS SUB-THEMES

• Barriers • Areas to improve	• Importance of acceptance and friendship
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The social skills that the participants were reported to struggle with could be caused by **barriers** in cognitive skills/functioning, which unavoidably develop slower (Deakin, 2014).

“she doesn’t learn fast as other children” (primary caregiver 3).

“there are things that she forgets, you can ask her to do something, but then in a few minutes she will have forgotten exactly what you have asked her to do” (primary caregiver 10).

Apart from cognitive barriers, their physical impairments also contributed to their difficulty in producing accurate speech sounds (Bacino & Lee, 2016), which resulted in not being understood when speaking (Buckley, 1993) and affected social interaction and conversation.

“So, when he tries to communicate with people, his words are not clear and they end up not understanding him. So, understanding him becomes a problem for him because they end up thinking that he is either swearing at them or saying some nasty words towards them” (primary caregiver 9).

“It was not easy for him due to the speech problem because his speech developed very late. And by then he was very aggressive, because if he talks and you don’t understand him, he will get aggressive” (primary caregiver 6).

As findings concur with literature stating that children with DS usually experience a delay in language and speech development (Down Syndrome Ireland, 2013), primary caregivers identified this delay as the most important **area that needs to be improved**. However, primary caregivers also mentioned that behaviours and skills such as beating others, anger issues, swearing, understanding things and even forming friendships should be addressed.

“I think she can improve on forming friends, not the friends that she has right now, but other friends from the outside. Because sometimes we go with her somewhere and she would maybe sit alone because she doesn't know the people” (primary caregiver 5).

Generally, in this age group, it is more important for children to have personal friendships than being accepted by peers, although they still value and strive towards peer acceptance (Newman, 2000; Payne & Barnett, 2006). In contrast to literature, the children with DS value both **acceptance** and **friendships** as equally important. This is seen as most primary caregivers perceived that *“it's very important to be accepted by the other children”* (primary caregiver 3), with primary caregivers 7 & 10 stating *“like any other child”*. Most of them were also perceived to see friendship as important. Primary caregivers even identified a few benefits associated with having friendships or playing with friends. To mention a few: *“he gets to be busy and he does not have that loneliness in him and stays alone at the house”* (primary caregiver 1), *“they teach her how to talk”* (primary caregiver 3), *“he becomes very free when he plays with his friends”* (primary caregiver 8), *“they would maybe teach her how to write, how to say her name”* (primary caregiver 5), *“he's always happy when he comes there and he's always excited and happy and have a good time”* (primary caregiver 9), *“it gives her a sense of belonging”* (primary caregiver 10), *“improving his communication skills”* (primary caregiver 1), *“learn more”* (primary caregiver 3) from other children in their social group and finally primary caregiver 12 commented: *“to have friends can help her to stop being naughty, swearing a lot in general and fighting. If she starts playing with other children, the naughtiness part in her life could also improve.”*

Theme 1.3: Social group

Previous studies and research on typically developing 10- to 12-year-olds' social groups were used to develop questions for the interview schedule to gain and compare the information gained about the children in the study. Sub-themes were created from the responses to these questions (Table 4).

Table 4. THE SOCIAL GROUP SUB-THEMES

• Demographics • Spend most time with	• Extent/Number • Format
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The social groups of typically developing 7- to 12-year-old children tend to be of the same age and gender and the members of the group are known to change frequently (Papalia *et al.*, 2012; Feigelman, 2015; Blažević, 2016). On the other hand, children with disabilities may reveal aspects of friendship typically associated with younger children (Solish *et al.*, 2010) and are less likely to have a consistent group of friends (Tipton *et al.*, 2013). Most of the findings on the **demographics** (Table 5) of the participant's social group were contradicting to age-matched typically developing peers and similar to some literature on children with disabilities. The majority were perceived to **spend most of their time** with individuals younger than themselves and did not have a change of group members.

Table 5. CHILDREN'S INTERACTIONS ACCORDING TO AGE, GENDER AND RACE

Demographics	Code	Number of children (primary caregiver no.)
Age	• Younger • Same • Older	• 12 (primary caregivers 1-12) • 3 (primary caregivers 2, 5 & 6) • 9 (primary caregivers 1, 3-7, 11-13)
Gender	• Same • Opposite	• 13 (primary caregivers 1-13) • 9 (primary caregivers 3-4, 6-11 & 13)
Race	• Same • Other	• 12 (primary caregivers 2-13) • 3 (primary caregivers 4, 6 & 13)

While parents are seen as the initial main players in children's social context, teachers and peers become important as they start attending school (Newman, 2000). However, as they spend a lot of time within the family, opportunities for experiences with same-status interactions may not be available as within peer interactions (Schieffelin & Ochs, 1986). This might then explain why children with DS were perceived to spend more time with younger and older (family set-up) individuals, rather than same-aged-peers. While some of the children were reported to spend most of their time with friends, others were found to spend the majority of their time with family/parents. However, a third report from primary caregivers indicated that most time was spent with both friends and parents/family.

“She spends much more time with her friends. When she comes back from school, she goes to spend time with her friends and does not stay that long at home. So, maybe it’s to spend much time with the parents. But she spends most of her time with her friends” (primary caregiver 10).

“Child 9 spends enough time with his friends; he plays together with them and then, after he comes home, also likes to spend time alone. But more importantly, he likes to spend time with me and loves me as a parent” (primary caregiver 1).

Also, while children with disabilities form fewer friendships (Solish *et al.*, 2010), the majority of the primary caregivers said the **extent/number** of their children’s social group was quite big (6> friends), while others mentioned that it was not a big group (1-5 friends) and only a few children were perceived to not have friends. This highlights data that most of them interacted and played in a group **format** rather than in one-on-one sessions. Yet, for some of the participants *“it starts with a group and then, after a few minutes, you are going to see her with someone playing”* (primary caregiver 5). During these “playing” sessions, they participated in various recreational activities but were perceived to not always be able to fully participate.

“When they are playing basketball, even though she can’t play that, she always tries to be involved in the game” (primary caregiver 10).

“...would want to participate in skipping rope, even though she doesn’t quite do it well, but she goes out and do that together with the others” (primary caregiver 3).

Category 2: Leisure and recreation

Theme 2.1: Participation

Engagement in a diversity of leisure activities is not only vital for healthy child development but also allows children to develop skills and engage in social contact with others (Bult, 2012; Shikako-Thomas *et al.*, 2013). With questions that were asked with regard to this topic and answered accordingly, two sub-themes were identified (Table 6).

Table 6. THE PARTICIPATION SUB-THEMES

• Home and school activities	• Physically active lifestyle
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Throughout the interviews, primary caregivers mentioned various leisure and recreational activities that their children participated in. Through the activity areas, as set out by Russell and Jamieson (2008), an outline of most participated to least participated in **home-based** activities were developed (Table 7).

Table 7. ACTIVITY AREAS AND SPECIFIC HOME-BASED ACTIVITIES THE CHILDREN PARTICIPATE IN

Activity Area	Number of children	Primary caregiver no.	Type of activities
Sport	13	1-13	Running, athletics, hopscotch, rope skipping, soccer, playing with a ball, horse riding, gym & fitness (push- and sit-ups), top, basketball
Not specific	9	2, 4, 5, 6, 7, 8, 9, 11, 13	Play outside, cleaning, toys, church activities, cars, animals, trampoline, swing, boxes, push-bike
Music	7	3, 5, 7, 8, 9, 11, 12	Singing, listening to music, playing instruments
Drama	4	2, 4, 8, 13	Playing “mother and father” with the dolls, watching TV and movies
Fine arts	4	4, 5, 6, 12	Colouring, drawing, cut pictures
Intellectual/ Literary	4	4, 5, 12, 13	Writing
Dance	3	2, 3, 5	Jive (dancing), traditional dance
Traveling	3	1, 6, 13	Go away over holidays, outing to fast food places, go on walks, shopping
Hobbies	2	6, 13	Farming/Gardening, Collecting plastic bottles
Aquatic	1	13	Swimming
Crafts	1	5	Cooking

Specific to **school activities**, *“they offer those physical activities”* (primary caregiver 1), *“traditional dances”* (primary caregiver 2) as well as *“running”* or *“athletics”* (primary caregivers 2, 3, 4, 6, 11), which is found to be a yearly Special Schools event. Also, *“every year we take him to the Down Syndrome Athletics Day”* (primary caregiver 13) which is suspected to not be school-related, nevertheless, encouraged by the school.

Rynders *et al.* (2003) state that physically active children with DS have the potential to become sedentary spectators, which justifies results from King *et al.* (2010) emphasising a decrease in the intensity and diversity of active physical activities amongst children with disabilities. Some of the primary caregivers perceive their children to be inactive or lazy due to or with reasons such as (1) not realising or being aware, (2) their weakness/mental state/disability, (3) not performing well in sporting or physical activities, (4) the use of medicine, (5) problems with speech, (6) loneliness, (7) being a bit slow, (8) not being around other children, (9) operations and (10) weight. Some uncertainty amongst a lot of primary caregivers' perceptions on their children's leisure and recreation activities were found, as they leave them to freely choose what they want to do within the home and the surrounding community. This finding is contradicting to literature stating that it is usually the parents' responsibility to provide appropriate leisure/play activities and areas for their children with DS (Bourke-Taylor & Pallant, 2013). The perceptions of primary caregiver's views on their children's recreation activities at school are limited *"because most of the time when they are at school, I'm not aware of what activities they are doing"* (primary caregiver 1). This could be due to the child not being able to communicate what they do at school or that the schools don't inform the primary caregivers on their curriculum or schedules. This is where the difference in school systems from various countries play a role, especially with SA being a second world country. Primary caregiver 13 was however found to be very invested in her child stating that *"I take him for horse-riding lessons, daily lots of swimming"*, which was an outlier found from data. However, according to a greater number of the primary caregivers, agreed that their children are physically active and participated in sporting activities (physical) followed by music and then drama, fine arts and intellectual/literary activities. Not only does this contradict literature, but it also shows how important it is for the children to have a **physically active lifestyle**, as primary caregiver 3, while giggling, emphasised that *"it helps her to loose a bit, because she is a chubby child"*. Some primary caregivers reported being more involved in their child's physically active lifestyle, where they *"encourage her to continue doing those activities as she normally does, like playing ball"*.

