

Investigating the experiences of deaf or hard of hearing children participating in Sport

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Abstract

This thesis investigates sports participation in deaf or hard of hearing children. Participation in sport is evidenced to have a positive effect on mental and physical health. In children, it can help to facilitate socialisation. For deaf or hard of hearing children the sports environment exposes them to challenges and opportunities they may not otherwise gain in life.

This PhD consists of a series of studies exploring sports participation starting with a systematic review of general barriers to participation in sport in children. In this, 'cost' and 'time' emerged as key barriers to participation in sport, reaching a conclusion that more localised sports opportunities are required to enable cost reduction. This might be achieved by schools and clubs working collaboratively to provide local opportunities.

Next, issues surrounding sports participation in deaf or hard of hearing children (10 to 15 years) were explored via focus groups. Children were recruited from mainstream schools, schools for the deaf and schools with supporting units for deaf children. A key barrier to participation was a lack of deaf awareness amongst hearing peers and sports educators.

To then explore the perspectives of parents and sports educators of deaf or hard of hearing children semi-structured interviews were conducted. Parents and educators felt that deaf or hard of hearing children should participate in sport but face barriers to this. Some sports educators felt teaching deaf children was no different to teaching hearing children but visual demonstrations and slight adaptations in communication were required. Parents felt their children were missing opportunities to participate in sport due to lack of information relating to availability of sessions compared to their hearing peers. Deaf or hard of hearing children with a supportive network or parents and educators will have greater opportunities to access sports.

To reach overall conclusions on what are the main barriers and facilitators to sports participation for deaf and hard of hearing children, a synthesis was

performed using a mixed methods research approach. This identified internal (personal) barriers, external (other person) barriers and resource, education and awareness as key factors contributing to sports participation in deaf or hard of hearing children.

List of Publications

Publication arising from this thesis

Somerset, S. & Hoare D.J., 2018. Barriers to voluntary participation in sport for children: A systematic review, *BMC Pediatrics*, 18 (1), pp. 47.

Other publication during this thesis

McCormack, A, Edmondson-Jones, M, Somerset S, Hall D., 2016. A systematic review of the reporting of tinnitus prevalence and severity, *Journal of Hearing Research*, 337, pp. 70-79.

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List of Abbreviations

BSL – British Sign Language

CASP - Clinical Appraisal Skills Programme

CI – Cochlear Implant

CRIDE – Consortium for Research in Deaf Education

CT – Cannot Tell

EFDS – English Federation of Disability Sport

GPA – Grade Point Average

GUS – Growing Up in Scotland study

NDCS – National Deaf Children’s Society

PE – Physical Education

SEN – Special Educational Needs

USA – United States of America

UK – United Kingdom

WHO – World Health Organisation

YRBS – Youth Risk Behaviour Survey

Declaration

I certify that this is my own work, except where indicated by referencing. No part of this thesis has been submitted elsewhere for any degree or qualification.

Sarah Somerset

Date:

CHAPTER 1. INTRODUCTION

In this thesis, I seek to investigate the experiences of deaf or hard of hearing children when participating in sports. I seek to understand the barriers faced by deaf or hard of hearing children and methods to overcome these barriers. In exploring theoretical frameworks in which to consider problems with sports participation, the social model of disability emerged as being relevant to deaf or hard of hearing children.

A better understanding of the relationship between children who are deaf or hard of hearing and sports participation will support the creation of new and future initiatives to encourage and enable greater engagement in sports activity in this population group. Participation in sports for children who are deaf or hard of hearing certainly offers the physical benefits of increased physical activity but may also offer important psychosocial benefits associated with sports based social interaction and social inclusion.

Chapter 2 presents a broad background and content review on benefits of participation in physical activity and sport, motivators and barriers to participation in sport, an insight into how much physical activity children are doing, participation for those with disability, overview of childhood deafness in the UK and information around hearing loss and an overview of models of disability. The chapter reviews models of disability and concludes that the social model of disability is particularly relevant to this thesis. This chapter highlights some difficulties, particularly with communication faced by those who are deaf or hard of hearing wishing to participate in sports, which are evident in the literature. It highlights the importance of the social benefits of participation in sport and the challenges associated with this for those with a disability as highlighted in the social model of disability.

Chapter 3 presents a systematic review on the general barriers to children's participation in sport. It is important to understand the barriers to participation in sport faced by children in general so that barriers that are

specific to deaf children may be identified. The review focused on the qualitative elements of studies identified, i.e. barriers that emerged from the data collected, as opposed to being predefined (as was typically the case in quantitative studies). This review identifies time, cost, and location as prominent practical barriers to children's participation in sports. Policy makers should be aware of this when planning provisions. Person-centred barriers such as peer disapproval and stereotyping also significantly affect participation. These require a cultural change in the sports environment through training and support to those delivering sports sessions

Chapter 4 provides an account of the experiences of participation in sport of deaf or hard of hearing children. Focus group methodology was used to create a safe environment for these children in which to share their thoughts and experiences of participation in sport. Data were analysed using inductive thematic analysis allowing concepts to be taken from the data rather than looking at the data with predefined ideas. The main finding was that a lack of deaf awareness amongst deaf children's peers and sports educators' acts as a salient barrier to participation. Children shared the impact PE teachers and coaches can have on their participation experience, interaction with other children, use of hearing technology, family influence, likes about taking part in sport, and dislikes about participating in sport. Those who had a generally positive experience were more likely to want to continue participation in sport whilst those with negative experiences were likely to disengage with sport altogether or avoid certain sports. It is evident from this work that deaf or hard of hearing children face barriers to participation in sport. They should have equal access to sports as their hearing peers but this is not always the case.

Chapter 5 reports on views of parents and sports educators of deaf or hard of hearing children. Semi-structured interviews were conducted, transcribed, and subjected to thematic analysis. These data were analysed independently of the findings from Chapter 4. The conclusion from the interviews is that

deaf or hard of hearing children should participate in sport but they may face barriers to doing so. Some sports educators felt that teaching sport to deaf children was no different to teaching hearing children but that visual demonstrations and a slight adaptation in communication was required. Parents felt that their children may not have the same opportunities for participating in sport as hearing children as they are not always aware of the opportunities available to them. With a supportive network or parents willing to provide sign language support, educators willing to access deaf awareness training and greater provision of training deaf and hard of hearing children may have more opportunities to access sport. Interviewees also identify 'communication' and 'deaf awareness' as barriers to participation in sport for deaf or hard of hearing children.

Chapter 6 reports a qualitative synthesis of the systematic review of barriers to participation in sport, focus groups with deaf or hard of hearing children, and interviews with parents and sports educators of deaf or hard of hearing children. The work reported in Chapters 2-5 was independent of that in other chapters but elements throughout are connected. This synthesis draws all this primary work together making use of summary statements from each independent body of work. These statements were taken from the chapters and embody the key findings of each chapter. These statements were then grouped according to their main theme, and the groups of statements were then synthesised into a single overarching statement, essentially linking all related elements in the thesis together to reach overall conclusions. These conclusion statements were then considered relative to the existing literature.

The conclusions and recommendations within the synthesis and thesis are informed by the social model of disability. I conclude that good communication, effective gatekeepers, socialisation and inclusion as key factors contributing to sports participation in deaf or hard of hearing children. To create more effective gatekeepers, and boost communication and

inclusion, work is required to increase deaf awareness and communication amongst sports educators and inclusion of deaf or hard of hearing children in sport to encourage participation. Socialisation is a motivator for participation in sport for deaf or hard of hearing children and helps to facilitate inclusion within the mainstream environment. Targeted interventions in the future need to focus on informational approaches to 'educate the educators' and this could include mobile application development or the use of a social media videos showing methods of inclusion for deaf or hard of hearing children. Success of such an intervention could be assessed via self-report diaries of before and after training for the educator and deaf or hard of hearing children they are teaching. This refocuses the responsibility of inclusion on the gatekeepers rather than the deaf or hard of hearing child. It is however important to recognise that there is no 'one size fits all' policy for overcoming barriers to participation in sport.

CHAPTER 2. BACKGROUND AND CONTEXT

The mental and physical health benefits enjoyed with regular participation in physical activity are well known (Janssen and Leblanc, 2010). However, despite all of the known benefits of participation in physical activity, children are leading increasingly inactive lifestyles, putting them at greater risk of chronic diseases (Cooper *et al.*, 2015; Townsend *et al.*, 2015).

There is a growing body of evidence for the social health aspects of participation in sport (Eime *et al.*, 2013). Children participating in sports on a regular basis are shown to have a better overall quality of life than those who do not participate; they score higher on ratings for mental health and wellbeing, happiness, and physical health compared to children who do not participate in sports (Snyder *et al.*, 2010; Eime *et al.*, 2013).

This chapter explores current evidence for benefits of moderate to vigorous physical activity, the additional benefits of participation in sport, motivators and facilitators to sports participation, access to sport for those with disability, how hearing loss affects children wishing to participate, and models of disability.

2.1 LITERATURE SEARCHING

To broadly review the background literature to this thesis, iterative literature searches were carried out in Google Scholar, EMBASE, OVID, SportDiscus and CINAHL. A limit on dates of searches was not imposed. Search terms included but were not limited to sports participation, children, youth, adolescents, disability sport, physical activity participation, benefit of sports participation, barriers to sport, skill development in sport, mental health and sport, deaf sport, participation for the deaf in sport or physical activity, deafness, hearing loss, hard of hearing, communication, models of disability. Records were included in this chapter based on representative scoping and systematic reviews and key empirical studies based on sports, physical activity, disability, and hearing loss.

2.2 BENEFITS OF PARTICIPATION IN PHYSICAL ACTIVITY AND SPORT

This section will highlight the benefits of participation in physical activity and highlight areas where sport offers additional benefits. Here I will discuss the benefits to mental and physical health and academic achievement, the influence of peers, motivators and barriers to participation, and interventions that have been used to increase participation levels.

2.2.1 Benefits of participation in physical activity

The benefits of participation in physical activity for all are well known.

Participation on a regular basis in the adult population has been linked with better mental health and wellbeing alongside those benefits for physical health. Participation in physical activity, including sport, has been linked with better quality of life (Khan *et al.*, 2012), longer life span (Allender, Cowburn and Foster, 2006), psychological benefits such as combating shyness and anxiety (Findlay and Coplan, 2008; Biddle and Asare, 2011), emotional benefits such as social inclusion (Bailey, 2005) and physical health benefits such as impacting obesity and blood pressure (Janssen and Leblanc, 2010). A lack of participation in physical activity can lead to an increased risk of diabetes, osteoporosis and cardiovascular disease (Department of Health, 2004). Participation in physical activity helps to reduce the risk of major disease such as diabetes, obesity and coronary heart disease (Warburton, Nicol and Bredin, 2006; Janssen and Leblanc, 2010; Townsend *et al.*, 2015). Those who participate in physical activity have a decreased risk of chronic disease. This is attributed to a reduction in the risk of cardiovascular disease due to lower cholesterol and a reduction in the impact of type II diabetes on those who are physically active (Warburton, Nicol and Bredin, 2006; Khan *et al.*, 2012).

In childhood the evidence shows physical activity to have a number of additional benefits, including healthy growth and development, and a positive impact on energy balance and psychological well-being (Department of Health, 2004). Physical activity has been linked to reduced risk of

cardiovascular disease by helping to reduce obesity and weight gain (Department of Health, 2004; Townsend *et al.*, 2015). A systematic review of health benefits of physical activity in children identified benefits to bone density, weight management and blood pressure (Janssen and Leblanc, 2010). This systematic review sought to examine the relationship between physical activity and fitness and to provide recommendations based on the findings. A total of 86 publications were identified and appraised in this review. The systematic review focused on seven health indicators, which included high blood cholesterol (n= 9), high blood pressure (n=11), metabolic syndrome (n=18), obesity (n=56), low bone density (n= 11), depression (n=6) and injuries (n=4). The review used previously tested tools for quality assessment of the studies and for assessment of strength of effect, which was a strength of the findings (Janssen and Leblanc, 2010). An additional strength for the review is inclusion of both quantitative and qualitative studies and exclusion of intervention studies, which focus on diet or calorie intake or had a focus on other behavioural components such as smoking. Whilst a small number of studies included focused on the impact of physical activity on depression, a potentially important link was identified. Of the studies focusing on depression, 3 were observational studies and 3 were randomised control trials. No significant change in self-report measures for depression was evident from the observational studies. However, the findings of the randomised control trials showed a significant improvement in mental health status for those suffering from depression for those participating in 60 - 90 minutes of physical activity over a week.

Another review, itself of other reviews, investigated chronic physical activity and the association with mental health (Biddle *et al.*, 2019). The studies included in this review focused on depression (n=8), anxiety (n=0), self-esteem (n=5), cognitive function (n=20) and mixed (including one or more of previously listed, n=9). A strength of this review was the use of a pre-existing quality assessment tool from the National Institute of Health. A weak

association for physical activity and an improvement in mental health status for those suffering from depression was identified from observational studies but there is a difficulty associated with self-reported levels of physical activity, which could be attributed to this. The analysis of causality for physical activity and depression highlighted existing evidence for a causal relationship. It should be noted that this is weakened by a lack of literature on the topic in children and adolescents and a lack of longitudinal studies. The literature for anxiety is also lacking in quantity and the studies that do exist are relatively small. This is an area that needs addressing in this population and little was added since the previous review. For self-esteem, observational studies show a potential improvement for those participating in physical activity but causality analysis did not show a significant association for this. Both of these reviews highlight the potential benefit participation in physical activity can have on children and adolescent mental health. However, no strong causality links can be shown from the existing literature. This is still a novel area of investigation, which needs more work to further identify any associations. The link between mental health and participation in physical activity is important for this thesis. Especially given the isolation deaf or hard of hearing, children may face.

2.2.2 Additional benefits of sports participation – beyond physical activity

The benefits for children of participation in physical activity are well known with regard to both mental and physical health. However, there is an emerging body of evidence which suggests that participation in sports offers additional benefits over and above those offered by physical activity alone.

Participation in sport and sports clubs can help children to develop initiative and a desire to plan and work towards an achievable goal (Hansen, Larson and Dworkin, 2003; Felfe, Lechner and Steinmayr, 2016). This lends itself to the development of managerial skills linked with curiosity, perseverance, responsibility, self-critique, stress management and time management (Hansen, Larson and Dworkin, 2003; Felfe, Lechner and Steinmayr, 2016).

Additionally, for team sport, there is interaction with peers who may otherwise be outside of their social network. This aids the child to develop personal skills such as self-control, team spirit, dealing with conflict, empathy, and loyalty (Hansen, Larson and Dworkin, 2003).

Valois and colleagues (2008) investigated the link between physical activity behaviours, including participation in sports, in adolescents (aged 12 -18 years) with emotional self-efficacy in the USA. It is important to recognise this study took place in South Carolina in America and may not be representative of the country; however, there are some key findings which are relevant to this thesis. An association was identified between participation in team sports (in the previous 12 months) and an impact on an adolescent's emotional self-efficacy. The sample was representative of those in mainstream education (Valois *et al.*, 2008). Those who participated in a team sport in this study scored higher for emotional self-efficacy than those who did not participate. Males were over 3 times more likely to have low emotional self-efficacy if they did not participate in any form of team sport. This study has shown that participating in team sport, particularly for males, provides benefit for emotional self-efficacy in those aged 12 to 18 years. However, what is not clear is whether adolescents do not participate due to low self-efficacy or whether they report low emotional self-efficacy due to a lack of physical activity. The study itself calls for further longitudinal experimental studies to address this. Sports can offer a protective effect for mental health alongside the well-known physical health benefits.

In a study of adolescent athletes and adolescent non-athletes athletic involvement was shown to benefit overall health of those involved in physical activity (Snyder *et al.*, 2010). This study used pre-existing, validated tools for measurement of health related quality of life which is a strength for the findings. Participants were classed as athletes if they participated in a school sports club and non-athletes if they did not. Those taking part in school sports and better scores for mental health compared to non-athletes. Given

the focus of this thesis on sports participation, this finding is important. Participation in sport may offer some mental health benefits for deaf or hard of hearing children as well as their hearing peers. The study also identified athletes as scoring higher for overall happiness, suggesting sports participation or the environment may benefit this. Particularly given that children who participate in sports are exposed to an environment, they would not otherwise participate in (Hansen, Larson and Dworkin, 2003). The findings of this study are in line with Valois and colleagues (2008), both studies identify the benefits of participation in sport relating to mental health. However, both of these studies are now dated and further work in this area is needed as most studies investigating mental health look at physical activity as a whole and do not focus on sport.

Felfe and colleagues (2016) investigated the impact of sports participation (as an extracurricular activity) and selection into sports. It should be noted this study took place in Germany where rates of participation in sports are much higher than in other countries so the results may not generalise to other countries (Felfe, Lechner and Steinmayr, 2016). This study made use of cross sectional and longitudinal data which strengthens the findings as an impact of sports participation over time can be shown. A child's overall health was better when participating in sports, identified by parents and objective measures. Participation in sport benefits children's performance in school and their behaviour, a reduction in problems with peers was evident alongside a decrease in emotional problems. This finding appears robust given the extra steps taken by the authors to control for confounding variables. This step is particularly important for the reliability of the results given that it may be argued those in good health, who perform better at school, have less emotional, peer and behavioural problems will join sports clubs more frequently. This is pertinent to this thesis as participation in sports offers benefits for academic achievement, mental and physical health,

peer acceptance and emotional stability. Something also identified by Valois (2008) and Snyder (2010).

A study involving 203 young people identified a positive association between sports participation and emotional and behavioural wellbeing (Donaldson and Ronana, 2006). Emotional wellbeing was assessed using self-report methods including the Youth self-report and self-perception profile for children (Donaldson and Ronana, 2006). Although a positive association was evident in this study, it was a relatively small sample size making use of outdated measurement tools, and as such, it is important to consider the generalisability of the findings. Participation in sport has been linked to improved confidence in children (Bailey, 2005; Findlay and Coplan, 2008; Bailey *et al.*, 2010), and improved self-esteem (Bowker, 2006). A Canadian study investigating sports participation and its link with self-esteem involved 382 students across four schools (Bowker, 2006). Children completed self-report questionnaires on participation in sport and self-esteem measures. Although a small study based in Canada, the findings are of interest given the suggested benefit to self-esteem linked to sports participation. This has also been seen within other studies including Donaldson *et al.* (2006). Children involved in sport have been shown to feel better about themselves and to fit in more easily with their peers (Pate *et al.*, 2000; Allender, Cowburn and Foster, 2006; Atkin *et al.*, 2013; Department for Education, 2013).

Participation in sport provides an environment in which friendships are formed and where creativity can be expressed, and self-esteem improved. A review of qualitative studies identified a potential link between improved confidence with peers and sports participation regardless of ability (Allender, Cowburn and Foster, 2006). A study investigating the role of organised sports participation as a moderator of 'shyness' in children identified a significant decrease in anxiety over time as well as a positive adjustment in both social skills and self-esteem (Findlay and Coplan, 2008). The study involved 355 schoolchildren with a median age of 10 years. The study concluded that

participation in sport plays a unique role of protection for shy children (Findlay and Coplan, 2008). This study accounted for two time points a year apart with 201 children being retained. At each time point children completed self-report assessments for shyness, aggression, sport participation and psychosocial adjustment. Parents also rated their child's social skills. This combination of parent and child viewpoints is important as it provides a fuller picture of children's social skills linked with shyness. For those participating in sport there was a positive association with improved social skills and self-esteem. However, shyness was associated with skill deficiency for social skills and internalisation of issues. Interestingly the study highlighted a protective effect of sports participation for shy children who reported a decrease in their anxiety levels over time and an improvement in social skills. This is a key finding given the sported environment offering opportunity for formation of new friendships and a potential area for socialisation with hearing peers for deaf or hard of hearing children. Greater resilience to changing circumstances such as divorce of parents or death of a family member has also been associated with participation in sport (Gilligan, 2000).

In summary, participation in sport and physical activity have been shown to benefit both mental and physical health. However, sport offers additional benefits to physical activity in terms of emotional development and management, development of managerial skills and an ability to deal with conflict and criticism, which may not otherwise be encountered. There is something special and inherently unique in the sports environment, which affords children an opportunity to develop key skills for later life by offering interaction with peers they otherwise would not engage with. Sport has benefits for both mental and physical health and it is important to be mindful of these and the additional benefits to physical activity.

2.2.3 Sport and Physical Education

For the purpose of this thesis when sport is discussed it is defined as “an activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment” (Online Oxford English Dictionary, 2017). It is a subset of physical activity and a means of assisting in meeting the recommended amount of moderate to vigorous physical activity. Physical education (PE) is also considered under the umbrella term of sport (Kirk, 2005).

i. Skill development and academic achievement

A primary role of PE within schools is to increase the fitness levels of children (Sallis and McKenzie, 1991; Stewart and Ellis, 1999; Bailey, 2006). There is evidence to suggest participation in sport and regular participation in PE classes can lead to an improvement in academic achievement.

A review by Trudeau and Shephard (2008) identified seven quasi-experimental studies and 10 cross sectional studies examining the influence of sport and PE on academic achievement. In that review, no randomised control trials were identified. The reviewers used the term academic achievement to include academic success and performance at school (Trudeau *et al.*, 2008). To represent academic gains a grade point average (GPA) was used. Trudeau *et al.* (2008) focused on PE within school but from the review, it is unclear what effect external or extracurricular physical activities may have had on GPA or academic achievement. The cross-sectional studies showed a positive association with academic achievement. However, controlling for potential bias such as socioeconomic status can be difficult in this type of study, this is important given that socioeconomic status is a strong predictor for participation in physical activity for children (Trudeau *et al.*, 2008).

One study from the review used the United States National Longitudinal Study of Adolescent Health (Nelson and Gorden-Larsen, 2006). This study

highlighted those in school who were physically active were more likely to have high grades and this relationship was maintained when adjusted for socioeconomic status and demographics. For those who were physically active the risk ratio for higher grades for mathematics was 1.20 and 1.21 for English (Nelson and Gorden-Larsen, 2006). The link between school sports (PE) and academic achievement has been shown to be positive. For African American males participation in sports was linked to a desire to attend college and further their education and an improvement in their overall behaviour was evident (Hawkins and Mulkey, 2005; Fredricks and Eccles, 2006). For females, participation in sport and higher educational ambitions and less time off from education were highlighted (Hawkins and Mulkey, 2005). This study looked specifically at African American 8th graders in America and as such the findings may not be generalizable. However, this study was based on data from 1988 and findings whilst important should be considered with caution as the study is dated and was conducted in a different era. Hawkins and Mulkey (2005) identified a relationship between female's participation in sport and the level of poverty at their school with higher participation rates in poorer schools. Participation for females was also linked to the size of the school with smaller schools having higher participation levels; school location was also a factor. Participation was not related to achievement test scores, ability level, age, socioeconomic status or family composition. The latter appears to conflict with the literature given the importance of family support evidenced in numerous studies (Thompson *et al.*, 2010; Quarmby, Dagkas and Bridge, 2011; Olivares and Cossio-bola, 2015; Brown *et al.*, 2016). A review by Strong *et al.* (2005) in youth aged 6 to 18 years in the USA identified an association between increasing PE time in the curriculum and gains in academic performance.

For schools where more time was allocated for PE classes, and a reduced amount of time on core subjects such as English, Math, Science, no difference was seen between grades achieved compared to those who spent less time

on PE (Bailey 2005). Nelson and Gorden-Larsen (2006) identified sports participation with parental presences to be associated with improved academic grades in Mathematics and English (relative risk 1.23 for both). This relationship was still evident after adjustment for socioeconomic status (Nelson and Gorden-Larsen, 2006).

The education setting is the main institution for the promotion of participation in sports (Sallis *et al.*, 2003) and can act as a pathway for both participation promotion and development (Bailey and Morley, 2006). This setting provides a social gateway for children and their peers, facilitating interaction in an environment where development within sport is core to development as an individual (Dismore and Bailey, 2010). Participation in sport in this environment is linked to social, moral, and psychological development of children and enables the notion of formation of identity (Macphail, Gorely and Kirk, 2003; MacPhail, Kinchin and Kirk, 2003).

In summary, sport provides children with an environment in which friendships are forged and self-esteem is improved. The education setting is perfectly placed for promotion of participation in sports. It is within this environment a love of sport can be ignited and nurtured for the future.

2.3 MOTIVATORS AND BARRIERS FOR PARTICIPATION IN SPORT

A review of qualitative studies by Allender and colleagues (2006) suggests there are several motivators and barriers for participating in sport and physical activity (Table 2.0).

For children (aged 5 to 15 years) motivators for participation in sport and physical activity were identified as, 'experimentation', 'unusual activities', 'parental support' and 'safe environment' whilst barriers were for participation in sport were identified as 'competitive sports' and 'highly structured activities' (Allender, Cowburn and Foster, 2006). For teenagers and young women (aged 18 to 24 years), Allender (2006) identified 'body shape', 'weight management', 'new social networks', 'family support' and 'peer

support' as motivators for participation in physical activity and sport, whilst 'negative experiences at school', 'peer pressure', 'identity conflict', 'PE uniforms', 'boys dominance in class', 'competitive classes' and 'lack of teacher support' were identified as barriers to participation in sports in school (Allender, Cowburn and Foster, 2006).

As discussed in 2.1.2 there are benefits to participation in sport over and above those provided by the physical activity alone Allender et al (2006) identified some motivators to participation in sport that are closely linked to these benefits. Table 2.0 shows that linked to the development of initiative and managerial skills in later life that 'experimentation', 'new social networks', and 'peer support' are listed as motivators for children and young people to participate in sport. This reflects findings from studies on exposure to social networks in sports that would not otherwise be accessed (Hansen, Larson and Dworkin, 2003).

Children (aged 5 to 15 years) were more likely to participate in sport and enjoy participation if they were not forced to compete and win, but were instead encouraged to try varied sports (Macphail, Gorely and Kirk, 2003). Support from parents was crucial to engaging children in sport, with parents more likely to be supportive where the environment was judged as safe, resources were easily accessed, and activities were available for other family members (Porter, 2002; Deatrick *et al.*, 2019).

Table 2.0: Summary of the perceptions of motivators and barriers for participation in physical activity and sport by children and adults.

Reproduced from Allender et al. (2006).

Age Group	Motivations	Barriers
Young Children	Experimentation Unusual Activities Parental Support Safe environment	Competitive sports Highly structured activities
Teenagers and young women	Body shape Weight management New social networks Family support Peer support	Negative experiences at school Peer pressure Identity conflict PE uniforms Boys dominance in class Competitive classes Lack of teacher support
Adults	Sense of achievement Skill development Medical sanction Support networks Enjoyment	Negative school experiences Anxiety in unfamiliar surrounds Lack of social network Identity conflict Lack of role models
Older Adults	Social Support Health Benefits Enjoyment	Unclear guidance Lack of role models

Flintoff (2001) identified ‘developing new social networks’ as a motivator for participation in sport and physical activity. Coakley & White (1992) conducted qualitative interviews with adolescent’s ages 13 to 23 years. The participants highlighted parental support and peer support as important for participation in sport.

A key barrier to participation in teenage girls was a negative experience in PE classes (Coakley and White, 1992; Porter, 2002). ‘Peer pressure’ and ‘identity conflict’ were identified as barriers to participation in a study of young

females (Cockburn and Clarke, 2002), as was 'PE uniforms' (Orme, 1991; Cockburn and Clarke, 2002). The study by Coakley and White (1992) made use of children from a small area in London and only working class families were included, as such the findings should be carefully considered when generalised. Orme (1991) also only focuses on a sample of females. The influence of boys within PE class acting in a disruptive manner acted as a barrier to participation for teenage girls (Flintoff and Scraton, 2001).

Stereotyping also influenced teenagers and young women's participation in sport with some boys actively discouraging girls from participation (Coakley and White, 1992). Orme (1991) identified that girls were disinterested in traditional sports offered within PE with non-traditional activities like dance having greater popularity than PE (Flintoff and Scraton, 2001).

Family can act as both motivators and barriers to sports participation in children. Children with 'sporty' parents are more likely to participate in sport themselves as the family is the initial point of integration in sport, particularly for athletes (Bailey *et al.*, 2010). Coakley and White (1992) identified parental support as important to encouraging children to participate in sport in Britain. Babkes and Weiss (1999) identified those children perceiving their parents as positive role models were more likely to participate in sport. In addition these children had a higher perceived competence within sport and enjoyed participation more than children without these parental role models (Babkes and Weiss, 1999). Children with supportive parents from a stable home environment participate in sport more often than those without this support, as this support acts as a motivator for participation (Bailey *et al.*, 2010).

Other barriers evident in the literature include lack of resource (cost) and availability of local facilities (Brunton *et al.*, 2003), support (both social and parental) and awareness (of the health benefits of participation) (Brunton *et al.*, 2003; Strong *et al.*, 2005), (Findlay and Coplan, 2008; Khan *et al.*, 2012).

Outside of school, factors such as being a single parent family or there being care requirements, or general lack of parental support can affect participation in sports activities, and in some cases is a barrier. Brunton et al (2003) identified several barriers and motivators to participation in physical activity for children aged 4 to 10 years through a systematic review. The barriers were placed under three key themes, 'preferences and priorities', 'family life and parental support' and 'restricted access to opportunity for participation in sport or exercise' (Brunton *et al.*, 2003). The motivators were categorised in the following themes 'aspects of physical activity children value', 'family life and parental support', and 'greater access to opportunities for participating in physical activity'. Brunton and colleagues (2003) identified five areas for promotion of physical activity including; the need to change local environment with better provision of youth clubs, a clean-up of play areas and park spaces, better pathways for cycling, more opportunities for extra-curricular sport at school and more access to school facilities outside of school times (Brunton *et al.*, 2003).

In summary motivators and barriers to participation in physical activity and sport play a key role in determining a child's engagement with sport. Motivators include friendship, parental influence, body image and a sense of achievement whilst barriers include lack of parental and peer support, others being too competitive, stereotypes, and cost. The reviews in this field that were identified were more than 10 years old and focussed on physical activity (including sports participation) but did not specifically consider the subset of data on sports participation alone. For the purposes of this thesis therefore a systematic review including contemporary studies and specifically considering barriers to participation in sport for children is needed.

2.3.1 Interventions to facilitate physical activity

Understanding the barriers and facilitators to participation in sport are key to increasing participation levels. Knowing the barriers and facilitators alone is not enough. It is also important to consider the sort of interventions that may

facilitate participation. Some interventions make use of the school environment (Bonhauser *et al.*, 2005; Goran and Reynolds, 2005; Marks *et al.*, 2015; Pate *et al.*, 2016), sports club environment (Priest *et al.*, 2008), or community setting (Sacher *et al.*, 2010; Casey *et al.*, 2014).

A systematic review investigating the effectiveness of interventions to increase physical activity (including sport) identified several different approaches to intervention (Kahn *et al.*, 2002). These were grouped into three categories; informational approaches, behavioural and social approaches, and environmental and policy approaches.

Informational approaches, including point of decision prompts (such as signposting), community campaigns (multi intervention approaches) and mass media campaigns have a demonstrated effect on behaviour change, whilst classroom education has been linked to changes in knowledge and body size (Kahn *et al.*, 2002). In one included study (Blamey, Mutrie and Tom, 1995), a point of decision prompt was placed at the bottom of a set of stairs at a train station, stair usage at baseline was around 8% (n=1,782), after installation of the sign this increased by almost 17%. This finding should be treated with caution however as it also demonstrated that after the sign was removed stair usage gradually declined. Prompts like this designed for physical activity may not be appropriate for sporting activity.