Theme 2.2: Society's openness to a child's involvement

As primary caregiver 12 suggested that she would include her sister with DS in her jogging sessions, it was also found that, in most cases, the society *includes* and *accepts* the children with DS. Data highlighted sub-themes related to society's openness to the children's involvement in leisure and recreational activities (Table 8).

Table 8. SOCIETY'S OPENNESS TO A CHILD'S INVOLVEMENT SUB-THEMES

• Inclusion	• Exclusion
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Raymond and Matson (1989) remark that an individual's behaviour in social situations will influence the way others respond and will discourage them to initiate or engage in activities with the individual who struggles to socialise. In previous research studies, parents of children with DS mentioned how they as parents were treated with little respect (Surujlal & Dhurup, 2009) and reported being concerned about how their child might be treated, should they pursue organised sports (Young *et al.*, 2016). This seems to not be a concern for primary caregivers in this study, as primary caregiver 1 *"receives a lot of good reception from people when she is with him"* (translator) and the majority of the children experienced inclusion. One primary caregiver might however have influenced her child's inclusion and acceptance from society.

"So, they have accepted Child 9, because I have made them aware. They have accepted him the way he is and then the most important thing is that they love him for who he is and they don't discriminate against him. So, they have accepted him as a child with this special condition" (primary caregiver 1).

Apart from these positive results, individuals with DS have historically been excluded from leisure and recreational activities (Mobily, 2002) and children with DS were reported to be shunned by other parents and experienced social isolation (Surujlal & Dhurup, 2009). The only instances where the participants from this study encountered *exclusion* were in certain activities, such as singing and soccer, when peers were unaware of or uninformed about the child's condition or when the child excluded himself.

"In most cases, when she's playing with people that she doesn't know, these kids will exclude her in the activity because they don't know her and they are not aware or they don't know the conditions that she's in" (primary caregiver 4).

"...were happy to try and include him, but he didn't want to do what they were doing. You know, the other kids might try and include him and then he would take the ball and run away" (primary caregiver 13).

RECOMMENDATIONS

A few limitations to this study should be considered. It is possible that primary caregivers were biased during the interviews, as they are responsible for the upbringing and development of their child. A suggestion for this could be to have another family member who spends a lot of time with the child, simultaneously or separately participate in the interview. This will provide the researcher with more reliable information and limit biasness. Another limitation mentioned by the translator was that it was quite difficult to translate from Setswana to English, due to different dialects. This might have resulted in some information being stated differently from what the primary caregiver meant. A recommendation for this limitation would be to do post-interview translation, where the translator transcribed the recorded interviews on a word document.

CONCLUSIONS

Primary caregivers linked their child's condition to various social skill difficulties that their children experience. The group of 10- to 12-year-old children with DS was found to show differing behaviour in most of the social skills set out by Stumbo et al. (2011) and Anon (2018), as the primary caregivers reported that behaviours were dependent on various situations. This was seen in the children's responses to handling conflict, where, in some cases, it differed from one child to another. Some of the children were also found to be able to maintain good oral hygiene, while others struggle with this skill. The primary caregivers reported that their ability in listening attentively and taking turns is dependent on the situation at hand or the person involved in the conversation. The only social skills that a great number of the children were found to be good at, were forming friendships as well as their non-verbal social skills which included keeping eye contact and having appropriate physical proximity during a conversation. Thus, emphasising that children with DS tend to rely on their strengths in non-verbal social skills. Primary caregivers' responses concurred with literature, as they identified speech as a major barrier to social skills and could be connected to their incapability to open and end a conversation, setting boundaries for self-disclosure and overall social interaction skills.

It occurred that the children with DS's social group differ from same-aged typically developing peers, as they spend most of their time within the same group of people, which consist of parents/family and/or friends. According to the primary caregivers, the group of friends tends to be quite big and includes children who are younger than them. The children with DS also value having friendships as important as being accepted by others.

The primary caregivers perceived their children to be quite physically active with regards to recreational activities, as they mostly participated in sporting activities with others at-home which created opportunities for social interaction. From the primary caregivers' perceptions with regards to inclusion and exclusion in leisure and recreation participation, the majority of primary caregivers reported that their children had not experienced exclusion in this area. Yet again, the primary caregivers are not always aware of what is happening at school, which might play a role in their perception being accurate or not.

Finally, as primary caregivers' perceptions indicated that the children with DS's social skills were similar in some situations and different in other situations, it highlights the uniqueness of every child, despite being classified as having DS. Circumstances under which the children grow up, their level of functionality, people they spend time with and the type of activities they participate in are all factors that affect their social skills, social skills development and recreation participation. These results provide a good outline of the primary caregivers' perception and knowledge on their children with DS's social skills and recreational activities. As some primary caregivers are not always aware of what is happening at school with regards to recreational activities, this research might aid them in being more observant or informative on this matter. It also aids primary caregivers in understanding the uniqueness of their child and how to treat and work with them, but also emphasises the importance of social skills development through leisure and recreation participation at home. Lastly, the results is relevant to the premise of the central conceptual framework that was outlined for this study.

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CHAPTER 5

SUMMARY, CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of this study was to gain information on the social skills and recreational activities of 10- to 12-year-old children with Down Syndrome (DS) in the North West Province, utilising the Matson Evaluation of Social Skills with Youngsters (MESSY) and semi-structured interviews. The research question that was answered by this research study is, therefore: What are the teachers' and primary caregivers' evaluations and perceptions of recreational activities and social skills of 10- to 12-year-old children with DS in the North West Province?

Grounded on the above-mentioned research question, the objectives of this study were (1) to determine the social skills among children aged 10-12 years with DS in the North West Province, as evaluated by teachers as well as (2) to determine the primary caregivers' perceptions on the social skills and recreational activities among 10- to 12-year-old children with DS in the North West Province. This closing chapter provides a summary of the previous chapters as well as the conclusions that were derived from each chapter's results. It is followed by limitations and recommendations of the study and closes off with possible future research to build upon.

5.2 SUMMARY

Chapter 1 highlighted the characteristics of children with DS, stating that some children have strengths in social skills and others have weaknesses. To address these social skills, it was found that leisure and recreation contribute to the development of social skills and conversely social skills contribute to leisure and recreation. Additionally, Therapeutic Recreation (TR) together with parents' perceptions on their children's social skills, leisure, recreation as well as TR participation plays a vital role in this field of study. Lastly, the benefits of this study included that a foundation for further studies are laid and that research on this topic can be done to develop a TR intervention that is focused on the improvement of this population's social skills. Any individual, parent/guardian/primary caregiver, group or organisation that work with children with DS will also understand the social skills ratings of children with DS and see the necessity of focusing on the

children's social skills. There were also some shortcomings found specific to research on this population, which included the limited South African (SA) based research in this field of study and the necessity to focus on children with DS's social skills, their leisure and recreation participation.

Published literature was reviewed in Chapter 2, stating that children with DS are known to have a hearing impairment, which may contribute to their delay in speech and language development, and in turn affect their social skills and forming of friendships. Although children with DS were found to have social skill impairments, they are also described as being very sociable, as sought from research and parent perceptions. As previous research found that leisure and recreation were used to aid various populations such as older adults and individuals with disabilities (physical, Autism Spectrum Disorder, Cerebral Palsy and DS) in developing their social skills, a connection between social skills and leisure and recreation is evident. It was found, however, from previous research that children with DS rather participated in home-based, sedentary leisure and recreation activities than in social and team-orientated physical activities and might therefore not gain the social benefits associated with leisure and recreation participation. Nonetheless, literature on the parents' perceptions about leisure, recreation and social skills highlighted the reasons for their children's sedentary participation, which include not understanding the point of the activities or not being motivated by peers or siblings. While leisure forms the basis of TR, related literature was found on the TR process, how it links to social skills development and parent perceptions on TR and social skills. Although these perceptions provide relevant information, differences in children with DS, parent perceptions and countries were highlighted as something that needs to be considered. Finally, there are limited research specific to the social skills and recreational activities amongst 10- to 12-year-old children with DS and is necessary to gain more SA-based research in this field.

The first article (Chapter 3), *Teacher's evaluation of the social skills and recreational activities of 10- to 12-year-old children with Down Syndrome*, discussed the first objective of this research study. The social skills and recreational activities of 10- to 12-year-old children with DS were explored through a quantitative approach. Teacher observations took place over five consecutive school days, after which the teacher completed the MESSY rating scale and a supplementary question regarding the children's recreational activity participation. Data analysis indicated that the children with DS presented slightly more appropriate than inappropriate social skills, which indicated that they had fewer social impairments and more 'good' social skills. The recreational activities that the children tended to participate in were sports and fine arts.

Chapter 4, which is the second article, titled: *The perceptions of primary caregivers on the social skills and recreational activities of children aged 10-12 years with Down Syndrome*, focussed on

gaining information through the utilisation of a qualitative approach. Semi-structured interviews were conducted with 13 primary caregivers, whose responses were captured, transcribed and analysed. The results indicated that the children with DS were perceived to show differing behaviours in social skills such as oral hygiene, listening attentively, taking turns and handling conflict. This indicates that they sometimes showed good behaviour in these skills and other times not or that half of the group are good with a skill and the rest struggled with it. They showed difficulties in verbal related social skills (opening and ending a conversation and setting boundaries for self-disclosure), which could be related to their barrier in speech, but showed strengths in non-verbal related skills (physical proximity and keeping eye contact) and in forming friendships. Also, according to most of the primary caregivers, they were physically active, with sports being the recreation activity area they participated in most frequently, followed by music. While sporting activities are usually team-orientated, it emphasises the social interaction opportunities that the participants had experienced.

5.3 CONCLUSION

Chapter 3 and 4 both focussed on determining the social skills and recreational activities of 10- to 12-year-old-children with DS, by means of two different research approaches.

For objective 1 (Chapter 3), which was addressed through teacher observations and evaluations, it was hypothesised that: The children will show more inappropriate social skills than appropriate social skills. This hypothesis was derived from the literature indicating that children with DS have lower social status, less social competence, experience difficulties in social skills development and struggle with appropriate interaction with peers or individuals with various disabilities, including people with intellectual disabilities and DS (Sneegas, 1989:34; Stumbo, 1994:78; Solish *et al.*, 2010:226; Deakin, 2014:217; Bacino & Lee, 2016:612). This study, however, found that their social skills were not as impaired or inappropriate as was hypothesised, as they presented slightly more appropriate social skills than inappropriate social skills. Possible reasons for the contradicting findings could be that the available literature used to formulate the hypotheses was not SA-based, as there are differences in countries' economic status, development opportunities and schooling systems. This could refer to children with ID in SA usually being placed in special schools, whereas in other countries, some of them attend mainstream schools. Thus, the functionality of the children with DS in this study might also differ from the functionality of the children with ID and DS within the literature. It was also found that fine arts and sports were the main activity areas the children participated in at school. The presence of these activities can be

attributed to it being part of the school curriculum, or that the teacher or school determined and initiated the specific activities. From these conclusions, the hypothesis was therefore rejected.

Objective 2 was addressed in Chapter 4, where primary caregivers were interviewed to determine their perceptions. Data analysis concluded that children with DS showed relative strength in making friends and two non-verbal social skills, namely physical proximity and keeping eye contact during a conversation. Various differing social skill behaviours were reported, as children sometimes showed good behaviour in listening attentively, taking turns and handling conflict and other times not. Their biggest barrier to social skills was reported to be their speech, which explains their difficulties in verbal-related social skills such as opening and ending a conversation and setting boundaries for self-disclosure. With regard to recreational activities, primary caregivers viewed their children as physically active, as they participated in sporting activities at home. With regards to the central conceptual framework that was set out for this study, the findings were found to be relevant to the premise.

Therefore, in conclusion, 10- to 12-year-old children with DS in the North West Province show slightly more appropriate than inappropriate social skills and are perceived to need improvement in social skill behaviours which relates to opening and ending conversations and setting boundaries for self-disclosure. At school, the children mostly participate in fine arts activities while at home they are perceived to participate in sports. Although literature mostly states that children have low social status, struggle with social interaction skills and have social skills impairments (Sneegas, 1989:34; Stumbo, 1994:78; Solish *et al.*, 2010:226; Deakin, 2014:217; Bacino & Lee, 2016:612), this study proves otherwise. It was found (1) that they have slightly more appropriate social skills, (2) that some of them present certain social skills which others do not and (3) that sometimes, depending on the situation, they present a certain skill and other times not. In contrast to the literature on their typically developing age-matched peers (Feigelman, 2015:83; Papalia *et al.*, 2012:338), this study also shows that they spend most of their time with either friends, family/parents or with both of these groups, rather than same-aged-peers and that they do not have a change of group members. Children with DS are also known for being sedentary leisure and recreation participants and not physically active (MacDonald *et al.*, 2016:3; Oates, 2009:22), but this study shows that they participate in many sporting activities at home and even at school, although they tend to do fine arts at school.

This study provides relevant information to the first step of the TR process (assessment), as it is necessary to gain an idea of the participant's current level of functioning to develop an intervention to address their social skills needs. While most of the literature that was referred to in this study was not SA-based, the research findings make it more appropriate to SA children with DS, which

contributes to the SA body of knowledge. The information that was found lays a foundation for further research on this topic or the implementation of an intervention study. Not only will institutions, organisations and schools that work with children with DS benefit from this study, but the parent/primary caregiver will also gain more understanding of their children's social skills and leisure and recreation participation. Their increase in knowledge might then contribute to processes by which these skills and participation can be developed, maintained or improved.

5.4 LIMITATIONS AND RECOMMENDATIONS

This study had some limitations, which should be considered. Firstly, the collection of permission letters from schools and relevant information about the children took several months, which delayed data collection and contributed to a smaller sample size. In-person visits to the schools are therefore recommended, as this will avoid barriers regarding non-existent telephone landline numbers, incorrect email addresses and school holidays. Secondly, the children's birthdays were used to determine if they were suitable for the inclusion criteria on being 10-, 11- or 12-years old during data collection. This caused a decrease in sample size. Thus, it is recommended to rather generalise the ages of the sample size, such as using their year of birth. Thirdly, the training videos that were used for the MESSY, were roleplayed by typically developing students acting like children with disabilities, which could have portrayed behaviour that does not apply to this study. A suggestion is to rather use children with disabilities in the MESSY training videos, although the ethical aspects of this procedure would be something to consider before implementing it. Fourthly, certain items on the MESSY could also have been misunderstood, as English might not be these teachers' first- and/or home language, which then commends for more focussed and in-depth training on the MESSY items. Also, the teachers might have been bias in completing the evaluation and score the children higher, since they are responsible for teaching the children skills. Although the researcher spoke to the teachers about honesty, a recommendation might be to have a class assistant or other teacher also observe and complete the MESSY. In the end, there were only 29 children who met the inclusion criteria, which might not have generalised the results in representation of NW. Lastly, the translator indicated that it was quite difficult to translate from Setswana to English, due to different dialects and one primary caregiver being more confident in Zulu, although able to speak Setswana. This might have resulted in some information being stated differently from what the primary caregiver meant.

Recommendations for future research:

- As this study only served as the first step within the TR process, namely *assessment*, it poses the question on the remaining four steps in the TR process (planning, implementation, evaluation and documentation). This could be addressed with a follow-up intervention research study by implementing a leisure and recreation programme for children with DS that is focused on social skills development. Research with typically developing peers can be conducted to determine what effect social interaction with these peers have on children with DS as well as whether children with DS's interaction with same-aged typically developing children are more beneficial for their social skills than interaction with children with other intellectual disabilities. The pre-intervention and post-intervention results could provide relevant information on the effect of such a programme and will aid in ensuring that children with DS interact with a population that will develop or increase their social skills.
- Furthermore, during the interviews, the primary caregivers reported that the children only received Occupational Therapy (OT) and Speech Therapy when they were younger, up until they started going to school. There were not any reports on TR experiences and opportunities during their children's lives. Therefore, not only may interventions and continuous participation in OT, Speech Therapy and TR be beneficial for children with DS, but research from a young age within the field of TR could also determine if it is beneficial for them or not.
- Four comparative research studies could be done on the social skills and recreational activities of (1) children from Severely Intellectually Disabled and Mild Mental Learning Disability schools, (2) school-going children with DS and same-aged non-going children with DS, (3) typically developing children and same-aged children with DS and (4) children with DS from different provinces in SA. This could provide information on the differences and similarities between these different groups, as their level of functioning, circumstances, external factors and variables may play a role in their social skills and recreational activities.
- Also, while the MESSY is considered to be a teacher/parent report, it was only the teachers who completed the MESSY. Therefore, a comparative research study between the parents and teachers of the children with DS could provide insightful information on differences and similarities well as school-based and home-based behaviour and skills.

- Lastly, it is recommended that the relationship between the social skills and the children with DS's social skills could be investigated, as this would contribute original information to the body of knowledge.

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APPENDIX A

INFORMATION FOR AUTHORS

SOUTH AFRICAN JOURNAL FOR RESEARCH IN SPORT, PHYSICAL EDUCATION AND RECREATION

The *South African Journal for Research in Sport, Physical Education and Recreation* is published by the North-West University, Potchefstroom. Contributions from the fields of Sport Science, Physical Education, Recreation/Leisure Studies, Exercise Science and Dance Studies will be considered for publication. The articles submitted will be administered by the appropriate Subject Review Editor and evaluated by two or more referees. The decision as to whether a particular article is to be published or not, rests with the Editorial Board.

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Authors are also requested to name three/3 potential referees, of which one/1 must be an *international* referee (the Journal is not bound to use these referees). These must be from a different institution to the first author and not have

published with any member of the writing group in the previous 3 years. Complete information regarding the referees (name, surname, e-mail address and telephone numbers) must be provided in the cover letter.

We discourage the practice of parts of the same study submitted for other issues of this Journal. Authors who submit a manuscript from a study of which some data have been or will be published elsewhere, must provide a strong justification in the accompanying letter to the Editor. The justification for not publishing all the data together in one paper must also be motivated in the covering letter.

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The manuscript must have an **ethical clearance number** that was supplied by the authentic ethical committee of a specific institution. The process that was followed to obtain ethical clearance must be described in the manuscript under the heading, 'Ethical clearance'. No manuscript can be published without this declaration. Review, theoretic or philosophical articles do not require ethical clearance.

Any uncertainty regarding the **statistical procedures** that arise during the assessment of the manuscript will be referred to a local statistician. Any expenses incurred by the Journal dealing with statistical procedures will be added to the author's page fees.

All studies testing the effect of an intervention have to be registered with a trials registry to be eligible for peer review. We **STRONGLY** recommend prospective registration but will consider retrospectively registered trials with appropriate justification.

For completed randomised controlled trials, *SAJRSPER* requires the submission of a populated CONSORT checklist and flow diagram. The flow diagram should be included in the main body of the text and the checklist should be provided as an additional file. Both the flow diagram and the checklist should be referenced in the text. Submissions received without these elements will be returned to the authors as incomplete. A Word file of the checklist and flow diagram can be downloaded [here](#).