From the literature, prompts appear most effective when used in the commuting or workplace settings. When couple, community wide and mass media campaigns are effective in changing attitudes and behaviours towards participation in physical activity (Booth *et al.*, 1992; Bauman *et al.*, 2001, 2006; Huhman *et al.*, 2005; Heath *et al.*, 2012; Casey *et al.*, 2014). Classroom based interventions, which focus on information provision for health education through behaviour change, equip students with skills to contribute to decision making in context relating to their levels of physical activity (Booth *et al.*, 1992; Bauman *et al.*, 2001; Goran and Reynolds, 2005; Pate *et al.*,

2016). This type of intervention may be of use with deaf or hard of hearing children.

Interventions which make use of behavioural and social approaches may help increase participation in physical activity and sport in children (Kahn *et al.*, 2002; Howlett *et al.*, 2018). School PE is an opportunity to encourage more children to participate in sports but the amount of time spent within PE class can vary greatly between schools, as can the amount of moderate to vigorous physical activity (sport) a student participates in (Bonhauser *et al.*, 2005; Jurg *et al.*, 2006; Marks *et al.*, 2015; Pate *et al.*, 2016). College PE and health education is designed to help create long term behavioural patterns into adulthood (Kahn *et al.*, 2002), something of particular importance for interventions to consider as children who are active from a young age have been shown to be active into adulthood (Vanreusel *et al.*, 1997; Kirk, 2005).

There are a range of studies investigating the impact of family based social support and engagement for health behaviour change and participation in physical activity in children (Brown *et al.*, 2016). A meta-analysis identified increased levels of physical activity where family support was implemented as part of an intervention (Brown *et al.*, 2016). Social support interventions within communities focusing on changing behaviour in terms of physical activity have been shown to be effective in increasing participation (Hopper *et al.*, 1992; Kahn *et al.*, 2002; Brown *et al.*, 2016). These interventions focus on strengthening and maintaining social networks to provide supportive relationships to change behaviour. One type of intervention in this category, which is particularly successful, are individually adapted programmes to change behaviours. These are tailored to individual requirements and preferences and have been shown to be particularly effective for behaviour change (Brehm *et al.*, 2005; Fjeldsoe, Marshall and Miller, 2009; Glazebrook *et al.*, 2011). This type of intervention may be affected by a lack of suitably trained staff (Kahn *et al.*, 2002).

Environmental and policy approaches to changing levels of physical activity interventions can be tailored to increase access to or create space for participation in sports and physical activity (Brownson *et al.*, 2001). Research has shown that a lack of suitable space may affect rates of participation (Brownson *et al.*, 2000, 2001; Heath *et al.*, 2012). This is particularly true for sports involving those with disability.

For those with disability there are few studies testing interventions to increase sports participation. Those that exist are generally conducted within a controlled setting where the majority of barriers are removed (Rimmer and Rowland, 2008). One study in children aged 7 to 10 years with cystic fibrosis made use of the family and home environment to target participation by conducting consultations in the family home weekly, working with parents and children to select moderate to vigorous activities which would be enjoyable and encouraging parents to praise participation behaviour in sport (Tuzin *et al.*, 1998). This intervention was successful with children becoming more physically active but a key message from the study was the activity should be routine and consistent to encourage participation (Tuzin *et al.*, 1998).

Another study in children (8 to 15 years) with down syndrome in a community setting investigated the effect of teaching children to ride a bicycle on physical activity levels (Ulrich *et al.*, 2011). Before the intervention the amount of time spent in sedentary activity was high, up to 12 months after the intervention this decreased with the children spending more time on moderate to vigorous physical activity including sports (Ulrich *et al.*, 2011). Information was not available for how often children taught to ride a bicycle did so after the intervention so the long-term impact is unclear. A realist evaluation of participation in physical activity for children and youth with disabilities investigates factors impacting physical activity participation (Willis *et al.*, 2018). Children were aged 5 to 17 years, based in Norway and were staying at a health sports centre in Norway. A strength of this study is the 15-33

week period allocated to cover summer / autumn and winter / spring as there may be seasonal differences in physical activity attributed to variations in the weather. Another strength of this study is the use of both parental and child perspectives, children participated in focus groups and interviews and parents participated in in depth semi-structured interviews. This dual viewpoint is key as parents and children may view different barriers, motivators and facilitators to participation. Something of importance in this thesis. Four key concepts were identified to facilitate participation for those with disability, safe (1), learning (2), social (3), family (4) (Willis *et al.*, 2018). Children identified choice, achievement and aspiration as facilitators to their participation whilst parents identified time and body function and activity level outcomes (Willis *et al.*, 2018). In summary, there is a body of work investigating different types of interventions for increasing both physical activity and sports participation. The effectiveness of the different types of interventions is questionable given the limited work in some areas including the use of classroom-based education and PE in college aged youth. Interventions making use of informational approaches have been shown to be particularly effective. There is very limited work in this area with children with disability and this is an area requiring further development.

2.4 HOW MUCH PHYSICAL ACTIVITY ARE CHILDREN DOING: AN INSIGHT INTO PARTICIPATION

The Health and Safety Executive (2012) state vigorous activities (e.g. swimming, running, football, activity that strengthens bone and muscle) should be carried out on at least 3 days each week. The World Health Organisation (WHO) guidelines for physical activity for children and youths aged 5 to 17 years recommend at least 60 minutes of activity (such as swimming, tennis, squash) per day. The British Heart Foundation (BHF) Physical Activity statistics show that between 2008 and 2012 there was a decline in the number of children aged 5 to 15 years meeting physical activity guidelines in the UK. The peak of this decline was in early teenage years

between 13 and 15 years of age in both genders but there was a higher decline observed amongst boys than girls in this report. In 2015, the Health Survey for England reviewed physical activity participation in children aged 2 to 15 years, those aged 13 to 15 answered a questionnaire themselves whilst those aged 2 to 12 had the survey completed by a parent (Health Survey for England, 2016). In 2015, 22% (n = 1257) of the 5714 children aged 2 to 15 met physical activity level guidelines of being at least moderately active for at least 60 minutes per day (Health Survey for England, 2016) excluding school-based activity. It should be noted that this survey only provides a snapshot of physical activity in children, as questions only related to the prior week of physical activity involvement and as such only provided a snapshot rather than a longer-term average.

Current evidence indicates boys are more physically active than girls, and across various age groups (Brodersen *et al.*, 2007; Biddle *et al.*, 2011). One study conducted in London identified trends in physical activity and sedentary behaviour associated with ethnic and socioeconomic differences (Brodersen *et al.*, 2007). The study involved 36 secondary schools which were stratified by school type to obtain a representative sample. Data were collected from students annually from Year 7 to Year 11 (ages 11 to 16) with all students within a school year eligible to participate and a final sample of 5287 students. The students answered a survey identifying their physical activity levels in the previous week which only provides a snap shot and not an average over time which would account for activity variability. The difference in physical activity of gender was evident in this study. On average, boys were participating in physical activity on 3 to 5 days per week in year 7, this declined to between 2 and 4 days by year 11; there was a fall in the mean number of days of participation in vigorous physical activity (n=-1.06 days). On average girls were participating in physical activity on 3 to 4 days per week in year 7 and this fell to between 2 and 3 in year 11 with a fall in the mean number of days of participation in vigorous physical activity (n=-1.82 days).

Given the city location of the research it may be that there were fewer suitable opportunities for both genders to participate in sports, but all children in the study were from the same area and would likely have been equally affected by this. There was an association between socioeconomic status and activity in girls but not in boys. A study conducted in England investigating the number of children meeting the recommended level for physical activity showed only 21% of boys and 16% of girls aged 5 to 15 years met the WHO guidelines (Townsend *et al.*, 2015). The same study showed that activity levels decreased with increasing age across both boys and girls. In total 39% of boys were classed as having low levels of activity but 45% of the girls were classified as having low levels of activity (Scholes and Mindell, 2012). The current body of evidence shows that boys are on the whole more physically active than girls across various age groups (Brodersen *et al.*, 2007; Biddle *et al.*, 2011).

A recent study conducted in Scotland investigated the physical activity levels of 10 to 11 year old children as part of the longitudinal Growing Up in Scotland (GUS) study (McCrorie and Ellaway, 2017). The GUS study began in 2005 and sought to track the lives of children through to adulthood. Activity monitors were used to measure children's activity levels alongside a self-report based questionnaire. The monitors were worn for a period of eight days and data were classified as sedentary or moderate to vigorous physical activity. These data were used to assess the proportion of Scottish children aged 10 to 11 years meeting the physical guidelines of at least 60 minutes of moderate to vigorous physical activity each day. The report showed that on average children spent approximately 70 minutes a day in moderate to vigorous physical activity but only 11% of these children met the current recommended levels of daily moderate to vigorous physical activity when compared to the required guideline amounts when using a threshold approach but this increased to 60% when using an averaging approach (Townsend *et al.*, 2015; McCrorie and Ellaway, 2017). This study showed the

trend identified elsewhere in the literature that boys are generally more physically active than girls are. One limitation of the study was that the activity monitors had to be removed for both water-based activity and contact sport, so some sports participation data were missing.

A study conducted in Europe investigating participation levels in children aged 9 to 15 years showed decreased participation with increasing age in all countries (Riddoch *et al.*, 2004). The study included Denmark, Portugal, Estonia, and Norway. Children involved in the study wore accelerometers and measurements were taken over an entire school year. This strengthens the findings of this particular study as it was not relying on recall of prior events nor a snapshot in time. At age 9 years, most children met the recommended levels of physical activity. However, boys were 21% more active than girls were at this age. At 15 years, boys were 26% more active than girls, although there was a trend of declining activity for all children by age 15 years (Riddoch *et al.*, 2004). Data from the International Children's Accelerometry Database consists of accelerometer data from 10 different countries gathered through 20 studies (Cooper *et al.*, 2015) and is made up of children aged 3 to 18 years each giving a minimum of three days data. An analysis of this data again showed boys were more active than girls agreeing with other literature. The study showed that there was no difference in weight status at younger ages but from 7 years of age those deemed overweight or obese were less active than their peers. Although physical activity levels did vary between countries the trend in decreasing physical activity with age and the differences in gender were consistent.

In summary, decreasing levels of physical activity among children has been shown across the world, a somewhat worrying trend for future generations given the risks to wellbeing associated with decreased activity. It is of note that the activity levels of girls were less than those of boys, and it is important to gain an insight into the reasons for this.

2.5 PARTICIPATION IN SPORT FOR THOSE WITH DISABILITY

The previous section discussed the benefits, motivators, barriers, and interventions related to increasing participation levels in sport. This section will explore participation in sport for those with a disability. For this thesis disability is defined according to UK government usage, as a physical or mental condition that limits a person's movements, senses, or activities (UK Government, 2010). The benefits of sports participation apply here but access to them may be difficult. It is important to understand the experience of participation in sport for those with disability to then understand the similarities and differences deaf or hard of hearing children may face when accessing sports.

Participation of disabled children in sport is considered to promote their inclusion in society and their peer groups, enhance their physical health, and improve their general well-being (Murphy and Carbone, 2008). A nationwide survey by Sport England showed that many disabled children participate in sport both in school and in the community. However, the rate of participation of disabled children (14%) is much lower than for the general population (45%) (Heath and Fentem, 1997; Sport England, 2000; Shields and Synnot, 2016; Woodmansee *et al.*, 2016). Disabled children are also more restricted in their participation and experience higher rates of obesity and lower levels of fitness (Longmuir and Bar-Or, 2000; Murphy and Carbone, 2008). Shields *et al* (2012) identified several barriers to participation in sport for children with disability including lack of knowledge and skills, child's preference, parental behaviour, fear, negative attitude to disability, lack of suitable facilities, lack of transport, and attitudes of staff. A qualitative study making use of focus groups with children with disability identified lack of inclusion, negative attitudes to disability, lack of local opportunity, and lack of appropriate instructor skills (Shields and Synnot, 2016). A strength of this study is the multi person perspective offered for interviews with children with disability (n=23), parents of children with disability (n=20) and sports and

recreation staff (n=20). The use of multi-person perspective for access to sport for those with disability is important in this thesis and discussed in later chapters. This study helps to highlight barriers those with disability face in addition to their non-disabled peers and to highlight facilitators for those with disability wishing to participate in sports (Shields and Synnot, 2016).

Disabled children within a school environment are generally considered to have a special educational need (Vickerman, 2012). There is a requirement for inclusion within the PE environment but on the whole disabled children do not experience the same range of sports as their non-disabled peers (Sport England, 2000; Thomas and Smith, 2009; Shields and Synnot, 2016). Reasons identified for this difference are the lack of knowledge amongst PE teachers for inclusion of disabled children within their PE sessions in the mainstream environment, and poor sports knowledge of PE teachers within 'special schools' (Thomas and Smith, 2009). The UK National Curriculum for Physical Education was introduced in 1992, and updated in 2013, and seeks to provide all pupils with equal opportunity for PE, and encourage adaptations for inclusion (Thomas and Smith, 2009). Penney & Evans (1995) identified 56% of schools providing games for physically disabled pupils, but these were not always integrated with their non-disabled peers. This suggests isolation and a lack of social inclusion of disabled children (Penney and Evans, 1995).

Bedell et al (2011) investigated parent's perspectives on their children's participation in sport. The study focused on children with intellectual, emotional, or behavioural disabilities, rather than physical disabilities. The study was designed to inform the development of a measure of children's participation in sport. The study used focus groups and interviews to gather information on parents views of their children's participation in sports (Bedell *et al.*, 2011). Forty-two parents were recruited of which 25 were parents of children with disabilities (14 from the US and 11 from Canada) and 17 were parents of children without disability (from the US) (Bedell *et al.*, 2011).

Parents of children with disabilities spoke more frequently of barriers to

participation than those without disability. Lack of participation for the disabled group was frequently related to the child's specific disability and issues with knowledge and attitude of service providers in school and community settings. Parents of disabled and non-disabled children identified social and psychological outcomes related to participation as key to benefits of participation for their children.

In summary, disabled children face barriers to participation in sport and these barriers include lack of parental support, lack of specialist knowledge, lack of resource and awareness and isolation. Sport can act to facilitate inclusion and interacting with peer groups for disabled children and it is important to recognise how access to sports may be facilitated for this group.

2.6 DEAF OR HARD OF HEARING

Having discussed access to sport and participation levels for those with disability previously I will discuss what is meant by deaf or hard of hearing in this thesis. It is important to understand the type of hearing loss that affects a deaf or hard of hearing child, the prevalence of this in children, and how their communication needs are affected. The importance of sport for deaf or hard of hearing children and what it can offer them in terms of socialisation and peer interaction that may not be accessed elsewhere is discussed.

2.6.1 Overview of childhood deafness in the UK

In the UK there are over 50,000 deaf or hard of hearing children (CRIDE 2017). Of deaf, school age children, 78% (n= 31,311) attend mainstream school including state funded and independent schools, 6% (n=2,538) attend a mainstream school with resource provision, 3% (1,038) attend a specialist school for deaf pupils, 12% (n=4,731) attend a special school not specifically for deaf children, and 1% (n=292) are of school age and are supported at home with their education. The largest portion of children fall into the primary school age category (44%, n=22729) followed by secondary to the age of 16 (33%, n=17,196). Of children who are deaf, 7% have a cochlear implant

in the UK. Of those identified as severely or profoundly deaf in the UK, 67% (n=7,105) use spoken English or Welsh as their main communication in the education setting, 7% (n=775) use Sign Language, and 21% (n=2,191) use spoken English or Welsh with signed support. Evidence from the Consortium for Research in Deaf Education (CRIDE) has shown that 28% of those with a severe to profound hearing loss make use of some form of sign language in education, whilst 10% of those with any level of hearing loss made use of sign language in education

2.6.2 What are the types of hearing loss and what causes them?

Hearing loss can be experienced at any age (Mathers *et al.*, 2001; Stevens *et al.*, 2013). It can be congenital (from or soon after birth), or acquired (accrued over a lifetime) (Fortnum *et al.*, 2001). Congenital hearing loss can be caused by pre-natal infections or adverse events which may cause a problem in the hearing pathway, or by genetic factors inherited from one or both parents (Korver *et al.*, 2011). Acquired hearing loss can occur at any time after birth and there are a number of causes including genetic predisposition, exposure to loud noise (through work or leisure), medication, contraction of disease such as measles or meningitis; and presbycusis (age related hearing loss) (Mathers, Smith and Concha, 2000; Korver *et al.*, 2011).