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The first page of each manuscript should indicate the *title* in English, the *names* (title, first name in full and other initials, surname) of the author(s), the *telephone* numbers (work & home [& *mobile* for local authors]), *facsimile* number, *Email* address and the *field of study*. The **complete mailing address** and **telephone numbers** of the corresponding author and the institution (department, faculty, university, city, country) where the work was conducted should be provided in full. When more than one author and/or authors from various departments and institutions are

involved, the ¹**author(s)** must be numbered according to their ¹**department(s)**. If any of the above-mentioned information should change during the review process, please inform the Subject Editor. A **short title** of not more than **45 characters** (including spaces), should be provided for use as a running heading.

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Each manuscript must be accompanied by an abstract of approximately 150-200 words in *English* and should be set on a *separate page* as a **SINGLE** paragraph (single spacing). A list of three to seven **keywords** in *English* is required for indexing purposes and should be typed below the abstract in alphabetical order.

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Start the text on a new page with the title of the article (centred and *without* the names of the authors). Follow the style of the most recent issue of the Journal regarding the use of headings and subheadings. Use only **one line space** after a paragraph. Only make use of **section breaks** and not **page breaks**. The text, as well as the tables and figures, may not be in any other format than **normal**. Thus, **no style sheets** may be used, also in the case of the list of references.

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In the *text*, the Harvard method must be adopted by providing the author's surname and the date placed in parentheses. *For example:* Daly (1970); King and Loathes (1985); (Botha & Sonn, 2002); McGuines *et al.* (1986) or (Daly, 1970:80) where Daly is not part of the sentence and page number is added for a direct quotation. More than one reference must be arranged **chronologically** (Daly, 1970; King & Loathes, 1985). Note that *et al.* (italics) is used in the body of the text from the beginning when there are **more than two authors**, but never in the list of references, where all authors must be provided.

List of references

Only the references cited in the text should be listed alphabetically according to surname (last name) of authors (uppercase) after the body of text under the heading, **REFERENCES** (uppercase) starting on a new page. In the case where the **TITLE** of an article, book, etc., is in any other language than English, the author must also provide an **English translation** of the title in parentheses (this applies to Afrikaans titles as well).

In the case of articles published in **JOURNALS**, references listed should include the surnames and initials (upper case and with full-stop and without spaces between initials) of **all** authors, the date of the publication in parentheses, the full title of the article, the full title of the journal (italics and no abbreviations), the volume number, the series/issue number in parentheses (if the said journal does not use issue numbers, the month of publication should be used), followed by a colon and a space with the first and last page numbers separated by a hyphen. In the case of online journals, use "online" if page numbers are not provided. The use of the correct punctuation is of importance.

If the reference is a **BOOK**, the surname (last name, upper case) and initials (with full-stop and without spaces) of the author or editor (Ed.) must be provided, followed by the date of publication in parentheses followed by a full-stop, the title of the book (italics) as given on the title page, the number of the edition (ed.) in parentheses, the city (and abbreviation for the state in the case of the USA OR the country) where published, followed by a colon, a space and the name of the publisher.

For a **CHAPTER** in a book, the page numbers of the chapter cited must be provided in parentheses (not italics) after the title of the book (pp. 20-29). For further details, authors should consult the most recent publication of this Journal for other examples.

If the reference is a **THESIS** (master's level) or **DISSERTATION** (doctoral level), italics is **not** used in the title as it

is an unpublished work. Provide the name of the city, state/country, colon, university and department/faculty.

For **ELECTRONIC SOURCES**, all references start with the same information that would be provided for a printed source (if available). The web page information follows the reference style. It will usually contain the name of the author(s) (if known), year of publication or last revision, title of complete work in *inverted commas*, title of web page, Uniform Resource Locator (URL) or access path in square text brackets (do not end the path statement with a full stop), full stop after the closing bracket and date of access (Retrieved on 10 December 2015]. See "How to cite information from the Internet and the Worldwide Web" at [<http://www.apa.org/journals/webref.html>] for specific examples. When citing a Web site in the text, merely give the author and date. When reference is made to a specific statement (quotation) in the article/document and no page number can be provided, the word 'online' is used for citing in the text (Van der Merwe, 2010:online).

When referencing an article in a **NEWSPAPER**, the key word of the newspaper is typed in capitals, as this is how it will appear in the **alphabetical listing** of references, namely *The-CAPE ARGUS (The)* will appear under "C" or *BURGER (Die)* will appear under "B".

In the case of a paper presented in conference **PROCEEDINGS**, the editors and the title of the proceedings, the page numbers of the article being referred to and the details of the congress (when and where it was held) and by whom (city, state, publisher) the proceedings was published should be provided.

Examples of style of formulations for different references

Journal

ZHENG, N.; BARRENTINE, S.W.; FLEISIG, G.S. & ANDREWS, J.R. (2008). Kinematic analysis of swing in pro and amateur golfer. *International Journal of Sports Medicine*, 29(6): 487-493.

Book

WEINBERG, R.S. & GOULD, D. (2011). *Foundations of sport and exercise psychology* (5th ed.). Champaign, IL: Human Kinetics.

Chapter in book

SCHNECK, C.M. (2010). Visual perception. In J. Case-Smith & J.C. O'Brian (Eds.), *Occupational therapy for children* (6th ed.) (pp. 373-403). Maryland Heights, MO: Mosby.

Thesis/Dissertation

SURUJLAL, J. (2004). Human resources management of professional sports coaches in South Africa. Unpublished doctoral dissertation. Johannesburg, South Africa: Rand Afrikaans University.

Proceedings of a conference

HARDMAN, K. & MARSHALL, J. (2001). Worldwide survey on the state and status of physical education in schools. In G. Doll-Tepner & D. Scoretz (Eds.), *World summit on physical education* (pp. 15-37). Proceedings of the "World Summit on Physical Education", 3-5 November 1999. Berlin, Germany: International Council of Sport Science and Physical Education (ICSSPE).

Personal communication/correspondence/interview

BOUKES, P.B. (2015). Personal communication from the Acting Director of Sport at the Nelson Mandela Metropolitan University, Port Elizabeth on 27 February 2015.

JACOBS, L. (2015). Personal interview with the Spokesperson of UNICEF, 25 August, Pretoria.

Newspaper

CAPE ARGUS (*The*) (1997). 25 March, p. 5.

Electronic source

DINOFFER, J. (2011). "Activities to build balance". *Prevent child obesity 101*. Hyperlink: [<http://www.preventchildobesity101.com/Activities/BalanceActivities.php>]. Retrieved on 20 November 2012.

ADMINISTRATION

If authors honour the rules and specifications for the submission of manuscripts, unnecessary delays would be avoided. Requesting 'copyright', concerning figures or photographs, is the responsibility of the authors and should be indicated. A manuscript that does not meet the requirements, as set out above, will be returned to the author without being evaluated. A subject specialist Editor administers and coordinates the assessment of the referees and provides the final recommendation.

The corresponding author will receive a complimentary copy of the Journal and five reprints of the article that could be shared with the co-authors. The original manuscripts and illustrations will be discarded one month after publication unless a request is received to return the original to the corresponding author. A page fee of South African **R300** per page is payable on receipt of a statement issued by the Editor.

APPENDIX B

ETHICS DOCUMENTATION

NWU HREC APPROVAL LETTER



Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: <http://www.nwu.ac.za>

Research Ethics Regulatory Committee
Tel: 018 299-4849
Email: nkosinathi.machine@nwu.ac.za

17 April 2019

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the North West University Health Research Ethics Committee (NWU-HREC) on 17/04/2019, the NWU Health Research Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Research Ethics Regulatory Committee (NWU-RERC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Recreational activities and social skills of 10-12-year-old children with Down syndrome in the North West Province: Evaluation and perceptions of teachers and primary caregivers.																												
Study Leader/Supervisor (Principal Investigator)/Researcher: Ms C Kriel																												
Student: CM Myburg																												
Ethics number:	<table border="1"><tr><td>N</td><td>W</td><td>U</td><td>-</td><td>0</td><td>0</td><td>1</td><td>2</td><td>6</td><td>-</td><td>1</td><td>8</td><td>-</td><td>A</td><td>1</td></tr><tr><td colspan="3">Institution</td><td colspan="3">Study Number</td><td colspan="3">Year</td><td colspan="3">Status</td></tr></table>	N	W	U	-	0	0	1	2	6	-	1	8	-	A	1	Institution			Study Number			Year			Status		
N	W	U	-	0	0	1	2	6	-	1	8	-	A	1														
Institution			Study Number			Year			Status																			
Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation																												
Application Type: Single Study	Risk: <table border="1"><tr><td>Children: Category 1 - No greater than minimal risk</td></tr><tr><td>Caregivers: Medium</td></tr><tr><td>Teachers: Minimal</td></tr></table>	Children: Category 1 - No greater than minimal risk	Caregivers: Medium	Teachers: Minimal																								
Children: Category 1 - No greater than minimal risk																												
Caregivers: Medium																												
Teachers: Minimal																												
Commencement date: 17/04/2019																												
Expiry date: 30/04/2020																												
Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.																												

Special in process conditions of the research for approval (if applicable):

- Please provide the HREC with copies of the goodwill permission letters from the four District Departments of Education
- Please provide the HREC with copies of the goodwill permission letters from the principals and the school governing bodies of the schools to be included in the study
- The researchers will have to submit a copy of the interview schedule for the qualitative phase of the study, to the HREC for approval before it is implemented in the study
- If the study proceeds past March 2019, it is requested that updated proofs of ethics training are provided for Ms C Kriel, Ms Y Stevens and Ms C Myburgh.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The study leader/supervisor (principle investigator)/researcher must report in the prescribed format to the NWU-HREC:
 - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and
 - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the NWU-HREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.
- Annually a number of studies may be randomly selected for an external audit.
- The date of approval indicates the first date that the study may be started.