Hearing loss can be either sensorineural or conductive (Fortnum *et al.*, 2001; Korver *et al.*, 2011; Katz *et al.*, 2014). Sensorineural hearing loss is caused by problems in the auditory nerve, inner ear, or processing area of the cortex (Katz *et al.*, 2014). Conductive hearing loss can be caused by a problem in the outer ear, tympanic membrane, or middle ear and prevents the effective conduction of sound waves through the ear (Smith, Bale and White, 2005; Katz *et al.*, 2014).

The World Health Organisation (WHO) defines an individual with normal hearing with a hearing threshold of 25dB or better in both ears. An individual is defined as having a hearing loss if they experience 25dB or greater and this

splits into four categories, mild, moderate, severe or profound (World Health Organisation, 2017). The WHO defines an individual as hard of hearing if the loss ranges from mild to severe, this group usually communicate through spoken language and may benefit from use of hearing aids and cochlear implants. The WHO defines 'Deaf' people as having profound hearing loss and suggests sign language will often be the chosen form of communication (World Health Organisation, 2017). This differs to the National Deaf Children's Society who use the word 'deaf' to refer to all levels of hearing loss (National Deaf Children's Society, no date a). Within this thesis the term 'deaf' or hard of hearing will be used as per the NDCS to encompass all levels of hearing loss.

2.6.3 Communication and socialisation for deaf or hard of hearing children

Deaf or hard of hearing children can experience difficulty when communicating with hearing individuals, including their parents (Vaccari and Marschark, 1997). Children may experience varying degrees of difficulty with their communication and this is dependent on the age of onset of the hearing loss (Kurkova, Scheetz and Stelzer, 2010). Children with congenital hearing loss may face issues with development of speech and language skills, leading to academic and social difficulties in later life (Kurkova, Scheetz and Stelzer, 2010).

For deaf and hard of hearing children friendship plays an important role in their support socially both in and out of school (Luckner and Muir, 2001). The school environment itself creates a potential location for social inclusion or exclusion of deaf or hard of hearing children. Some deaf children attend a special education needs (SEN) school. Those who are profoundly deaf with British Sign Language as their first language may attend a special school for deaf children and children who are deaf or hard of hearing may attend a mainstream school, some with a support unit for deaf or hard of hearing children. In the UK, 3% of deaf children attend a special school for deaf children, whilst 78% attend a mainstream school, and 6% attend mainstream

school with resource provision (Consortium for Research in Deaf Education, 2016). Children attending a special school for deaf children will usually have common ground in some level of sign language, which can help to facilitate friendships (Stewart and Ellis, 2005). For those children who are deaf or hard of hearing and attending mainstream school, there may be no common language experience such that the experience social isolation (Stewart and Ellis, 1999, 2005). The presence of deaf or hard of hearing children in mainstream schools provides increased opportunity for inclusion and for interaction between deaf and hard of hearing students and their hearing peers (Martin and Bat-Chava, 2003; McLinden and McCracken, 2016). For deaf or hard of hearing children in this environment there is an increased risk of isolation and potentially communication difficulties.

Some deaf children will make use of cochlear implants (CI's). Current guidelines suggest those who are unable to hear sounds quieter than 80dB average when tested at 2 and 4 kHz without hearing aids meet criteria for cochlear implantation (National Institute for Care and Health Excellence, 2019). There is a danger with the advancement in technology and the wider use of CIs for children that parents increasingly expect a CI to allow implant recipients to develop oral language skills but in reality this is not the case for all children (Hyde and Punch, 2011; British Society of Audiology, 2012). Moog et al (2011) investigated psychosocial adjustment in adolescents with long-term CI use. The study examined 181 students from a previous study with 112 teenagers returning for testing between 2004 and 2008. Twenty-one teenagers returned a completed questionnaire who had not returned for testing. Included in the tests and questionnaires were items related to social skills, self-esteem, group identification, student experiences and extracurricular activities, sports, and jobs (Moog *et al.*, 2011). This study showed that deaf or hard of hearing teenagers who could achieve in the hearing and deaf environment have a higher self-esteem rating. Those who were equipped with oral and sign language were more readily able to

communicate with their peers (Moog *et al.*, 2011). The study also identified 94% of its participants as active within sports and the types of sports identified were similar to their hearing peers suggesting that CI use may not impact on this but more information is needed.

A study conducted in the USA surveyed teachers of the deaf from an education register. The teachers were asked to nominate students with an average hearing loss of 75dB in the better ear. The study focused on children with severe to profound loss as those with mild or moderate losses were deemed better able to participate in classroom discussions and socialisation with hearing peers (Luckner and Muir, 2001). For deaf or hard of hearing children friendship helps their understanding of a particular situation, for example by repeating an instruction if they had not understood what the teacher had said (Luckner and Muir, 2001). These friendships can be hard to form especially for those with limited oral communication. Those who were self-conscious experienced greater difficulty in forming friendships (Martin and Bat-Chava, 2003).

Children who are deaf or hard of hearing may make use of a variety of technologies to support communication, including CIs, hearing aids, radio aids and microphones. However, for all of these technologies there are situations such as in a swimming pool where they cannot be used (Martin and Bat-Chava, 2003; Bat-Chava, Martin and Kosciw, 2005) although waterproofing is available for some of these devices (Coleman, 2012). The use of sign language can also present several issues for those who are deaf or hard of hearing. It may be an ideal alternative to oral communication for some who use sign language but at the same time may exclude those that do not use sign language. As such, when it comes to social gatherings deaf and hard of hearing individuals face a dilemma as they are dependent on others communicating using sign language (Stewart and Ellis 2005). This suggests that considering modes of communication will always be a factor for inclusion of those who are deaf or hard of hearing. When considering the social model

of disability it is important to recognise the impact societal communication may have on a deaf or hard of hearing individual. This communication barrier can create a big problem for people who are deaf or hard of hearing and is one of the reasons why they tend to congregate together. People congregate when something is shared in common as it creates a familiar environment for socialisation (Stewart and Ellis, 2005; Hyde and Punch, 2011; Moog *et al.*, 2011). This may to an extent explain why deaf clubs are popular. They provide a safe environment for those who are deaf or hard of hearing to come together, socialise, and participate in activities as a group (Hadjikakou and Nikolarazi, 2013).

2.6.4 Support for deaf or hard of hearing children in the UK

For a deaf or hard of hearing child, choice of school can be critical to their development both educationally and socially. All children have the right to attend a mainstream school unless attending would prevent education of others (for example due to behavioural issues) (National Deaf Children's Society, 2018) but schools have to demonstrate they have explored all reasonable adjustments to be inclusive of the child. For a deaf child the adaptations required may be considerably different to those of a child who has a physical disability. For those who are deaf or hard of hearing without additional need adaptations could be made to school work by using visual aids, checking for understanding, providing sign language support (meeting communication need), technology or equipment, adjusting the listening environment, and promoting deaf awareness amongst staff and pupils. All of these things can also be applied to the sports environment. The Me2 project, launched by the UK-based National Deaf Children's Society in 2008, sought to help organisations including sports clubs to be more accessible to deaf or hard of hearing children (National Deaf Children's Society, 2008). A range of resources are now available on the charities website to help deaf children engage in sports such as football, swimming, cricket and rugby. Practical advice includes limiting distractions, ensuring good lighting, use of visual aids

(National Deaf Children's Society, no date b). The Me2 deaf-friendly activities pledge encourages organisations to be deaf friendly by showing a positive attitude towards deaf or hard of hearing individuals and have the ability to adapt and include them (National Deaf Children's Society, 2009). Whilst there does not appear to be any empirical evaluations of the Me2 project, the NDCS 2011 impact report highlights some of its successes. A total of 111 sports and activity clubs signed up to the Me2 pledge to include deaf children and young people in their activities (National Deaf Children's Society, 2011). Me2 was also accepted onto the Inspire programme in 2012 in recognition of the importance of inclusion for deaf or hard of hearing children and young people in Olympic activities in the build up to the London games (National Deaf Children's Society, 2011). Perhaps one of the biggest successes was within football, where the Professional Footballers' Association recognised the deaf friendly pledge for its commitment to making football accessible to deaf and hard of hearing children and young people (National Deaf Children's Society, 2011). These specific initiatives illustrate the broader mission of the NDCS which is to overcome the social and educational barriers that hold deaf children back. The NDCS and UK Deaf sport are changing the landscape of the sports experiences and opening up possibilities for deaf or hard of hearing children.

2.6.5 Sports for deaf or hard of hearing children

The English Federation of Disability Sport (EFDS) is the lead organisation in England concerned with the promotion and provision of sport and physical activity for those with a disability, including those who are deaf or hard of hearing. A report by EFDS in September 2013 outlines the results of the first phase of a larger scale project seeking to identify and understand what disabled people do in their spare time, how they identify new hobbies, whom they see as role models and how sport may fit into their lives. This information was collected via survey and was available in multiple formats. The participants consisted of 250 males (52%) and 232 females (48%). Of the

respondents one in four were aged 14-25 years with 12% of respondents experiencing hearing loss (English Federation of Disability Sport, 2013). The survey identified that those with a hearing loss were more likely to enjoy taking part in sport outside of school than those with other disabilities (English Federation of Disability Sport, 2013).

In a Sport England Survey (Sport England, 2017) disabled people were twice as likely to be inactive (43%) compared to non-disabled people (21%). For a child to be categorised as inactive they had to partake in less than 30 minutes of physical activity per week. Of those completing the survey 25.6% were classed as inactive (n=11.3million), 13.7% were fairly active (30-149 minutes a week, n=6.1million) and 60.7% were active (>150 minutes per week, n=27.0 million). A difference was shown between disabled and non-disabled participants and those with multiple morbidities. Of the non-disabled children, 21% were classified as inactive whilst 34% of those with a single impairment, 41% with two impairments and 51% of those with three or more impairments were classed as inactive. Of the non-disabled children, 65% were classed as active whilst 51% had a single impairment, 45% had two impairments, and 36% had three or more impairments, but were classified as active (Sport England, 2017). These figures are important given that those who are deaf are classified by governing bodies as having a disability. Of those who are deaf 23% have an additional or special need (Consortium for Research in Deaf Education, 2016). The 77% of deaf children who do not have an additional need would be classified as having a single impairment, and from data from Sport England are at risk of greater inactivity. It is important to recognise this and understand the causes and implications for future research and policy.

For children who attend special schools for deaf children with or without additional needs there are wider varieties of sports opportunities. Special schools for deaf children attend regional and national competitions as well as arranging competitions with other local schools to give children the

opportunity to compete as part of a team or in individual events against competitors with similar backgrounds and experiences (Stewart and Ellis, 1999, 2005; Hadjikakou and Nikolarazi, 2013). Special schools for deaf children recognise the benefits of participation in sport and provide a range of opportunities for sports participation. They also provide a wide range of extracurricular sports activities for their pupils in addition to PE (Stewart and Ellis, 2005).

Outside of specialised school's communication, fears and difficulties for deaf or hard of hearing children can be linked to restricted access to sports activities. Often local sports clubs have a lack of provision for deaf participants as they are unaware of how to communicate with them or include them (Brunton *et al.*, 2003; Bailey, 2005). For those choosing not to participate in sport reports of negative experiences at school have been evidenced to discourage participation into adulthood (Martin and Bat-Chava, 2003; Allender, Cowburn and Foster, 2006). Deaf or hard of hearing children may face issues with accessing deaf sports teams or clubs if they do not live in a city (Martin and Bat-Chava, 2003; Stewart and Ellis, 2005). Those living close to a city would be able to participate in regional clubs and teams and would thus be able to compete as part of a team if they desired (Stewart and Ellis, 2005; Allender, Cowburn and Foster, 2006). This enables deaf or hard of hearing individuals to develop a sense of social competence, evaluated by how well an individual interacts with others and their feeling of belonging in a certain position in the community (Stewart and Ellis, 2005). It is important that deaf or hard of hearing children interact with hearing peers and deaf peers to fully develop this social competence and comfort.

Stewart & Ellis (2005) suggest mainstream schools do not provide the same opportunities for extracurricular sport for deaf or hard of hearing children compared to special schools for deaf children. Not all children with a hearing loss are able to attend a special school for the deaf and there is an increasing focus on inclusion (McLinden and McCracken, 2016). For a deaf or hard of

hearing child a school for the deaf may be more readily able to meet their needs and help with sport participation as they organise a lot of extracurricular sports activities (Stewart and Ellis, 1999, 2005; Luckner and Muir, 2001). In a mainstream school sports participation may be more challenging, although a mainstream school may be preferable to parents if it involves less travel. Parental preference influences school selection for deaf or hard of hearing children and this can be affected by whether the parent is hearing or deaf or hard of hearing. The social arenas in mainstream schools of hearing and deaf or hard of hearing individuals can be vastly different (O'Neill, Arendt and Marschark, 2014).

In the mainstream school setting PE may be difficult for a deaf or hard of hearing as they have several factors to contend with. They may need to locate themselves in a suitable position to be able to lip read the PE teacher, the acoustics may not be suitable for their hearing technology, or they may have to remove their technology for safety reasons (Lieberman *et al.*, 2000; Palmer, 2018). The use of hearing aids can also be difficult in a noisy environment (Anmyr *et al.*, 2011). Children may miss instructions and may not know what to do in certain classes.

Peer pressure and bullying may lead to a lack of enthusiasm and a loss of interest in PE (Stewart and Ellis, 1999, 2005; Zaccagnini, 2005; Thagard, Hilsmier and Easterbrooks, 2011). Martin and Bat-Chava (2003) concentrated on sports participation versus no sports participation in a study of peer acceptance. Deaf or hard of hearing children who were more confident were more likely to request repetitions of statements from their hearing peers allowing them to engage more fully in a social context (Martin and Bat-Chava, 2003; Moog *et al.*, 2011). Those who were confident and comfortable to engage in sporting activity alone were also more comfortable interacting with their hearing peers (Martin and Bat-Chava, 2003). For boys the most effective way to achieve friendships with their hearing peers was to be good at sports, those who performed as well or better than their hearing peers were more

readily accepted (Martin and Bat-Chava, 2003; Sit *et al.*, 2007). PE and the sport environment carries a risk of exclusion for deaf or hard of hearing children, and it is important that they are able to access the same benefits as hearing children, especially as sports programs can promote self-confidence and provide a platform for children to enjoy physical activity over their lifetime and into adulthood (Kurková, Válková and Scheetz, 2011).

A study in the USA conducted in depth interviews of parents of deaf children as part of a larger study of their psychosocial development (Martin and Bat-Chava, 2003). Slightly more parents of children with CIs were recruited to the study than parents of those with hearing aids. Given that this study was conducted in the USA, and prior to 2005, the children recruited would not have had early identification of their hearing loss. Post 2005, newborn hearing screening came into effect and children with hearing loss were identified at an earlier age (Watkin and Baldwin, 2012; Wood, Sutton and Davis, 2015). Some of the issues faced by the children within this study may now have been addressed due to early identification. The study showed that for boys PE can to some extent place less emphasis on verbal interactions (as seen in a typical classroom setting) and can allow them to communicate more easily with their peers by showing off their sports skills. This is of particular significance for boys who tend to gravitate towards team sports (Luckner and Muir, 2001). Boys who are good at sport are more readily accepted by their male peers, and their hearing loss becomes less significant to their peers (Luckner and Muir, 2001; Martin and Bat-Chava, 2003).

In summary, deaf children may benefit in both physical and mental health when participating in sports. However, they may face some barriers to participation depending on where that participation is based. In PE at mainstream schools deaf or hard of hearing children may have difficulty hearing or following instructions due to the environment. Those using hearing technology such as hearing aids may struggle in sports environments as it can affect the use of the technology. As such, society may be viewed as

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not providing sufficient opportunities for these children to participate. I will further discuss this in the next section. It is important for all children to have access to participation in sport so that they may access the benefits participation may bring both in mental and physical health. It is particularly important for deaf or hard of hearing children as it provides them with new communication and interaction opportunities with their peers may help to improve confidence, combat shyness and help with self-awareness and self-efficacy.

2.7 MODELS OF DISABILITY: SELECTING A FRAMEWORK TO STUDY HEARING LOSS AND SPORT

The previous sections have discussed the benefits and levels of participation in sports and physical activity, sports for those with disability, what hearing loss is and how it affects communication needs and why sport is important for deaf or hard of hearing children. Here I discuss the literature on models of disability to consider their utility as a framework for the work that follows.

2.7.1 Personal tragedy model of disability

In the personal tragedy model of disability an individual's experiences are ignored (Swain and French, 2000). Disability is thought to strike an individual at random, cause suffering and blight lives (Swain, 2004). According to this model those with disability are often portrayed in the media as being bitter, twisted or pathetic, an intrusive and violating view of those with disability (Swain, 2004). In this model disabled people are faced with a choice, either the disability is seen as a personal tragedy or as a form of social oppression (Thomas, 2004). This model is adopted very little and is no longer considered appropriate (Swain and French, 2000).

2.7.2 Medical Model of disability

The medical model of disability relates disability to an 'impairment' which is individually owned and leads to a decreased or inhibited function (Thomas and Smith, 2009). The medical model has an inherent implication that medical professionals impose their views and priorities on disabled people's

lives. This usually demotes personal and social needs of a disabled individual to less of a priority and does not account for society's role in the creation of disability (Thomas and Smith, 2009). This medical model focuses on functional status of an individual rather than accounting for personal factors (Brittain, 2004). Research has shown this model to be insulting and degrading to those with disability (Swain and French, 2000; Lang, 2001; Shakespeare and Watson, 2001; Brittain, 2004). This model is used within Sport Science (Howe, 2008; Aitchison, 2009); it allows those delivering sports to make changes to enable participation and inclusion for those with physical disability. It could be argued that for those with special educational needs of a non-physical nature that this model has nothing to offer (Koch, 2001).

Given the medical focus of this model it does not readily relate to all individuals with hearing loss. It does not consider the social and peer interaction difficulty those with hearing loss may have. Nor does it account for isolation or lack of integration that those with hearing loss may experience. As such this is not a model which will be considered again in this thesis.

2.7.3 Social model of disability

The social model of disability views disability as a social construct and focuses on disability being caused by the organisation of society as opposed to a person's difference (Oliver, 1996). This model identifies ways of removing barriers which restrict disabled people's participation in life, be that sport or other social occurrences. This model argues that people are disabled by society and this further heightens their disability (Lang, 2001; Terzi, 2004; Thomas and Smith, 2009). The model shows disabled people capable of independence and equality in society due to choice and control of decision making in their lives (Oliver, 1996; Terzi, 2004). The social model was developed by disabled people for disabled people because the 'medical model' did not account for personal experience of disability. The medical model also did not help to facilitate inclusion (Swain and French, 2000;

Shakespeare and Watson, 2001; Brittain, 2004). In the UK the social model was key to the disability movement. It enabled barrier removal to be identified as a political approach and made a priority of dismantling barriers in society (Shakespeare and Watson, 2001; Terzi, 2004). The focus in this disability movement was taken away from a medical perspective and a cure and moved towards a 'transformation of society' (Swain and French, 2000; Shakespeare and Watson, 2001). The model also impacted on disabled people themselves; they had a voice within this model and it helped to counteract the 'medical model' view of disability. A shift in viewpoint moved the view focusing on physical impairment towards 'social oppression' (Swain and French, 2000; Shakespeare and Watson, 2001; Thomas and Smith, 2009). This model empowered disabled people to work for equality and inclusivity and drew the focus away from physical impairment (Oliver, 1996; Shakespeare and Watson, 2001).

The social model is better informed by those with disability than the medical model, but it too has its limitations. It gained support from disabled people but has been criticised as it does not provide a definition for disability which encompasses both the disability and experience of an individual (Swain and French, 2000; Brittain, 2004). One issue with the social model is that it fails to account for an individual's experience of disability and the social environment (Swain and French, 2000; Thomas and Smith, 2009). There are calls for an updated version of the model and alternative suggestions such as the affirmative model (discussed in 2.1.14). Any update to the social model would need to consider the distinction between disability and impairment. One cannot be considered without the other and their interaction is complex and needs to be taken as a whole (Shakespeare and Watson, 2001).

Given the focus on the social aspect in this model it can be related to those with hearing loss. It focuses on the social experience of an individual with disability and this is a key consideration for those who are deaf or hard of hearing. As such this model will be considered throughout this thesis.

2.7.4 Affirmative Model of disability

The affirmative model of disability has origins in the personal tragedy model (Thomas, 2004) and the social model (see Section 2.7.3). The affirmative model rejects the tragedy model of disability, and builds on the social model. The affirmative model builds on the social model by refocusing on the 'problem lies within the individual or impairment' rather than 'the problem lies within society' as in the social model (Oliver, 1996; Swain and French, 2000). The affirmative model is focused on disabled people as individuals who determine their personal identity and culture (Swain and French, 2000). The driver behind the affirmative model is for empowerment of a disabled individual and assertion of a positive identity being disabled and impaired.

Given the focus in this model on the 'problem being within the individual' and the onus for change being on the individual this model will not be considered any further in this thesis. The implication of a problem with an individual with disability seems unfair and exclusive rather than inclusive. It is also challenging for a deaf or hard of hearing child to be able to demand change and own their disability as often it is something they are learning. A focus of this thesis involves inclusivity for deaf or hard of hearing children and as such this model is not appropriate but the social model of disability is.

2.8 SUMMARY

The benefits of participation in sport should be accessible for all children. However, for deaf or hard of hearing children sport can be difficult to access or fully participate in (Stewart and Ellis, 2005). There may be a lack of opportunity in their local area to participate in deaf sport, or children may be worried about attending local mainstream sports clubs due to a lack of confidence or a fear of being bullied (Martin and Bat-Chava, 2003; Bat-Chava, Martin and Kosciw, 2005). Given that across the world there are millions of children experiencing some form of permanent hearing loss it is important to understand their experience of sports participation, the barriers to participation they face, and how sport can be made accessible to them. Deaf

or hard of hearing people are more likely to participate alone, or as part of a group with others who are deaf or hard of hearing, this is interesting given deaf or hard of hearing individuals listed their disability as the main reason for not participating in sports. There is a lack of awareness of the sport available to those with a hearing loss and a lack of awareness of the needs of those with hearing loss by those providing access to participation in sport. These issues include problems with communication, lack of confidence, low self-esteem, and a lack of understanding by peers. Integration is being given an increased focus in the school and sport setting, and forms the basis of the social model of disability, so it is increasingly important that the issues facing deaf or hard of hearing children are addressed (Stinson and Antia, 1999; Avramidis and Norwich, 2002; Wauters and Knoors, 2008). This is particularly pertinent given the potential social development benefits of participation in sport alongside the opportunity to develop initiative and interact with peer groups whom would otherwise be inaccessible.

In my PhD I aimed to identify the barriers and the facilitators to participation in sport, to fill gaps in knowledge and provide a platform for future generations of deaf or hard of hearing children to access sports with a reduction in the barriers they face.

The specific objectives of this PhD thesis are to:

1. Systematically review the literature and identify the barriers to participation in sport for all children without disability.
2. Explore the barriers to participation in sport for deaf or hard of hearing children using focus groups to gain an insight into their experience of sports participation
3. Explore the barriers to participation in sport for deaf or hard of hearing children from the adult perspective making use of interviews. To better understand the thoughts and feelings of deaf or hard of

hearing children's parents and sports educators in relation to their participation in sport.

4. Synthesise the primary results from each study within the thesis with equal weighting. This synthesises the understanding generated from the studies individually and addresses any inconsistencies. This allows the reinforcement of key messages relating to the different perspectives gathered prior to the synthesis.

CHAPTER 3. BARRIERS TO PARTICIPATION IN SPORT FOR CHILDREN: A SYSTEMATIC REVIEW

3.1 INTRODUCTION

Children who participate in sport benefit from mental and physical health improvements include school performance and general wellbeing (Bailey, 2006; Janssen and Leblanc, 2010; Snyder *et al.*, 2010; Felfe, Lechner and Steinmayr, 2016). For those children participating in sport regularly, scores on happiness scales are higher than those who do not participate in sport (Snyder *et al.*, 2010).

Sports involving moderate physical activity include those such as badminton or cricket, where a person can converse easily at the start of play but breathing becomes more effortful as they continue play. Sport involving vigorous physical activity includes those such as competitive swimming where there is exertion and physical demands are high, e.g. on the person breathing (Online Oxford English Dictionary, 2017). For most children PE provides the first exposure to sport (Kirk, 2005; Olivares and Cossio-bola, 2015) and it is likely that this early exposure is very influential of their participation in later years (Allender, Cowburn and Foster, 2006). Sports are an important means for children and young adults to gain their recommended level of physical activity (Scholes and Mindell, 2012).

Much of the literature focuses on specific barriers to sports participation faced by those with a physical disability or those in an economically disadvantaged area (Jaarsma, Dekker, *et al.*, 2014; Marlier *et al.*, 2014; Jaarsma *et al.*, 2015). Research in the UK showed that 55% of children aged ~4-17 years took part in at least 3 hours of PE and out of hours school sport, however this decreased with a move from primary (ages ~4-12 years) to secondary (ages ~12-18 years) school in the UK. In broad 'physical activity' terms, barriers such as 'preferences and priorities', 'family life' and 'parental support' can influence levels of sports participation (Eime *et al.*, 2013).

Three methodologies were considered for this review; narrative review, scoping review, or systematic review. A narrative review is open to researcher bias as there is no set process for searching and identifying relevant literature (Ferrari, 2015). A narrative review can address single or multiple research questions and selection criteria for inclusion is not necessary (Ferrari, 2015). This leaves the narrative review open to bias and difficulty with replicability. A scoping review addresses broad topics where many study designs can be applicable, and does not seek to address specific research questions or appraise the quality of studies included (Arksey and O'Malley, 2005; Levac, Colquhoun and O'Brien, 2010). A scoping review is unsuitable here as a specific research question needed to be investigated to identify the barriers to participation in sport for children. A systematic review appraises the quality of the studies included but a scoping study does not require this. Appraising the quality of included studies was important to ensure that the conclusions drawn from the systematic review were based on quality research (Wright *et al.*, 2007). A systematic review provides a structure by which to search the literature to identify relevant studies, inclusion and exclusion criteria are specified and the quality of studies is ascertained. This provides a framework for a robust, replicable review which answers a specific question and is able to identify any potential bias within the answers to the research questions (Wright *et al.*, 2007; Ferrari, 2015).

There are few studies focusing on facilitators to participation in sports in a general population (De Meester *et al.*, 2014) which may reflect a lack of evidence for the general barriers children may face. In part, this may show the evidence of the general barriers children face when wishing to participate in sport has yet to be synthesised. Here studies primarily concerned with identifying general barriers to voluntary sports participation faced by all children are reviewed and how these barriers might best be addressed is considered.

The aim of this systematic review was to identify and synthesise the primary evidence on barriers to voluntary sports participation that are faced by children, and to then consider how those barriers might best be addressed.

3.2 METHODS

The systematic review protocol was registered on PROSPERO (CRD42015023993) and is reported according to the PRISMA guideline (http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42015023993).

The literature searches were performed in June 2015 and made use of four electronic databases. The databases were EMBASE, Medline, CINAHL and SportDiscus. An updated search was carried out in November 2016 using Google Scholar. The search terms used were; barrier*, stop*, prevent*, participat*, taking part, Sports/, sport*, “physical education”, PE, child*, young person*, adolescen*. An example search strategy is given in Table 3.0. For the search of Google Scholar a stopping rule was used. The screening of abstracts and titles was stopped once three consecutive pages of search results did not identify any new records to be taken to full screening. For the systematic reviews identified from the searches the authors were contacted to identify if they were aware of additional relevant studies.

Table 3.0: Example electronic search conducted in EMBASE, June 2015

1	barrier*.mp.
2	stop*.mp.
3	prevent*.mp.
4	1 or 2 or 3
5	participat*.mp.
6	taking part.mp.
7	5 or 6
8	sport/ or sport*.mp.
9	PE.mp.
10	child*.mp.
11	adolescen*.mp.
12	young person*.mp.
13	10 or 11 or 12
14	"physical education".mp. or physical education/
15	8 or 9 or 14
16	4 and 7 and 13 and 15

3.2.1 Inclusion / Exclusion

For inclusion studies had to be peer-reviewed records which describe original research and were available in English. For a study to be included it had to discuss barriers to participation in sport for children up to 18 years of age. Qualitative and quantitative studies were included.

Studies focusing on the impact of non-participation in sport were excluded. Those focusing on variables such as smoking, alcohol consumption or the female athlete triad (eating disorders, weakening of bones and loss of periods) were also excluded, as were studies including sport as an intervention (i.e. 'forced' participation). Studies reporting only on participants with additional needs, pre-exercise testing, or focused on injury from sports participation were excluded. Non-peer reviewed publications, guidelines and policy documents were excluded. Studies that were not about

participation in sport or did not investigate barriers to participation were excluded.

3.2.2 Study Selection

An initial title screen was carried out to remove duplicate results. Two researchers (SS and DH) then independently screened titles and abstracts against the inclusion criteria. Studies identified by either researcher as potentially providing evidence or unclear evidence for inclusion were retrieved and subjected to full text review. Both researchers reviewed the full texts independently against the inclusion / exclusion criteria. This was followed by a meeting to determine the extent of agreement and to resolve disagreements through discussion.

3.2.3 Data extraction

To assist with extraction of the data a form was developed and piloted on four records. This initial form needed revision before application to all of the records. Information extracted from the studies included author, publication year, country and location of the study, study design, number of participants, age of participants, types of barrier to participation, socioeconomic information, type of sport, and if the sport took place within the school setting or outside of the school setting (e.g. in the community). Two researchers independently conducted data extraction. A consensus meeting was held to resolve any discrepancies in the data extraction by revisiting the record and discussion.

3.2.4 Study quality

Quality of quantitative studies was assessed using the Clinical Appraisal Skills Programme (CASP) tool for cohort studies (Critical Appraisal Skills Programme, 2017a). This tool contains 12 questions relating to cohort studies. Questions 3, 4, 6 and 12 of the tool were not used in this review as they are only relevant for intervention studies (Table 3.1). For each question there are three response ratings 'yes', 'no' or 'can't tell'. Scoring 'yes' on a

question meant that the researchers deemed the criteria for that question to have been met sufficiently. To score 'no' on a question meant that the researchers deemed that not all criteria for that question had been met. To score 'can't tell' meant that the researchers deemed that not all information relating to the question was available and not enough information was present to score a 'no'. For individual questions guidance on rating and a description of why the question is important is provided. Questions 1 and 2 acted as quick screening questions to help determine whether it is reasonable to conduct a full quality screen. Question 5a and b are designed to assess whether confounding factors are accounted for in a study, i.e. are there restrictions in study design and technique that leave the study open to bias or alternative explanations of findings. Question 7 asks whether rates or proportions have been reported and how strong are the associations. Question 8 relates to the accuracy of results; guidance points the reviewer towards the listed confidence intervals and their accuracy within the study. Question 9 is concerned with the believability of the results. A big effect is hard to ignore but this question encourages the reviewer to consider if it could be explained by bias, confounding or chance and to consider if the design and or methods of the study are flawed sufficiently to deem the results unreliable. Question 10 asks whether the method was appropriate to the study and whether participants in the study were sufficiently different from the population to cause concern.