- *In the interest of ethical responsibility the NWU-RERC and NWU-HREC reserves the right to:*
 - *request access to any information or data at any time during the course or after completion of the study;*
 - *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
 - *withdraw or postpone approval if:*
 - *any unethical principles or practices of the study are revealed or suspected;*
 - *it becomes apparent that any relevant information was withheld from the NWU-HREC or that information has been false or misrepresented;*
 - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
 - *new institutional rules, national legislation or international conventions deem it necessary.*
- *NWU-HREC can be contacted for further information or any report templates via Ethics-HRECApply@nwu.ac.za or 018 299 1206.*

The NWU-HREC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the NWU-HREC or the NWU-RERC for any further enquiries or requests for assistance.

Yours sincerely



Digitally signed by Wayne
Towers
Date: 2019.10.09
14:48:46 +02'00'

Prof Wayne Towers
Chairperson NWU Health Research Ethics Committee

Original details: (22351930) C:\Users\22351930\Desktop\ETHICS APPROVAL LETTER OF STUDY.docm
8 November 2018

Current details: (22351930) M:\DS519533\Monitoring and Reporting Cluster\Ethical\Certificates\Templates\Research Ethics Approval Letters\9.1.5.4.1 HREC Ethical Approval
Letter.docm
3 December 2018

File reference: 9.1.5.4.2

FEEDBACK ON NWU-HREC ANNUAL MONITORING REPORT



Dr C Kriel
PhASRec

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: +2718 299-1111/2222
Web: <http://www.nwu.ac.za>

Faculty of Health Sciences Ethics
Office for Research, Training
and Support

Tel: 018 299 2092
Email: wayne.towers@nwu.ac.za

31 October 2020

Dear Dr Kriel

FEEDBACK ON NWU-HREC ANNUAL MONITORING REPORT: NWU-00126-18-A1

We would like to thank you for submitting the annual monitoring report for your project entitled, "*Recreational activities and social skills of 10-12-year-old children with Down syndrome in the North West Province: Evaluation and perceptions of teachers and primary caregivers*", to the North-West University Health Research Ethics Committee (NWU-HREC) in a timely manner. Please find below the decision of the NWU-HREC regarding the continuation of your project.

Classification	Mark with X	Comment
Clarification		
Completion (Final report)		
Suspended		
Continuation	X	Date of next monitoring report: 30 April 2021
Termination		

Please note: Due to the current status of the study i.e. (analysis of qualitative and quantitative data that has been collected), this study will be able to proceed during the current alert level, following receipt of the continuation letter. No additional COVID-19 restrictions have been placed on the study except that the researcher must ensure that before proceeding with the study that all research team members have reviewed the North-West University COVID-19 Occupational Health and Safety Standard Operating Procedure.

Should you have any further queries, please feel free to contact Mr Buti Majola at your earliest convenience (E-mail: Ethics-HRECMonitoring@nwu.ac.za; Tel: 018 299 2197). We wish you well in your future endeavours.

Yours sincerely

Digitally signed by
Prof Petra Bester
Date: 2021.02.19
13:57:07 +02'00'

Chairperson: NWU-HREC

Current details: (24355305) G:\My Drive\9. Research and Postgraduate Education\9.1.5.5 HREC Monitoring\NWU-00126-18-A1-9.1.5.5.4_Conf_NWU-00126-18-A1_29-10-2020.docx
29 October 2020
File reference: 9.1.5.5.4

PERMISSION LETTER FROM DEPARTMENT OF EDUCATION



Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sportontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko

NORTH WEST PROVINCE

Gerona Building, Mmabatho
1st Floor, East Wing,
Private Bag X2044,
Mmabatho 2735
Tel.: (018) 934-2424
Fax: 085-514-0126
e-mail: mothabane@nwpg.gov.za

OFFICE OF THE SUPERINTENDENT-GENERAL

Enq. : Dr T Phorabatho
Tel. : 018 388 3071/3433

To: Ms C Kriel
North West University (Potchefstroom Campus)
Health Sciences

From: Mrs S M Semaswe
Superintendent-General

Date : 27 March 2019

PERMISSION TO CONDUCT RESEARCH: MS CM MYBURG

Permission is hereby granted to your student Ms CM KM Myburg to conduct research in the department as requested, subject to the following conditions:

- She contacts the relevant School Principals for her target schools about her request with this letter of permission.
- Considering that your research will involve both Educators and Learners, the general functionality of the school should not be compromised by the research process.
- The participation in your project will be voluntary.
- The principles of informed consent and confidentiality will be observed in strictest terms, and
- The findings of your research should be made available to the North West Department of Education and Sport Development upon request.

Best wishes

Mrs S M Semaswe
Superintendent-General

02/104/2019
Date



"Towards Excellence in Education and Sport Development"

PARENTAL PERMISSION FORM



Private Bag X1290, Potchefstroom
South Africa 2520

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Fax: +2718 299-4910

Web: <http://www.nwu.ac.za>



PARENTAL PERMISSION DOCUMENTATION FOR PARENT/GUARDIAN OF CHILD WITH DOWN SYNDROME

TITLE OF THE RESEARCH STUDY:

Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome

ETHICS REFERENCE NUMBERS:

NWU-00126-18-S1

PRINCIPAL INVESTIGATOR:

Cara Myburgh

ADDRESS:

North-West University
Faculty of Health sciences
Private bag X6001
Potchefstroom
2520

CONTACT NUMBER:

083 892 7514

Your child is being invited to take part in a research study on teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome. Please take some time to read the information presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about. Also, your child's participation is entirely voluntary and you are also free to say no for his/her participation. If you say no, this will not affect you negatively in any way whatsoever. Your child is also free to withdraw from the study at any point, even if the both of you agreed to this study.

This study has been approved by the Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00126-18-S1) and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

What is this research study all about?

- We plan to determine the social skills among children aged 10-12 years-old with DS by means of teacher's evaluations.
- We also plan to determine what the perceptions of the parents/guardians/primary caregiver of the 10 to 12 year old children with DS are regarding their social skills and recreational activities.

Why have your child been invited to participate?

- Your child has been invited to be part of this study because he/she is between the ages of 10 and 12 years old that has DS, whether it is Trisomy 21-, Translocation- or Mosaic Down Syndrome.
- He/she also fits the criteria because you as his/her parent/guardian lives in the North-West province and your child either speak and/or understand Afrikaans, English or Setswana.
- If your child does not fit the above mentioned criteria's, he/she will not be able to take part in this study. Therefore, if he/she:
 - has DS together with any another syndrome, he/she will not be able to participate as the other syndrome might change what we find in this study.
 - is older than 12 years old or younger than 10 years old, he/she also may not participate in this study. This means that if he/she will only be turning 10 years old during the study, he/she may not take part and if he/she is 12 years old but turning 13 years old during the study, he/she may not participate.

What will be expected of you?

- If you do decide to give permission for your child to participate in this study, we will expect you to sign this document under witness of the independent person at the school, assigned by the researcher.
- We will also invite and advise you to attend the feedback session after completion of the study, where the group results will be discussed. You will also be given the option to receive an individual report of your child's results.

What will be expected of your child?

- Observations will be done in the children's natural school environment, where social interactions with older and/or younger children with other types of ID and teachers will occur. Observations will also be done by the children with DS's regular teachers, thus indicating that your child will only need to be him/herself and do as he/she will usually do. He/she will have to carry on as usual.

Will you gain anything from giving permission for your child to participate in this research?

- There will be no direct gains for you in the study. However, after completion of the study, as mentioned above, a feedback session will be scheduled where the group's results will be discussed and if indicated, receiving an individual report on your child's results.
- The other potential indirect gains of the study is: your child's contribution to research which is relevant to social skills and gaining knowledge about the gaps in social development among children with DS.

Are there risks involved for your child taking part in this research and what will be done to prevent them?

- The risks and precautionary measures to limit the risk for your child in this study are mentioned below.

Possible Risk	Procedure to Reduce the Risk
Treatment of Anonymity	Each participant will receive a number to ensure that their identity is not linked to their results or responses when the researcher reports the data. Also, during the feedback session with the parents/guardians, it will only be the group results that will be discussed.
Breach of Confidentiality	To ensure confidentiality throughout this study, the teachers and translator will sign a document to indicate that he/she will handle the information as strictly confidential. The concept of confidentiality will also be discussed with the children, teachers and parents/guardians. Each child participating in the study will receive a number to ensure that their identity is not linked to their results or responses when the researcher reports the data. The independent co-coder will also be signing a confidentiality agreement document, as he/she will

	have access to the data.
Economic Risks	You might not be able to pay travelling expenses when needed to attend the information session and interview, therefore reimbursement will be given on arrival. The amount that will be reimbursed will be determined by the distance you will need to travel.

- There are more gains for your child in joining this study than there are risks.

How will we protect your child's confidentiality and who will see his/her findings?

- Anonymity of your child's findings will be protected by not linking his/her identity to the results or responses when the researcher reports the data. Your child's privacy will be respected and results will be kept confidential by deleting data from the laptop and digital recording device once the data has been transcribed. Only the researcher will be able to look at the findings. Findings will be kept safe by locking hard copies in locked cupboards in the researcher's office and for electronic data it will be password protected. (As soon as data has been transcribed it will be deleted from the recorders.) Data will be stored in the office cabinet of the researcher's supervisor for seven years.

What will happen with the findings?

- The findings of this study will serve as the first step within the Therapeutic Recreation (TR) process where information on social skills among school-aged children with DS will be gathered and assessed. Relevant information will serve as a foundation for further studies or research on this topic to develop a TR intervention where social skills for this specific population can be improved.

How will you know about the results of this research?

- After completion of the study we will give you the group results of this research by means of a feedback session. You will also be given the option to receive a report on your child's individual results.

Are there any costs involved for you?

You will not have to pay to be involved in the study, as the study is funded by the researcher, Provincial Recreation Council and Project Funds. Travel expenses to the information and feedback session will be reimbursed on arrival.