Quality of qualitative studies was assessed using the Clinical Appraisal Skills Programme (CASP) tool for qualitative studies (Critical Appraisal Skills Programme, 2017b). This tool contains ten questions (Table 3.2). For each question there are three response ratings: 'yes', 'no', or 'can't tell'. The first two questions act as screening questions for continuing with the quality appraisal. Question 3 focuses on justification of the research design and if this has been discussed in the study, i.e. was a relevant approach used. Question 4 focuses on participant recruitment and whether the study explains

how and why participants were selected and if there was any information relating to recruitment in terms of participant's choice to participate or not. Question 5 asks if the data was collected in a way that addressed the research, i.e. did the study justify the setting for collection of the data, was it clear by which method the data were collected (e.g. interview, focus group etc.), were the methods justified and how were they used, were the methods changed at all during the study, if so why, and has data saturation been discussed. Question 6 asks about the relationship between the researcher and participant and whether this was considered in the record. Question 7 asks about ethical implications of the study, i.e. whether the study took account of ethical concerns and was ethical permission sought for the study, was informed consent obtained, etc. Question 8 asks about rigour of data analysis, i.e. was there an in-depth description of the process for analysis, if thematic analysis was used was it made clear in the study how the themes were obtained from the data; did the study present sufficient data to support the findings and did the study take account of any contradictory data. This question also revisits some of the information from question 6 in terms of whether the study critically examined the role of the researcher, potential bias and influence during analysis and selection of data for presentation. Questions 9 and 10 ask about the findings and value of the research. Question 9 asks if the findings are explicit, whether there was discussion of the evidence both for and against the researcher's arguments, and whether the study discusses the credibility of their findings. Credibility includes items such as triangulation of the data, use of more than one person during analysis of the data and respondent validation. Question 10 relates to value of the research and whether the researcher discussed the contributions the study makes to existing knowledge, the findings in relation to current practice, and whether they identify any new areas where research is necessary. Two researchers independently conducted appraisal of the studies.

Disagreements in scoring were discussed and the records revisited at a consensus meeting.

3.3 RESULTS

The initial searches were conducted in June 2015 and produced 3434 records. Of these 22 studies were included; nine quantitative studies and 13 qualitative studies (Figure 3.1). In November 2016 an additional Google Scholar search was undertaken, and two new studies were identified which met the inclusion criteria. Of these studies one was qualitative and one used mixed methods. Characteristics of the quantitative studies are shown in Table 3.3. For the qualitative studies Table 3.4 shows the characteristics of the studies. The studies took place in different environments; school (n=14), sports club (n=1), community (n=8) and adolescent care setting (n=1). Seven qualitative studies included only female participants whilst nine quantitative and eight qualitative studies included participants of both genders. Socioeconomic information was available for five of the quantitative studies and nine of the qualitative studies. Studies included were conducted in different countries. For the quantitative studies these were; France (n=1), Australia (n=3), USA (n=4) and Spain (n=1). For qualitative studies these were; Australia (n=3), Brazil (n=1), Canada (n=1), Ireland (n=1), UK (n=5) and USA (n=4). Participants across all studies ranged in age from 4 to 18 years.

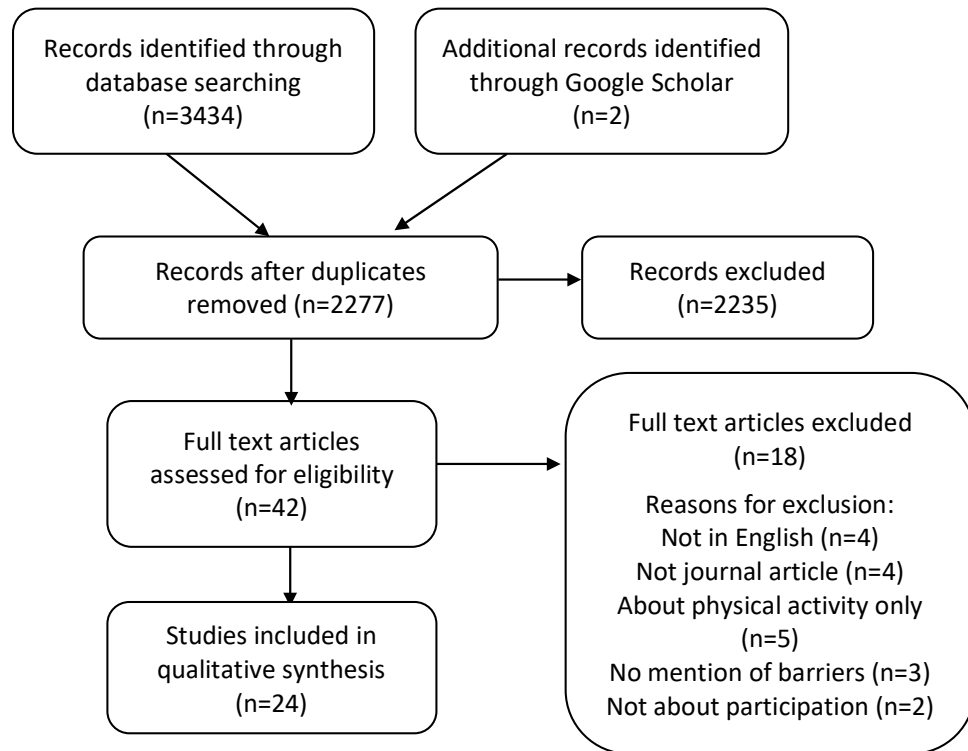


Figure 3.1: PRISMA flow diagram showing the records identified, removal of duplicates, number of full text articles assessed for eligibility and the studies included.

3.3.1 Study Appraisal

Tables 3.1 and 3.2 show the study appraisal using the CASP questions. Of the 222 judgements made, 161 were 'yes' quality criterion was met, 41 'no' quality was not met and 20 were 'CT' indicating a judgement could not be made conclusively. There were visible trends across study types with all quantitative studies being judged to have recruited in an acceptable way and almost all judged to not have identified all important confounding factors. The qualitative studies were all judged to have selected an appropriate qualitative method for their research. Few qualitative studies showed consideration for the relationship between researchers and participants.

Table 3.1: CASP appraisal for quantitative studies

Number	Question from CASP	Boiche 2009	Casper 2011	Dollman 2010	Gordon 1996	Gracia- Marco 2010	Hardy 2010	Irwin 2009	Kirshnit 1989	Perry 2011
1	Did the study address a clearly focused issue?	Y	Y	Y	CT	Y	Y	Y	Y	Y
2	Was the cohort recruited in an acceptable way?	Y	Y	Y	Y	Y	Y	Y	Y	Y
5a	Have the authors identified all important confounding factors?	N	Y	Y	N	N	N	N	N	N
b	Have they taken account of the confounding factors in the design and / or analysis?	N	Y	Y	N	N	N	N	N	N
8	How precise are the results?	Y	Y	Y	N	Y	Y	N	N	Y
9	Do you believe the results?	Y	Y	Y	Y	Y	CT	Y	Y	Y
10	Can the results be applied to the local population?	Y	Y	Y	N	Y	N	N	N	Y
11	Do the results of this study fit with other available evidence?	Y	Y	Y	N	Y	N	Y	Y	Y
7	What are the results of this study?	Satisfaction and value with sport are predictors of dropout	Time viewed as biggest participation barrier to sport	Girls from poorer background experience a lack of parental support	Barriers to sport participation in leisure time are cost and opportunity	Males engaged in more extracurricular activity than females	Cost and time influence parents decision for their child's participation in sport	Income has an impact on swimming ability (due to lessons taken)	Younger boys spend more time in sports than older boys. Girl's time did not differ. Results inconsistent	Participation in after school sport associated with satisfying the recommended daily PA

Y = criteria was met, N = criteria not met, CT = cannot tell if criteria was met

Table 3.2: CASP appraisal for qualitative studies

Number	Question from CASP	Armentrout 2011	Azzarito 2012	Barnett 2013	Basterfield 2016	Dismore 2010	Eime 2010	Eimear Enright 2010	Fisette 2013	Holt 2011	Kimm 2006	Oliver 2009	Quarmby 2011	Stanely 2012	Totaro-Garcia 2011	Wetton 2013
1	Was there a clear statement of the aims of the research?	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	Is a qualitative methodology appropriate?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	Was the research design appropriate to address aims of research?	Y	Y	CT	Y	CT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4	Was the recruitment strategy appropriate?	Y	CT	Y	Y	CT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5	Was the data collected in a way that addressed the research issue?	Y	Y	CT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
6	Has the relationship between researchers and participants been adequately considered?	N	Y	N	Y	CT	N	N	CT	N	N	Y	N	N	N	N
7	Have ethical issues been taken into consideration?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
8	Was the data analysis sufficiently rigorous?	Y	CT	Y	CT	CT	Y	Y	Y	Y	Y	Y	Y	Y	N	N
9	Is there a clear statement of findings?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10	How valuable is this research?	Y	N	CT	CT	CT	Y	CT	CT	Y	CT	CT	Y	N	CT	Y

Y = criteria was met, N = criteria not met, CT = cannot tell if criteria was met

One quantitative study (Gordon and Caltabianco, 1996) was scored as 'can't tell' as it was unclear whether it addressed a focused issue. All of the quantitative studies were deemed to have recruited the cohort in an acceptable way, hence selection bias was not judged to be present to effect generalisability of the findings. Boiche (2009) had a representative cohort from a defined population of those participating in sport and those who no longer participated, and were investigating dropout or persistence of participation. Casper (2011) and Dollman (2009) were scored as 'yes' for this criterion as both had good response rates and included everybody who should have been recruited, i.e. all pupils within the school were given access to the survey preloaded onto a computer (Casper *et al.*, 2011) and a representative sample of schools containing pupils from varying socioeconomic backgrounds in Australia (Dollman and Lewis, 2010). Gordon (1996) was scored as 'yes' as they sampled high school students from a number of schools across grades 8, 10 and 12 to cover a wide age range. The study was deemed to have recruited everybody from the defined school population. Gracia-Marco (2010) used simple random sampling accounting for location of the schools and random assignment of the schools within each city. The cohort was representative of the defined population and did not show selection bias, and made use of an established system for selecting participants. Hardy (2010) used a cohort of parents of children aged 5 to 17 years via telephone survey. The cohort was representative of the defined population. Irwin (2009) focused on a special cohort related to swimming ability, and made use of a purposeful sample. This was suited to the study investigating swimming ability in mainly non-white children aged 4 to 17 years from low-income households. The study was deemed to be representative of the defined population for the study, and to have recruited those who should have been recruited, i.e. a purposive sample of poor minority children was taken to identify if reported myths for barriers to participation were stopping participation in this group. Kirshnit (1989) focused on 5th to 9th grade pupils

from two Chicago communities from working and middle class suburban locations and was judged to have recruited a representative cohort for the defined population. Perry (2011) was judged to have recruited a representative cohort and had a response rate of 80%.

Two of the quantitative studies were judged as identifying important confounding factors and accounting for them in design and analysis. Three studies, Kirshnit et al (1989), Irwin et al (2009) and Hardy et al (2010) scored 'no' on several of the quality appraisal questions. All scored 'no' for identification of important confounding factors suggesting their findings could be attributable to other factors.

Irwin et al (2009) and Kirshnit et al. 1989 scored a 'no' for precision of the results. Most of the quantitative studies were judged not to have identified confounding factors putting these studies at risk of potential bias. Four quantitative studies (Kirshnit, Ham and Richards, 1989; Gordon and Caltabianco, 1996; Irwin *et al.*, 2009; Hardy *et al.*, 2010) were scored 'no' on the majority of the quality appraisal questions. Those studies addressed a niche issue but did not take account of confounding factors in either the design or analysis of the results and the precision of the results was questioned. Some did not list odds ratios and confidence intervals making it difficult to assess the accuracy of their findings (Kirshnit, Ham and Richards, 1989; Gordon and Caltabianco, 1996; Irwin *et al.*, 2009; Hardy *et al.*, 2010).

For two of the qualitative studies it was unclear if the research design was appropriate (Dismore and Bailey, 2010; Barnett *et al.*, 2013). The appropriateness of the recruitment strategy for Azzarito et al (2012) and Dismore & Bailey (2010) were unclear and scored 'CT' on quality appraisal. Differences in the results may be explained by differences in the quality of the studies. One of the qualitative studies scored as 'CT' because it was unclear whether data were collected in a way that appropriately addressed the research issue in question. Another qualitative study (Totaro Garcia and

Fisberg, 2011) scored a 'No' for the same question. Most qualitative studies did not discuss consideration of the relationship between the researcher and participants (n=10) with two scoring 'CT' for the same question. It is therefore concerning that Barnett et al (2013), Eime et al (2010), Eimear-Enright & O'Sullivan (2010), Fiset (2013), Holt et al (2011), Oliver et al (2009), Stanley et al (2012) and Totaro-Garcia & Fisberg (2011) do not clearly provide this information. Of the qualitative studies 10 scored 'Yes' to sufficient rigour in data analysis indicating a well-constructed and thought out process.

Barriers reported in the quantitative studies from Casper et al (2011) and Dollman & Lewis (2010), and the qualitative study Oliver et al (2009) which scored 'yes' on all CASP criteria provide high level evidence, i.e. replication of the study is unlikely to change the estimates. For qualitative studies criterion 10 was not considered in this judgement as it is not relevant to reliability. All other studies were judged to have some factor or factors that might affect the reliability of their estimates, i.e. further studies that address these reliability issues may report different results.

3.3.2 Study characteristics

Table 3.3 shows the study characteristics for the nine quantitative studies and Table 3.4 shows the study characteristics for the 15 qualitative studies. Eight quantitative studies focused on the generic sports (Kirshnit, Ham and Richards, 1989; Gordon and Caltabianco, 1996; Boiché and Sarrazin, 2009; Dollman and Lewis, 2010; Casper *et al.*, 2011; Perry, Saelens and Thompson, 2011; Duvinage *et al.*, 2014) context with one focusing on swimming participation only (Irwin *et al.*, 2009) in children aged 5 to 18 years. All quantitative studies made use of questionnaires.

The focus of the individual quantitative studies will be discussed below. Boiché & Sarrazin (2009) investigated potential factors for dropout in sport or continuation of sport. Perry et al (2011) sought to identify perceptions of

motivators and barriers to physical activity, including sports participation. Irwin et al. (2009) also sought to identify barriers and facilitators to participation but focused on swimming. Casper et al (2011) sought to identify constraints to participation in physical activity including sports participation and how these differ across age, gender, socioeconomic status and ethnicity. Dollman & Lewis (2010) focused on socioeconomic position and sport participation and how varying socioeconomic position influenced personal, social and environmental factors for participation in physical activity including sports. Gordon & Caltabianco (1996) focused on leisure activity involvement (including sports participation). All studies reported the relationship between gender and sports participation and the effect of increasing age. Two studies made use of predefined barriers for those participating in the study. One, Kirshnit et al. (1989) used electronic pagers to assist children with filling out a survey. Random messages were sent out to the pagers and on receipt children were asked to respond to a short survey.