Is there anything else that you should know or do?

- You can contact Cara Myburgh at 083 892 7514 if you have any further questions or have any problems.

- You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if you have any concerns that were not answered about the research or if you have complaints about the research.
- You will receive a copy of this information and permission form for your own purposes.

Declaration by parent/guardian

By signing below, I give permission for my child to take part in the research study titled: Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome.

I declare that:

- I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person getting the permission from me, as well as the researcher and all my questions have been answered.
- I understand that my child's participation in this study is voluntary and have not been pressurised to take part.
- I may choose for my child to leave the study at any time and will not be handled in a negative way if I do so.
- My child may be asked to leave the study before it has finished, if the researcher feels it is in the best interest, or if he/she doesn't follow the study plan, as agreed to.

Signed at (place) on (date)
20....

.....
Signature of participant

.....
Signature of witness

Declaration by person obtaining permission

I (name) declare that:

- I clearly and in detail explained the information in this document to
.....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (place) on (date)
20....

.....
Signature of person obtaining permission

Declaration by researcher

I (name) declare that:

- I explained the information in this document to
- I did/did not use an interpreter
- I encouraged him/her to ask questions and took adequate time to answer them
- The informed permission was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (place) on (date)
20....

.....
Signature of researcher

Biographical information

1. Please fill in the table below with information regarding yourself as well as your/the child with DS.

No.	Parent/Guardian		Child	
1.	Date of birth		Date of birth	
2.	Gender	☐ M ☐ F	Gender	☐ M ☐ F
3.	Race		Race	
4.	Physical address and district where you live		Physical address where the child lives most of the time	
5.	Relationship to the child	☐ Parent ☐ Guardian		

2. Would you like to receive a report of your/the child with DS's individual results?
☐ Yes ☐ No
3. For the purpose of this study, the individual who will be participating in the interview is the primary caregiver of the child with DS, as questions regarding the child's upbringing and current social skills will be asked during the interview. Therefore, the primary caregiver can be seen as the person who has been present in the child with DS's life from early childhood (3–6 years old) until the conduction of this study. Will you describe yourself as your/the child's primary caregiver?
☐ Yes ☐ No
4. Will you as the child's parent/guardian be participating in the interview?
☐ Yes ☐ No

If your answer in question 4 was "NO", could you please indicate who is seen as the primary caregiver of your/the child with DS, that will be participating in the interview.

- Name and Surname:
- Contact details:
- Relationship to the child:

CHILD ASSENT FORM



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PARTICIPANT INFORMATION LEAFLET AND LATE CHILDHOOD ASSENT FORM FOR 10- TO 12-YEAR-OLD CHILDREN WITH DOWN SYNDROME IN THE NORTH-WEST PROVINCE

TITLE OF THE RESEARCH STUDY:

Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome

ETHICS REFERENCE NUMBERS:

NWU-00126-18-S1

PRINCIPAL INVESTIGATOR:

Cara Myburgh

ADDRESS:

North-West University
Faculty of Health sciences
Private bag X6001
Potchefstroom
2520

CONTACT NUMBER:

083 892 7514

What is this letter about?



You are invited to be part of a research study.



We want to learn more about the way you behave and act around other children and how you talk to people.



You need to decide if you want to be part of this research study or not.



Please ask your parent/guardian any questions if you do not understand.



It is very important that you know what this research study is about and how you will be part of it.



Also remember that it is your own choice if you want to be part of it or not.



If you don't want to be part of the study no one will be mad at you whatsoever.



If you decide to be part but later feel that you don't want to be part anymore, you can stop at any time.

The Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00126-18-S1) looked at the research study and made sure that it is created to fit certain rules which will respect you as a child. This committee can also look at what we say in this research study, to make sure we obey these rules.



What is this research study all about?



We want to learn more about the way you talk to and treat other people, and how you behave and act around them.



This research study will take place at your school and will last for 5 school days.



Almost 40 children who are 10-12 years old and also have Down syndrome will take part in this study.



This research study will also tell us whether you show more good or bad behaviour towards other children.

Why have you been invited to take part?



Because you have Down syndrome.



Because you are either 10-, 11- or 12 years old.



Because your parents/guardians live in the North-West province of South Africa.



Because you either speak or understand Afrikaans, English or Setswana.



You will not be able to take part in this research study if you:



have Down syndrome together with any another syndrome, because the other syndrome might change the results of the study.



are older than 12 years old or younger than 10 years old. So as soon as the study starts you should already be 10-, 11- or 12 years old and not be turning 13 years old while we are busy with study.

What will you need to do?



For 5 school days your teacher will be looking at what you do, how you behave, talk to and act around other children.



So, for those 5 school days you will only need to be yourself and do what you always do.



Your teacher will fill in a form on what he/she saw over the 5 school days.

Will you get anything from taking part in this research study?



At the end of the study your parents/guardians will go to the school, where we will give them the results of the whole group of children.



If your parent wants to know how you did in the study, we will write him/her a letter with your results in it.



This information can then maybe help them to learn more about Down syndrome.

Will it be dangerous for you to take part in this research study? What will we do to make sure that is doesn't happen?

Possible Danger	What we will do to make the dangers less
That people who reads about our research study know who you are 	> We will not use your name when we write our results down. > You will get a number before we start the research study. > At the end of the study we will share the results of the whole group of children with Down syndrome and not only show your results. 
That the results of the research study is not safe 	> At the end of the study we will make sure that the results are kept safe in our office for seven years. 

Are there more good than bad things for you if you take part?



We feel that there are more good things for you if you take part in the study.



Your parents/guardians can use the results of this study to help you.



It will also help other people who do research studies to learn and know more about Down syndrome.

What will happen if you start to feel scared or worried while you are taking part?



We don't expect any harm or dangers while you are taking part.



If you tell the teacher that you feel scared or worried he/she will try to help you as fast as they can.

Who will be able to see what we saw and found?



Only two people will be allowed to see what was found in the research study.



Your name will not be used when we write about the results.



The results will be kept safe in our office for seven years.

What will happen with the results?



It will help with future research studies to maybe use games to help children with Down syndrome learn how to behave, act and talk better with other children.

How will you know about what we saw and found in the research study?



After the whole research study is done, your parents/guardians will be able to tell you what we found.

Is there anything that you will have to pay for?



You don't have to pay to take part in the research study, because we, the Provincial Recreation Council and Project Funds will pay for everything.

Do you have any other questions or problems?



Ask your parents/guardians to call Cara Myburgh at 083 892 7514.

They can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if not all of your questions were answered about the research or if you have complaints about the research.



You will receive a copy of this paper for your own use.

AGAIN.....

How will you be part of the research study and what you will need to do



For 5 school days, your teacher will be looking at what you do, how you behave, talk to and act around other children.



You will only need to be yourself and do what you always do.



Then your teacher will fill in a form about what she/he saw over the 5 school days.

Make a mark or point on **the picture** of what will happen during this research study and what you will need to do

1.



2.



Answer the following questions



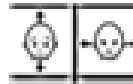
You can make a circle around your answer

OR



Say YES or NO

OR



Move your head up and down or side to side

OR



Show a thumb up or down

QUESTIONS



Have you read this letter?

Or

Has someone read it to you?



Have you had the chance to ask questions about the research study?



Has all your questions been answered?



Do you understand that it is your own choice to take part?



Do you understand that you can stop to take part at any time and that no one will be mad if you do?



Do you want to take part?



Declaration by participant

By writing my name, making a mark below or showing my parent/guardian that I want to take part, I agree to be part of the research study titled: Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome.

Signed at (place)  /  Please make an "X" on the place where you are now

on (date)  2019
Please make an "X" on today's date
Your parent/guardian will write the month on the dotted lines (.....)

.....						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



.....
Please write your name or put
your fingerprint on the dotted
line (.....) above

.....
Signature of witness

Declaration by person obtaining assent

I (*name*) declare that:

- I clearly and in detail explained the information in this document to
.....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (*place*) on (*date*) 20....

.....
Signature of person obtaining assent

.....
Signature of witness

Declaration by researcher

I (name) declare that:

- I explained the information in this document to
- I used an interpreter only if asked for by the participant
- I encouraged him/her to ask questions and took adequate time to answer them
- I was available should he/she want to ask any further questions.
- The informed assent was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (place) on (date) 20....

.....
Signature of researcher

.....
Signature of witness

INFORMED CONSENT FORM FOR TEACHERS



Private Bag X1290, Potchefstroom
South Africa 2520
Tel: +27 18 299-1111/2222
Fax: +27 18 299-4910
Web: <http://www.nwu.ac.za>



INFORMED CONSENT DOCUMENTATION FOR TEACHER OF CHILD WITH DOWN SYNDROME, OBSERVING THE CHILD AND SERVING AS INFORMANT

TITLE OF THE RESEARCH STUDY:

Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome

ETHICS REFERENCE NUMBERS:

NWU-00126-18-S1

PRINCIPAL INVESTIGATOR:

Cara Myburgh

ADDRESS:

North-West University
Faculty of Health sciences
Private bag X6001
Potchefstroom
2520

CONTACT NUMBER:

083 892 7514

You are being invited to take part in a research study on teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome. Please take some time to read the information presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about and how you might be involved. Also, your participation is entirely voluntary and you are free to say no to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now.

This study has been approved by the Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00126-18-S1) and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

What is this research study all about?

- We plan to determine the social skills among children aged 10-12 years-old with DS by means of the teacher's evaluations. We also plan to determine what the perceptions of the parents/guardians/primary caregiver of the 10 to 12 year old children with DS are regarding their social skills and recreational activities.
- This part of the study will be conducted at the child with DS's school. It will involve observing the child for 5 consecutive school days and completing a measure instrument on their social skills.

Why have you been invited to participate?

- You have been invited to be part of this research because you are seen as the child with DS's regular teacher at school.
- You are also willing to observe the child/children with DS for five consecutive school days and answer an additional question regarding their recreational activities.
- You also fit the research because you speak and/or understand Afrikaans, English or Setswana.
- If you do not adhere to the above mentioned criteria, you will be excluded from participating in this study.

What will be expected of you?

- One day prior to the scheduled observation you will need to attend the training session on how the measure instrument (Matson Evaluation of Social Skills

for Youngsters) works and how to complete it, which will be held in a setting identified by the principles.

- As part of the training you will also be asked to view a short video recording of a class session, where after you will complete an observation form, meet up with the other teachers in training and discuss the findings. Consequently, all the teachers at the training will be able to compare and contrast their results to ensure accuracy in the findings across all observers.
- The day after the training protocol, you will then have five consecutive school days to observe the child and fill out the MESSY questionnaire. Children will be observed from when the school day starts until it ends, where you can complete the MESSY during or after the five school days.
- Together with the MESSY, you will also be asked to answer an additional question with regards to the structured recreational activities these children participate in, which is provided by the school or that forms part of school activities. This information will provide an idea of which activities are presented at the schools, which may be used to explain research findings from the interviews.
- Approximately one week after the distribution of the MESSY, you will need to make sure that the researcher obtains this document from you.

Will you gain anything from taking part in this research?

- There will be no direct gains for you in the study. However, after completion of the study, a feedback session will be scheduled where the group's results will be discussed. For further questions on the results, you will be advised to contact the researcher.
- The other potential indirect gains of the study is: your contribution to research which is relevant to social skills and gaining knowledge about the gaps in social development among children with DS.

Are there risks involved in you taking part in this research and what will be done to prevent them?

- The risks and precautionary measures to limit the risk for you in this study are mentioned below.

Possible Risk	Procedure to reduce risk
Emotional Risks	Should there be any emotional triggers, because of the emotional nature of your job, which causes emotional discomfort for you, contact details for a professional counsellor/psychologist will be provided. If you decide to make use of the counselling/psychological services, the costs will be incurred by the researcher.
Treatment of Anonymity	When the researcher reports the data, your responses will be referred to as anonymous. The researcher will calculate the

	results and summarise it into a conclusion of what was observed.
Breach of Confidentiality	Confidentiality will be ensured throughout this study. The translator signed a document which indicated that he/she will handle the information as strictly confidential. The concept of confidentiality has also been discussed with you during the information session.

- There are more gains for you in joining this study than there are risks.

How will we protect your confidentiality and who will see your findings?

- Anonymity of your findings will be protected by not linking your identity to your results or responses when the researcher reports the data. Your privacy will be respected and results will be kept confidential by deleting data from the laptop once the data has been summarised. Only the researcher will be able to look at your evaluations. Findings will be kept safe by locking hard copies in locked cupboards in the researcher's office. (As soon as data has been calculated and summarised, it will be deleted from the recorders.) Data will be stored in the office cabinet of the researcher's supervisor for seven years.

What will happen with the findings?

- The findings of this study will serve as the first step within the Therapeutic Recreation (TR) process where information on social skills among school-aged children with DS will be gathered and assessed. Relevant information will serve as a foundation for further studies or research on this topic to develop a TR intervention where social skills for this specific population can be improved.

How will you know about the results of this research?

- After completion of the study we will give you the group results of this research by means of a feedback session. You will also be given the option to receive a report on your child's individual results.

Will you be paid to take part in this study and are there any costs for you?

You will not have to pay to be involved in the study, as the study is funded by the researcher, Provincial Recreation Council and Project Funds. You will receive a R50 Checkers voucher after evaluating the child with DS. It might happen that you will need to evaluate more than one child, therefore receiving a R50 Checkers voucher for each child observed.

Is there anything else that you should know or do?

- You can contact Cara Myburgh at 083 892 7514 if you have any further questions or have any problems.
- You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if you have any

concerns that were not answered about the research or if you have complaints about the research.

- You will receive a copy of this information and consent form for your own purposes.

Declaration by participant

By signing below, I agree to take part in the research study titled: Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome.

I declare that:

- I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be handled in a negative way if I do so.
- I may be asked to leave the study before it has finished, if the researcher feels it is in the best interest, or if I do not follow the study plan, as agreed to.

Signed at (place) on (date)
20....

.....
Signature of participant

.....
Signature of witness

Declaration by person obtaining consent

I (name) declare that:

- I clearly and in detail explained the information in this document to
.....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (place) on (date) 20....

.....
Signature of person obtaining consent

Declaration by researcher

I (*name*) declare that:

- I explained the information in this document to
- I did/did not use an interpreter
- I encouraged him/her to ask questions and took adequate time to answer them
- The informed consent was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (*place*) on (*date*)
20....

.....
Signature of researcher

INFORMED CONSENT FORM FOR PRIMARY CAREGIVERS



Private Bag X1290, Potchefstroom
South Africa 2520
Tel: +2718 299-1111/2222
Fax: +2718 299-4910
Web: <http://www.nwu.ac.za>



INFORMED CONSENT DOCUMENTATION FOR PARENT/GUARDIAN/PRIMARY CAREGIVER OF CHILD WITH DOWN SYNDROME BEING INTERVIEWED

TITLE OF THE RESEARCH STUDY:

Teachers and primary caregiver's perceptions of recreational activities and social skills
in children with Down syndrome

ETHICS REFERENCE NUMBERS:

NWU-00126-18-S1

PRINCIPAL INVESTIGATOR:

Cara Myburgh

ADDRESS:

North-West University
Faculty of Health sciences
Private bag X6001
Potchefstroom
2520

CONTACT NUMBER:

083 892 7514

You are being invited to take part in a research study on teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome. Please take some time to read the information presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about and how you might be involved. Also, your participation is entirely voluntary and you are free to say no to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now.

This study has been approved by the **Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00126-18-S1)** and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

What is this research study all about?

- We plan to determine the social skills among children aged 10-12 years-old with DS by means of the teacher's evaluations. We also plan to determine what the perceptions of the parents/guardians/primary caregiver of the 10 to 12 year old children with DS are regarding their social skills and recreational activities.
- This part of the study will be conducted at the setting agreed upon by you as the parent/guardian/primary caregiver and the researcher. It will involve a semi-structured one-to-one interview with an experienced health researcher trained in interviewing, where approximately 14 participants will be included.

Why have you been invited to participate?

- You have been invited to be part of this research because you are the parent/guardian/primary caregiver who has been present in the child with DS's life from early childhood (3–6 years old) up until the conduction of this study.
- Because you reside in the North West Province, you are also invited to participate in the research study.
- You also fit the research because you are over 18 years old and speak and/or understand Afrikaans, English or Setswana.
- If you do not adhere to the above mentioned criteria, you will be excluded from participating in this study.

What will be expected of you?

- You will be expected to participate in an interview of approximately 30-60 minutes and a possible follow up interview.
- A follow-up interview will be scheduled if the researcher is uncertain about some information that was given or if more information on a specific topic is necessary.

Will you gain anything from taking part in this research?

- There will be no direct gains for you in the study. However, after completion of the study, a feedback session will be scheduled where the group's results will be discussed. For further questions on the results, you will be advised to contact the researcher.
- The other potential indirect gains of the study is: your contribution to research which is relevant to social skills and gaining knowledge about the gaps in social development among children with DS.

Are there risks involved in you taking part in this research and what will be done to prevent them?

- The risks and precautionary measures to limit the risk for you in this study are mentioned below.

Possible Risk	Procedure to reduce risk
Emotional Risks	No personal and sensitive information will be asked during the interview. Questions regarding the child with DS, their social development, leisure and recreation time will be asked. Should there be any emotional triggers, which causes emotional discomfort for you, contact details for a professional counsellor will be provided. If you decide to make use of the counselling services, the costs will be incurred by the researcher.
	Questions will be consistently asked during the interview, ensuring that you will not experience boredom.
Treatment of Anonymity	The answers that you will be giving during the interview will be transcribed anonymously and when the researcher refers to answers in the study, it will be stated as anonymous.
Breach of Confidentiality	Confidentiality will be ensured throughout this study. The translator signed a document which indicated that he/she will handle the information as strictly confidential. The concept of confidentiality has also been discussed with you during the information session. When the researcher reports the data, your responses will be referred to as anonymous. The independent co-coder will also be signing a confidentiality agreement document, as he/she will have access to the data.

Economic Risks	You might not be able to pay travelling expenses when needed to attend the information session and interview, therefore reimbursement will be given on arrival. The amount that will be reimbursed will be determined by the distance you will need to travel.
----------------	--

- There are more gains for you in joining this study than there are risks.

How will we protect your confidentiality and who will see your findings?

- Anonymity of your findings will be protected by not linking your identity to your results or responses when the researcher reports the data. Your privacy will be respected and results will be kept confidential by deleting data from the laptop and digital recording device once the data has been transcribed. Only the researcher and independent co-coder, who will be signing a confidentiality agreement document will be able to look at your findings. Findings will be kept safe by locking hard copies in locked cupboards in the researcher's office and for electronic data it will be password protected. (As soon as data has been transcribed it will be deleted from the recorders.) Data will be stored in the office cabinet of the researcher's supervisor for seven years.

What will happen with the findings?

- The findings of this study will serve as the first step within the Therapeutic Recreation (TR) process where information on social skills among school-aged children with DS will be gathered and assessed. Relevant information will serve as a foundation for further studies or research on this topic to develop a TR intervention where social skills for this specific population can be improved.

How will you know about the results of this research?

- After completion of the study we will give you the group results of this research by means of a feedback session. You will also be given the option to receive a report on your child's individual results.

Will you be paid to take part in this study and are there any costs for you?

You will not have to pay to be involved in the study, as the study is funded by the researcher, Provincial Recreation Council and Project Funds. You will receive a R50 Checkers voucher after you have participated in the interview and the travel expenses will also be paid for those participants who have to travel to the information session and/or interview site.

Is there anything else that you should know or do?