Table 3.3: Study characteristics for the quantitative studies included in the review

Author & Year	Method	Sample	Country	Age (Years) or School Grade	Sport	Socioeconomic info	Barriers Identified
Boiche 2009	Questionnaire	261 228 (62%) M 139 (38%) F	France	Mean age 14.6	General Outside school	NR	Personal goal conflict Parental support Practice times Location Perceived competence Relationship with coach
Casper 2011	Questionnaire	2465 1169 (50%) M 1169 (50%) F	USA	6 th , 7 th , 8 th graders	General	52% caucasian (1103), 36% African American (747), 11% Latino (237). 32% (739) received free or reduced price lunch. 1591 no reduced lunch	Barriers predefined: Time Partners Facilities Accessibility
Dollman 2010	Cross-sectional Survey	3434 786 (45%) M 951 (55%) F	South Australia	Grades 5-10	General	51% metropolitan schools, 49% rural schools. High socioeconomic background: M 36.6%, F 35.1%. Medium socioeconomic background: M 27%, F 29.3%. Low socioeconomic background: M 36.4%, F 35.5%	Barriers predefined: Level of parental support for females Low socioeconomic background for females placed restriction on sport participation Boys from low socioeconomic background reported less access to organised sport
Gordon 1996	Survey	140 students	Australia	Grades 8, 10, 12	General Outside School	NR	Parents / guardians Opportunities Transport Cost Laziness Friends
Gracia-Marco 2010	Survey	2165 Students 1124 (52%) M 1041 (48%) F	Spain	13-18	General Outside School	NR	Being female rather than male

Hardy 2010	Questionnaire	402 (parents) 22% Fathers 78% Mothers	Australia	5-17	General Outside School	Half of households had income less than \$80,000 Australian	Location Time Convenience to parents Availability Cost
Irwin 2009	Survey	1680, 848 (50.5%) M 832 (49.5%) F	USA	4-17	Swimming Outside school	NR	Not feeling safe Fear of drowning Lack of encouragement from family
Kirshnit 1989	Survey	401	USA, Chicago	5 th to 9 th Grade	General In and out school	Working and middle class communities	Choice
Perry 2013	Survey	773 379 (49%) M 394 (51%) F	USA	Grades 6, 8, 10, 12	General	30% below federal poverty level, 100% on free or reduced cost lunch program	Time Transport

NR = Not reported, M = Male, F = female, PE = physical education

Table 3.4: Study characteristics for the qualitative studies included in the review

Author & Year	Method	Sample	Country	Age (Years) or School Grade	Sport	Socioeconomic info	Barriers Identified
Armentrout 2011	Survey – open ended questions	237 parents / guardians of children who had been youth hockey players	USA Minnesota	4-17	Ice Hockey Outside school	NR	Time Cost Location Availability of ice rink Politics Lack of enjoyment Lack of interest
Azzarito 2013	Visual ethnography with 2 interviews	20 females	United Kingdom Midlands	14-15	PE Inside School	19 ethnic minority F, 1 white F	Fear of humiliation Self-consciousness Competitiveness Negative appraisal Conformity
Barnett 2013	Focus groups	33 17 (52%) M 16 (48%) F	Australia	16-18	General Outside school	99% below average Australian socioeconomic status	Not being good at sport Cost Time No Encouragement Lack of resources Fear of being judged
Basterfield 2016	Survey with open ended questions	441 210 (48%) M 231 (52%) F	England	9 and 12 years	General	Socioeconomically representative of Northern England	Cost Distance Lack of facility Time Being shy Doesn't like being a teacher Doesn't like strangers Being bullied Lack of skill Fear of getting hurt Fear of making a mistake
Dismore 2010	Interview	10 5 M 5 F	United Kingdom	Year 7	PE Inside School	Mixed state and grammar schools	Conforming to social groups Access to (good) equipment School PE curriculum

Eimear Enright 2010	Participatory action research	41 F	Ireland	14-19	PE	NR	Lack of voice and choice
Eime 2010	Focus groups	27 F	Australia	16 to 17	General	Socio-Economic Indexes for Areas index scores 913-1034	Lack of enjoyment Lack of time Lack of confidence Self-conscious Lack of motor skills Willingness of parents to travel Limited community support Lack of opportunity Limited sporting ability Distance
Fisette 2013	Focus groups and interviews	7 F	USA	14-15	General	Middle class	Boys dominating sport Conforming to gender stereotype Risk of embarrassment
Holt 2011	Interviews	17 parents, 18 children 2 Fathers, 15 Mothers 11 (61%) M 7 (39%) F	Canada	Mean age 12.5	General Outside school	Lowest socioeconomic status bracket in receipt of specific funding to support child's participation in sports	Cost (in addition to training) Time Transport
Kimm 2006	Questionnaire	2379 F	USA	9-19	General	NR	Time Tiredness No one to go with Embarrassment May get hurt Medical condition Being bad at sport
Oliver 2009	Feminist active research	11 F	USA	10-11	General Inside school	96% and 81% in each school were economically disadvantaged	Conforming to gender stereotype Boys domination of sport space Boys attitudes to girls in sport
Quarmby 2011	Survey & Semi	381	United Kingdom	11-14	General	NR	Family (single parents, step parents, married parents etc.)

	structured interviews	(30 from this participated in interviews)	Midlands				
Stanley 2012	Focus groups	54 23 (43%) M 31 (57%) F	South Australia	10-13	General Inside school	Range purposefully sampled, 20% low socioeconomic background	Access to space Perceived competence Suitability of space Time Weather Cost Uniform
Totaro Garcia 2011	Interview Data	118 51 (43%) M 67 (57%) F	Brazil	10-19	General Inside school	NR	Lack of support (situational) Personal Lack of resources (finance and material)
Wetton 2013	Survey / semi-structured interview	60 F	United Kingdom Midlands	15-16	General Inside and outside school	NR	Conforming to stereotypes Time Bad experience in PE Teacher not supportive Lack of ability Peer disapproval Other hobbies Gender Stereotype

NR = Not reported, M = Male, F = female, PE = physical education

Across qualitative studies, one study focused on parental views of their child's participation in sport (Armentrout and Kamphoff, 2011) and another study looked at both parent and child perspectives of the benefits associated with participation in sport in low income families (Holt *et al.*, 2011).

Almost half of the qualitative studies focused on female experience of participation in sport only (Kimm, Glynn and McMahon, 2006; Oliver, Hamzeh and McCaughtry, 2009; Eime *et al.*, 2010; Enright and O'Sullivan, 2010; Azzarito and Hill, 2013; Fisette, 2013; Wetton *et al.*, 2013). Azzarito (2013) sought to explore the views of girls from ethnic minorities about their bodies and in what space they would be physical active in their daily lives. Eime (2010) made use of the socioecological model to investigate factors affecting participation in sport and physical activity in rural girls whilst Fisette (2013) explored the self-identified barriers to engagement in PE and enjoyment in girls. Enright (2010) also investigated the PE environment but sought to identify how a negotiated PE curriculum might look. Kimm (2006) focused on a biracial cohort of sedentary females and sought to identify barriers to their participation in activity including sport. Oliver (2009) sought to understand self-identified barriers to physical activity for 5th grade females whilst Wetton (2013) sought to understand the barriers to participation to develop interventions to increase team sports participation in females.

The following paragraph explores the personal and perceived barriers to participation in sport and PE for children. Armentrout (2011) sought to understand organisational barriers and personal reasons for children discontinuing participation in sport. Barnett (2013) sought to understand the perception of the relationship between movement, physical activity, and sport for adolescents and whether views differed according to the amount of participation. Basterfield (2016) investigated how perceived barriers to participation in sports both inside and outside of school changed within the same cohort over a three-year period. Dismore (2010) investigates children's attitudes towards PE and school sport and the influences on these for

children and Holt (2011) sought to understand perceptions of benefits associated with participation in youth sport in children and parents from a low-income background. Quarmby (2011) investigated how different family structures affected children's time activities including sports. Stanley (2012) explored lunchtime activity and children's perceptions of factors influencing their participation. Totaro-Garcia (2011) investigated the physical activity characteristics of adolescents attending a PE service.

Of the qualitative studies, six took place in a general sports setting (can include sport both inside and outside of school and may include organised sport) (Kimm, Glynn and McMahon, 2006; Eime *et al.*, 2010; Quarmby, Dagkas and Bridge, 2011; Barnett *et al.*, 2013; Fisette, 2013; Basterfield *et al.*, 2016), three took place within the school setting (Oliver, Hamzeh and McCaughtry, 2009; Totaro Garcia and Fisberg, 2011; Stanley, Boshoff and Dollman, 2012), three took place outside of school (Armentrout and Kamphoff, 2011; Holt *et al.*, 2011; Barnett *et al.*, 2013), three focused on PE within school (Dismore and Bailey, 2010; Enright and O'Sullivan, 2010; Azzarito and Hill, 2013), and two of these looked exclusively at females (Enright and O'Sullivan, 2010; Azzarito and Hill, 2013). One study focused on ice hockey (Armentrout and Kamphoff, 2011) whilst the rest reported on sport in general.

Methods used within the qualitative studies included interviews (Dismore and Bailey, 2010; Holt *et al.*, 2011; Totaro Garcia and Fisberg, 2011; Wetton *et al.*, 2013), open survey questions (Kimm, Glynn and McMahon, 2006; Armentrout and Kamphoff, 2011; Basterfield *et al.*, 2016), focus groups (Eime *et al.*, 2010; Stanley, Boshoff and Dollman, 2012; Barnett *et al.*, 2013), survey and semi structured interview (Quarmby, Dagkas and Bridge, 2011), focus group and interview (Fisette, 2013), visual ethnography (Azzarito and Hill, 2013), participatory action research (Enright and O'Sullivan, 2010), and feminist action research (Oliver, Hamzeh and McCaughtry, 2009).

3.3.3 Barriers to sports participation

From the barriers identified across the studies included in the review two visual representations were developed. Figure 3.1 summarises the practical barriers to sports participation identified in this review. In almost half of the included studies 'time' was reported as a barrier. This was either related to a parent's commitment to taking their child to a sports session or time in a child's schedule to attend a sports session.

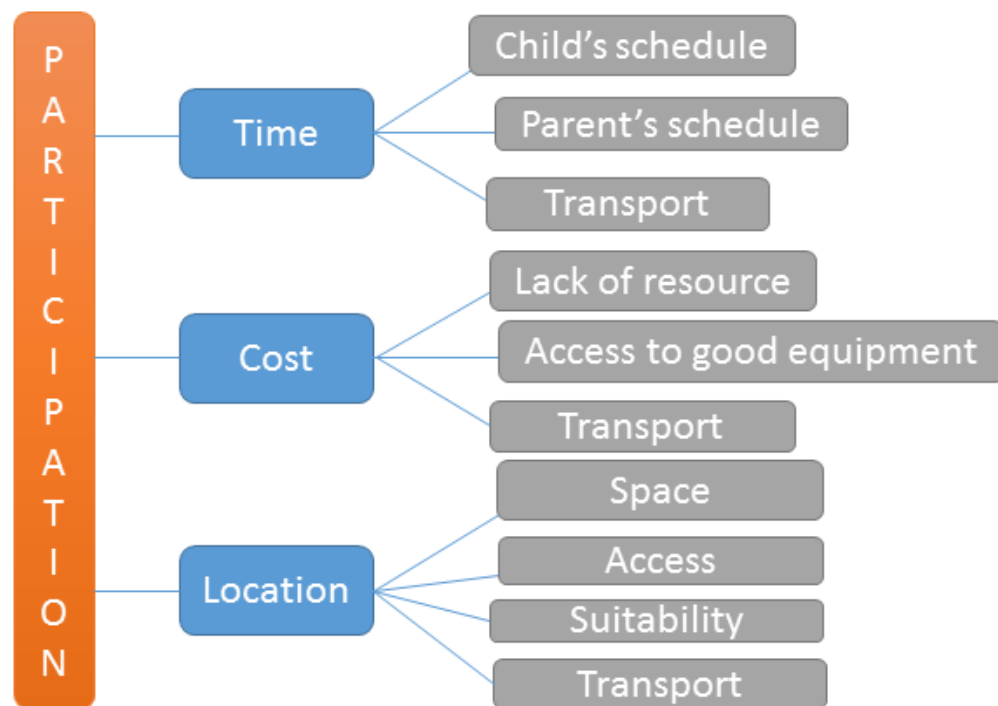


Figure 3.2: Practical barriers to participation in sport for children. Practical barriers to participation in sport for children are linked to time, cost and location.

Time may be associated with time in a child's schedule or time in a parent's schedule. Children may wish to participate in sport but may be unable to because of a clash with their parent's schedule such as working hours. The cost of participation can in some sports be high and act as a barrier. The cost (lack of resource) of running a sports club may also act as a barrier to participation for children as there may be a lack of resource to facilitate provision of sporting opportunities. The type of equipment available can also

influence a child's view of participation. If it is old, they are less likely to want to try a sport. Location can also influence participation; is the space suitable for the sport that is being held there or is it a compromise between cost and provision of opportunity. Transport can be linked to time, cost, and location. If the location for sports participation is substantial distance from the child's home then more time is required to travel to the venue, which can incur a greater cost in transport.

The most commonly reported practical barriers were used to develop the visual representation shown in Figure 3.2. Person centred barriers can be linked to internal and external factors which influence them. The barriers shown in this summary were taken from the qualitative studies. The experiences of children within the studies showed that a 'bad experience in PE', 'peer disapproval', 'stereotype', 'gender stereotype', and 'negative appraisal' were influenced by external factors such as peers in a class or a teacher and were grouped under 'external factors' in this visual representation. Reports of 'sporting ability', 'self-conscious', 'fear of judgement' and 'conformity' within the qualitative studies were linked to a child or participant reaction to a situation in the sporting context and are listed as 'internal factors' in this visual representation. Competition was described in the qualitative studies in different situations; there were children who were competitive (a barrier to participation for others) and there were children who were put off by competition, therefore it represents both an internal and external factor.



Figure 3.3: Personal barriers to children’s participation in sport - Person centred barriers can be linked to internal and external factors which influence them.

In the qualitative studies ‘cost’ and ‘time’ were frequently reported barriers and commonly reported with ‘location’, ‘resources’ and ‘transport’ (Figure 3.1). Where sports facilities were located a distance from the children’s home location it was difficult for some children to find time to participate in them which may be due to the parent or child’s schedule.

“Well we looked at doing rock climbing ... [But] it’s a little bit trickier here because they have an indoor facility here but given that I [cannot drive due to medical reasons] and my wife’s in school so she’s not really there to drive us, getting out there and back on the bus would shoot three hours...” –

(Holt et al., 2011)

Greater distances for travel can result in greater cost either in public transport or fuel, “He didn’t want to quit playing, I told him we can’t afford it

and we didn't have the time", when talking about ice hockey practice (Armentrout and Kamphoff, 2011). A parent from another study (Holt *et al.*, 2011) highlighted the additive cost of travel, training costs, and costs of competitions as a barrier:

"... each time she [daughter] does it, there's a cost...its \$5 for every race or is it even more. And I drive her there [another cost]. I don't think that [the organizers] realize how sometimes those costs actually prevent my kids from joining running club..." – (Holt *et al.*, 2011)

There was an association with higher costs relating to particular sports, for example ice hockey was described as expensive (Armentrout and Kamphoff, 2011; Holt *et al.*, 2011).

"cost to play sport [ice hockey] unreasonable" –(Armentrout and Kamphoff, 2011)

"It was an expensive program for the amount of practice and ice time available" –(Armentrout and Kamphoff, 2011)

For single parent families 'cost' was a key barrier to participation in sport for children and was viewed as a larger barrier by single parents than those within a partnership.

"When [name of children] grow older the price changes sometimes. And the fees get more costly. And we went through a separation, me and my husband, and then you know sometimes it gets difficult... I would work extra hard for him to pay for his sports." – (Holt *et al.*, 2011)

The barrier 'time' was reported in several different contexts. Armentrout & Kamphoff (2011) reported an over emphasis on practice time. *"Early morning practices were tough", "too much practicing for young kids", "unreasonable*

practice times” and *“too much time commitment*”. Some parents shared the impact of their job commitments on their child’s participation in sport.

“... our son has to adjust to our schedule unfortunately because we can’t change it and I can’t help it. I have three jobs at the same time because we have to pay our bills and I have to support my family here.” – (Holt *et al.*, 2011)

For children from single parent families they found their parents schedule a barrier to their sports participation.

“My mum’s job [referring to barriers to activity], she gets back at like half five so if I want to go anywhere to do anything it’s normally too late so instead like I just play X box and stay in when she’s not back.” –(Quarmby, Dagkas and Bridge, 2011)

The personal barriers identified included ‘disapproval’, gender stereotype’, ‘conformity’, ‘fear of judgement’ and ‘conforming to gender stereotypes’. The latter was reported in three of the studies included in the review (Oliver, Hamzeh and McCaughtry, 2009; Fisette, 2013; Wetton *et al.*, 2013). ‘Conforming to parent’s expectations’ and ‘media expectations in terms of gender stereotype’ were mentioned in two studies.