- You can contact Cara Myburgh at 083 892 7514 if you have any further questions or have any problems.

- You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if you have any concerns that were not answered about the research or if you have complaints about the research.
- You will receive a copy of this information and consent form for your own purposes.

Declaration by participant

By signing below, I agree to take part in the research study titled: Teachers and primary caregiver's perceptions of recreational activities and social skills in children with Down syndrome.

I declare that:

- I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be handled in a negative way if I do so.
- I may be asked to leave the study before it has finished, if the researcher feels it is in the best interest, or if I do not follow the study plan, as agreed to.

Signed at (*place*) on (*date*) 20....

.....
Signature of participant

.....
Signature of witness

Declaration by person obtaining consent

I (name) declare that:

- I clearly and in detail explained the information in this document to
.....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (place) on (date) 20....

.....
Signature of person obtaining consent

Declaration by researcher

I (name) declare that:

- I explained the information in this document to
- I did/did not use an interpreter
- I encouraged him/her to ask questions and took adequate time to answer them
- The informed consent was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (place) on (date) 20....

.....
Signature of researcher

APPENDIX C

MEASURE INSTRUMENTS

MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS (MESSY) RATING SCALE

ITEM NO	ITEM DESCRIPTION	FREQUENCY				
		Not at all	Seldom	Some-times	Often	Very much
		1	2	3	4	5
1.	Makes others laugh					
2.	Threatens others					
3.	Easily angered					
4.	Bossy					
5.	Complains often					
6.	Interrupts others while speaking					
7.	Takes things without permission					
8.	Brags					
9.	Hits when angry					
10.	Helps someone who is hurt					
11.	Gives others dirty looks					
12.	Feels angry when someone does well					
13.	Picks out other's faults					
14.	Wants to be first					
15.	Breaks promises					
16.	Lies					
17.	Picks on others					
18.	Initiates conversation					
19.	Says "thank you"					
20.	Afraid to speak to others					
21.	Purposely hurts others' feelings					
22.	Sore loser					
23.	Teases others					
24.	Blames others					
25.	Sticks up for others					
26.	Looks at others when speaking					
27.	Thinks he/she knows all					
28.	Smiles at others					
29.	Stubborn					
30.	Acts better than others					

ITEM NO	ITEM DESCRIPTION	FREQUENCY				
		Not at all	Seldom	Some-times	Often	Very much
		1	2	3	4	5
31.	Shows feelings					
32.	Falsely thinks others are picking on him					
33.	Thinks good things will happen					
34.	Works well on team					
35.	Makes sounds that bother others					
36.	Bags when wins					
37.	Takes care of others' property					
38.	Speaks loudly					
39.	Calls people by name					
40.	Asks to help others					
41.	Feels good when helping others					
42.	Defends self					
43.	Always thinks bad will happen					
44.	Tries to be better than others					
45.	Asks others questions					
46.	Feels lonely					
47.	Feels sorry when hurts others					
48.	Gets upset when has to wait					
49.	Enjoys being leader					
50.	Plays games with other children					
51.	Follows rules in game					
52.	Frequently gets into fights					
53.	Jealous of others					
54.	Does nice things for others					
55.	Tried to get other to do what he/she wants					
56.	Makes small talk (e.g., How are you?)					
57.	Wears out welcome					
58.	Explains more than necessary					
59.	Friendly to new people					
60.	Hurts others to get what he/she wants					
61.	Talks about problems					
62.	Thinks winning is everything					
63.	Hurts others by teasing					
64.	Seeks revenge					

Supplementary question on recreational activities

Please indicate with an “X” which structured recreational activities this child participates in, that is provided by the school or that forms part of school activities. Also elaborate on the type of activities the child participates in.

Mark with “X”	Recreation activity	Examples	Elaborate
	Sports	Netball, gymnastics, athletics, soccer, cricket, rugby	
	Aquatics	Swimming, water polo, water aerobics, sailing, rowing	
	Adventure	Ropes courses, team and initiative activities, rock climbing	
	Dance	Ballroom, ballet, hip-hop, tap, school concert	
	Drama	Plays, musicals, storytelling, mime	
	Fine arts	Painting, drawing, clay modeling, paper making, photography	
	Crafts	Needlecraft, sewing, weaving, jewelry making, pottery, cook, bake	
	Music	Choir singing, rhythm games, instrumental	
	Hobbies	Collecting, gardening, computers, wellness	
	Outdoors and nature	Camping, back packing, conservation, bird watching, nature crafts	
	Intellectual or literary	Recreational reading and writing, debating, puzzles, card games	
	Travel	Tours, field or day trips	
	Social recreation	Parties, picnics, social dances	
	Volunteer services	Coaching, fundraising	

PRIMARY CAREGIVERS INTERVIEW SCHEDULE

Introduction:

- Good morning/afternoon, I want to thank you for taking the time to meet with me today.
- My name is Cara Myburgh and I would just like to remind you that the aim of the study is to determine the teachers' and primary caregivers' evaluations and perceptions on the social skills of 10- to 12-year-old children with DS in the North West Province.
- Please note that when the research findings will be reported, all responses will be kept confidential. It means that your name and individual responses you make during the interview will not be linked to your identity. All the information you share with me will be dealt with in a confidential manner.
- May I please have your permission to record the interview? Although I will be taking some notes during the session, I can't possibly write fast enough to get it all down. Because we are recording, please be sure to speak up so that I don't miss your comments.
- Also remember that you are free to withdraw at any time during the interview.
- I would just like to know if you still want to participate.
- Lastly, I would just like to confirm that you provided informed consent?

Categories of questions	Questions	Question function/ aim
1	Please tell me a little bit about your/the child?	Brief response from participant to get the conversation going & introducing the topic
2	Would you say that your/the child spends more time with friends, parents or on their own? • Probe: Can you provide more detail of the ages, genders and race of these people? • Probe: Would you say that interaction with the person/people you mentioned now are one-on-one or group based? • Probe: Is it always the same people your/the child spends time with, or does it change often? If so, how often?	These questions aim at exploring the state of the child's social skills more in depth
3	Please describe the role (part/function) that friendship play in your/the child's life.	To gain more detailed information on the topic in the

Categories of questions	Questions	Question function/ aim
	• Probe: How would you describe the extent (amount/size) of your/the child's friendships? Would you say that your/the child has numerous friends? • Probe: From your/the child's perspective, can you describe the level of importance of him/her being accepted by peers?	opening an introductory question
Transition statement	For the next few questions, I would like to focus specifically on your/the child's social skills (how friendships and other relationships are developed, how a child handles conflict with peers and the process by which a child learns to interact with others around them)	To move the participant towards a specific focus of the interview
4	Could you please identify the areas that your/the child is good at in terms of social skills?	These questions aim at exploring the state of the child's social skills more in depth
5	With regards to social skills, elaborate on the areas you think your/the child can improve on.	
6	Give your opinion on the following social interaction skills of your/the child: • appropriately opening and ending conversations • the ability to listen attentively to a speaker • good oral hygiene (the practice of keeping one's mouth clean and free of disease and other problems by regular brushing of the teeth and cleaning between the teeth) • maintain eye contact during a conversation • physical proximity (nearness/closeness in space) while talking to others • setting boundaries (limits) for self-disclosure (reveals information about themselves to another. Information can be descriptive or evaluative, can include thought, feelings, aspirations, goals, failures, successes, fears, dreams, likes, dislikes and favourites) • take turns at the appropriate time	
7	How does your/the child handle conflict (a serious disagreement, or argument) with peers?	To gain more detailed information

Categories of questions	Questions	Question function/ aim
	Probe: Can you please elaborate with an example of how your/the child handles it?	on the social skills of the child
Transition statement	For the next questions, I would like to focus on your/the child's recreational activities and leisure (games and things your/the child does when he/she is not at school, doing chores or homework) (Recreation is viewed as purposeful, wholesome activity, assisting individuals to renew their spirit, rejuvenate themselves and restore their energy through positive leisure experiences. Leisure, is defined as free or unobligated time to refocus, renew, reinvent, change or transform oneself and does not involve life-sustaining functions or work)	To move the participant towards a specific focus of the interview
8	What type of activities does your/the child do in his/her free time? (If the participant doesn't mention active recreation participation, follow up with this question) Probe: If I understand correctly you didn't mention any physically active type of activities, in your perception, is it important for your/the child to be physically active? Probe: What could be the cause of your/the child's inactivity? Probe: How do you think this inactivity can be improved?	
9	Can you describe any experiences where your/the child had ever been excluded from participating in an activity or games due to his/her condition? Probe: If necessary, could you please elaborate?	
	Finally, I am interested in programs that your/the child has participated in previously.	To move the participant towards a final focus point
10	Has your/the child ever participated in a programme that has been specifically designed for his/her condition (for example from a speech therapist, occupational therapist or play therapists)? (If the participant answers yes, follow up with the next question)	

Categories of questions	Questions	Question function/ aim
	• What do you think was the impact of that programme on your/the child? • Would you let your/the child participate in a programme specifically for DS and to improve their social skills?	

End:

- Is there anything you would like to add?
- Do you have any questions or uncertainties?
- Thank you so much for your willingness to take part in this study, I really appreciate it.
- Once the study has been completed, a meeting will be scheduled where the research findings will be discussed.
- Have a blessed day further.

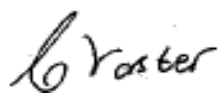
APPENDIX D

PROOF OF LANGUAGE EDITING

CERTIFICATE OF EDITING

I, C Vorster (ID: 710924 0034 084), Language editor and Translator and member of the South African Translators' Institute (SATI member number 1003172), herewith declare that I did the language editing of a dissertation written by Ms CM Myburgh from the North-West University (student number: 22894616).

Title of the dissertation: Teachers and primary caregivers' perceptions of recreational activities and social skills in children with Down Syndrome



31 March 2021

C Vorster

Date