“Well yeah, it is for girls, but it’s just in their [my parents’] mind; it isn’t...I don’t think any girls would go out and play with a football, because it’s not like what it is supposed to be seen as, people playing football.” –(Azzarito and Hill, 2013)

“Sport is seen as a manly thing to do... they [media] don’t see it as a girly thing” –(Wetton *et al.*, 2013)

The most frequently reported barriers across the quantitative studies were ‘time’ (n=4), ‘cost’ (n=3), ‘opportunity/accessibility’ (n=3) and ‘friends’ (n=2). Where ‘friends’ was listed as a barrier studies had reported that children did

not have friends to attend sessions with, or that they had no friends at the sport session and hence no one to partner with.

The most frequently reported barriers across the qualitative studies were 'time' (n=6), 'not being good at sport' (n=6) and 'fear of being judged or embarrassed' (n=6), 'conforming to gender stereotype' (n=3), 'lack of resources' (n=3), 'conformity' (n=2) and 'boys dominating sports' (n=2).

Barriers identified in quantitative studies were also identified in the qualitative studies. However, there were several additional barriers identified in the qualitative studies to the quantitative studies. These additional barriers were coded as 'politics', 'lack of enjoyment', 'self-conscious', 'lack of interest', 'competitive', 'conformity', 'bullying', 'lack of voice and choice', 'lack of motor skills' and 'doesn't like strangers', and related largely to emotion, feeling and lived experience.

3.4 DISCUSSION

Common barriers identified in this review included time, cost, and location. Children from poorer socioeconomic backgrounds and single parent families are more likely to be affected by these barriers (Biddle *et al.*, 2005; Brodersen *et al.*, 2007; Holt *et al.*, 2011; Totaro Garcia and Fisberg, 2011; Stanley, Boshoff and Dollman, 2012). Some sports such as ice hockey can be expensive to participate in, especially given the need for specialist equipment and location and practice time is not always adequate to keep the child engaged in the sport or give them a feeling of achievement (Armentrout and Kamphoff, 2011). There is an element of forced choice or decision making for children as they may not have enough time to do all the sports they would like to do, especially when transport and practice times are factored in to parents schedules (Holt *et al.*, 2011; Wetton *et al.*, 2013).

The major barriers identified in this review in both qualitative and quantitative studies were 'time' and 'cost'. The barriers identified in addition to these in the qualitative studies were 'not being good at sport', 'fear of

being judged/embarrassed' and 'conforming to a gender stereotype'. Children who were not good at sport (or who felt they were not good at sport) were less likely to participate (Barnett *et al.*, 2013; Wetton *et al.*, 2013). This has been identified as a barrier to participation in physical activity in other studies (Bailey, Cope and Pearce, 2013). 'Fear of judgement' or 'gender stereotype' has also been identified in other studies. Evidence shows that girls are less physically active than boys regardless of age (Biddle *et al.*, 2005; Brodersen *et al.*, 2007; Cooper *et al.*, 2015). The reasons for this discrepancy have been linked to gender stereotypes (Oliver, Hamzeh and McCaughy, 2009; Oliver and Hamzeh, 2010).

There are common limitations in the literature. For example, only two of the quantitative studies were judged to have considered all confounding factors (Dollman and Lewis, 2010; Casper *et al.*, 2011). Of the quantitative studies, four were judged during appraisal not to be applicable to the local population (Kirshnit, Ham and Richards, 1989; Gordon and Caltabianco, 1996; Irwin *et al.*, 2009; Hardy *et al.*, 2010). The literature reported here compares findings from heterogeneous settings, where the specific barriers might be very different ones. The barrier mentioned most frequently was 'lack of time' but this implies other activities such as schoolwork, chores, computer games or time with family are given higher priority than sport by the child or parents. Each of these examples would require different facilitators to help to overcome them. As such future studies should account for this 'captured time' according to the specific meaning, whether this is school activity, leisure time, etc. Some quantitative studies scored 'no' on precision of the results in the quality appraisal as not all the important information was reported such as confidence intervals, odds ratios, and standard deviations. Items required by the CASP appraisal system. Many qualitative studies scored 'no' for taking account of the relationship between researcher and participants. These studies failed to report critical evaluation of the researcher; their role, formation of questions, sampling and collection of data, choice of location

and the response of the researcher to events during the study and whether the researcher understood the impact of changing parts of the research design. A researcher's epistemology is shaped by their lived experiences and influences the way they approach their research and as such bring their own preconceived ideas to a study. Studies where this is not accounted for do not show the impact the researcher had on results of the study. Evidence shows researchers may have an influence on their participants and quality research happens where the researcher is reflexive and understands their impact on data collection and analysis (Mays and Pope, 2000; Meyrick, 2006; Braun and Clarke, 2008). For example, in a survey the researcher has little influence on the answers provided than they may for example have in an interview where they can influence the outcome of the process. Future studies of this nature should include reflexivity in their methods ensuring transparency in the methodology and approach to research. Reflecting on quality appraisal tools such as CASP will help in project design to circumvent later criticism against such standards.

From this review, it is evident that studies specifically investigating the barriers to participation in sport rather than the broader constructs such as physical activity are few, and there are several unanswered questions. For example, it is unclear how participation in PE influences participation in sport in later life. Studies investigating the link between PE and sports participation outside of school were lacking from the studies identified as eligible for this review. Studies assessing barriers to participation in PE have focused on the perspective of young females and little is known on this topic for young males, another indication that more balance in the literature is needed.

The importance of physical activity and sports contribution to this is apparent and it is critical to address the barriers identified in this review. Many practical and personal barriers affect a child's participation in sport. The practical barriers may be easier to address to drive up sports participation in children as opposed to the personal barriers. For example, location, time,

and transport were barriers frequently reported. In some cases, barriers may be addressed by making (more) local sports sessions available to children at times such as during the school day or immediately after school. Of course, there cannot be a 'one-size--fits-all' policy for overcoming barriers to sports participation. We can only therefore conclude the need to think at a local level how the barriers identified in this review affect children sports participation and how these barriers may be affected by changes locally, whilst being mindful of the potential impact of national and international initiatives.

Initiatives such as the 'Physical education and sport premium for primary schools' in the United Kingdom aims to reduce barriers to participation for some children by providing funding for sports participation (Department of Culture Media and Sport., 2015). The impact of this initiative is being monitored but a positive impact has been identified so far with an increase in the number of schools with a specialist PE teacher, 30% before the initiative and 46% upon its introduction (Lloyd, Fry and Wollny, 2015). A case study in the West Midlands highlighted the impact at school level of the premium. There was an increase in provision at the school in both sport and physical education although impact could not be evidenced according to the Youth Sports Trust guidance as teachers at the school were unaware of this information (Griggs, 2018). This highlights the need when using new initiatives to raise awareness of ways of measuring impact to ensure value can be seen for the current and future generations. The premium has been increased for future years (Education, 2019) and monitoring continues. A new strategy for an Active Nation has been introduced by the United Kingdom government to combat the rising levels of inactivity and increase participation in sports. There are also international initiatives attempting to raise participation levels in physical activity and sports (European Union, 2017; Australian Sports Commission, 2019).

It is important for both future research and policy to focus on more detailed information about 'why children do not participate in sport' and 'why they discontinue sports participation'. This is essential to developing interventions to improve sports participation for deaf and hard of hearing children, and ultimately thereby their health and development.

Key practical barriers to participation in sport identified here are 'cost' and 'time'. Practical barriers (Figure 3.1) may be overcome more easily than personal barriers (Figure 3.2). Policy makers, parents and teachers should be aware of the practical barriers when considering interventions and plans to increase participation in sports. More local sports opportunities are needed where costs are reduced. The practical barriers are linked to more changeable circumstances such as the time the child has to spend on sport which changes throughout their life. Providing a wide range of activities for a younger child to try will help them choose which activities they wish to make time for as they get older, especially given physically active children are more likely to continue this activity into adulthood (Allender, Cowburn and Foster, 2006). Location can also be classed as a changeable circumstance depending on the sort of sport the child wishes to participate in. Schools and local clubs could better work together to provide more affordable local opportunities to increase children's participation in sport (Hardy *et al.*, 2010; Marlier *et al.*, 2014).

In conclusion, this systematic review identifies time, cost, and location as prominent practical barriers to children's participation in sports. Policy makers should be aware of this when planning provisions. Person-centred barriers such as peer disapproval and stereotyping also significantly affect participation. These require a cultural change in the sports environment through training and support to those delivering sports sessions.

CHAPTER 4. CHILDRENS EXPERIENCE OF PARTICIPATION IN SPORT: USING FOCUS GROUPS TO INVESTIGATE THOUGHTS AND FEELINGS OF DEAF OR HARD OF HEARING CHILDREN

4.1 OVERVIEW

This chapter will explore the barriers deaf or hard of hearing children face when taking part in sport from the point of view of the children themselves. It will consider the social implications for these children and the relation to communication and the emotions they experience because of this. A variety of adaptations by deaf or hard of hearing children, their peers, and their sports educators will also be highlighted.

4.2 INTRODUCTION

In Chapter 2 some of the barriers to participation in sport included lack of parental and peer support, other children being too competitive, stereotypes, and cost. In Chapter 3 the systematic review identified time, cost, and location as prominent practical barriers to children's participation in sports. The experience of participation in sport for deaf or hard of hearing children is likely to differ from that of their hearing peers. Participation in sport is important for this group given the social interactions sport offers. The social interaction sport offers provides a platform for inclusion for those with disability. Encouraging inclusion and accessibility is important for deaf or hard of hearing children. Encouraging participation can help facilitate the formation of friendships and interactions that may not occur without this setting. The social model of disability may highlight potential barriers for participation in sport due to a lack of appropriate settings, a lack of interaction or a lack of suitable communication methods.

It is important to understand the additional barriers faced by those who are deaf or hard of hearing to enable inclusion in the mainstream sports environment. For children with a hearing loss sport can be difficult to access or fully participate in for several reasons. There may be a lack of opportunity

in their area to participate in deaf sport (Ellis, Lieberman and Dummer, 2014; Shields and Synnot, 2016). Children may also be concerned about attending local mainstream sports clubs due to a lack of confidence or fear of bullying (O'Neill, Arendt and Marschark, 2014; Shields and Synnot, 2016).

A qualitative research approach was used here. Qualitative research allows greater exploration of emotions, experiences and thoughts associated with a topic. In this case, focus groups were chosen as the most appropriate method. Focus groups offer a chance to explore participants' experiences and feelings on a topic. In addition to alternative methods such as one-to-one interviews they offer a chance to investigate group interaction and provide a group environment (Pope and Mays, 1995; Gibson, 2007, 2012; Duvinage *et al.*, 2014). A group scenario also helps to counteract the power balance between the participant and the facilitator (researcher). Some participants may feel intimidated during one-to-one interaction with the facilitator or researcher in an interview setting and little may be learnt from a session. However, within a focus group the power imbalance lessens, helping participants to feel more confident in sharing their thoughts and experiences. There can be a sense of belonging and togetherness in a focus group for those with a shared condition empowering them to have a voice they might not otherwise express.

4.3 CRITICAL REVIEW OF DIFFERENT QUALITATIVE METHODS

There is much debate around the approaches taken to qualitative and quantitative research. Qualitative research is designed to discover more about peoples thoughts, feelings and experiences (Pope and Mays, 1995). The aim of qualitative research is to develop concepts which help us to understand interactions in a natural rather than an experimental environment. It places weight on the meanings and experiences of those taking part in the research rather than, for example, the number of times someone does something. This approach was of importance for the type of research being carried out here because a numerical value tells us nothing

about the reasons these children do or do not participate in sport. Using this approach provides a nuanced investigation of experiences, which is important when considering the social model of disability. If we can understand an individual's lived experience we can help encourage inclusion. If we can identify the reasons why these children do or do not participate we can identify the barriers to their participation in sports. There are several methods within qualitative research that may be used to achieve this. Observation of PE classes or sports coaching sessions may provide some of the answers. The researcher would be able to view good and bad practice by observing the educators delivering sport sessions. However, the researcher would affect this environment given that the educators would need to be aware of their presence (and the children by their inquisitive nature would also notice). This can then affect behaviour within the group and a true picture may not be given (Kitzinger, 1995).

Another method of inquiry is the use of interviews. There are three types of interview; structured, semi-structured and in depth interviews (Britten, 1995; DiCicco-Bloom and Crabtree, 2006). Structured interviews have set methods of administration, they are usually conducted by a trained interviewer using a series of questions with fixed choice answers (quantitative). Semi-structured interviews are less rigid with some open-ended questions around a topic of interest. The interviewer and interviewee have the freedom to diverge from the schedule to explore areas of interest in exploratory research. In depth interviews are like guided conversations which cover one or two key issues related to a research area in greater detail (DiCicco-Bloom and Crabtree, 2006). A recent study showed that individual interviews with children may offer a greater opportunity to gain more information on physical activity compared to focus groups (Woolley, Edwards and Glazebrook, 2018). In that study, six children (three male, three female) participated in a focus group at a primary school in the East Midlands, and six (three male, three female) participated in interviews at the same location. Those participating in the

interviews identified a greater number of facilitators and barriers to participation in physical activity compared to those in the focus groups, but this was not statistically significant (Woolley, Edwards and Glazebrook, 2018). Children participating in the interviews identified a greater number of personal facilitators to their physical activity than those in the focus group.

In the context of this PhD, the use of qualitative interviews is unsuitable. Whilst they may offer some benefits over focus groups in the context of physical activity, additional needs such as deafness can affect communication, and children may feel more comfortable within a peer group who share this characteristic rather than within an interview with an adult who does not share this characteristic.

Interviews with deaf or hard of hearing children may pose additional challenges to interviews with children without additional difficulty. Deaf or hard of hearing children may be reluctant to speak to the researcher as they may have difficulty with communication. This can lead to misunderstanding and frustration from participation in the research. There is also a risk of a shift in the power dynamics in an interview. Some of the children will require additional support such as an interpreter. This would involve two adults in the room with one child and could make the child feel intimidated and little information would be obtained from the interview. There is also likely to be little commonality between the child and the adults and as such the child would be less likely to open up and share their experiences of participation in sports (Morgan *et al.*, 2002; Gibson, 2007).

Focus groups can be thought of as a group interview which encourages interaction between participants in order to elicit their experiences on a particular topic or area (Kitzinger, 1995). It is a method which can be used to explore not only experiences but also to establish what people think and why they think that way. A focus group is particularly relevant in exploratory research where the researcher may have a series of open ended questions or

topics they wish to introduce to the group (Kitzinger, 1995). Studies may consist of anything from six groups or more dependent on the resources available and outcomes of a project. Data saturation should also be considered. Data saturation is essentially where the same topics or ideas are continually being referred to by participants and a sense of repetition is forming whereby nothing new is being identified (DiCicco-Bloom and Crabtree, 2006). Focus groups have both advantages and disadvantages. In terms of sampling, they do not exclude or discriminate against participants who are unable to read or write. They can also encourage participation by those who feel uncomfortable taking part in a one to one interview and can encourage participation by those unsure if they have anything to contribute. Focus groups may also be advantageous when considering the social model of disability. By their nature, focus groups offer participants a shared experience or a shared characteristic. In this case a shared experience of disability which can facilitate understanding of a lived experience and help to address barriers or potential concerns emphasised by the social model of disability.

It can be difficult to ensure everyone gets a chance to speak within a group. There may be 'quiet' individuals happy to let other participants do all the talking or there may be those who are overly dominant who won't let others speak (Kitzinger, 1995).

Conducting focus groups with children brings additional difficulty to those with adults. It is important to recognise the difference between children and adults and the variation across ages of children. Each child will reach a different developmental stage at a different age. Although like adults in terms of the value children can contribute to research, it is key to provide them with information in a way they can understand and engage with (Gibson, 2012). It is important to recognise the significance of age and as such groups should not consist of large age gaps. Large age ranges within group can lead to data that does not represent what is really occurring in the lives of the children. Smaller groups allow children to be at a similar stage in

development and so will have more shared experiences (Morgan *et al.*, 2002; Gibson, 2007). For focus groups to work effectively these shared experiences are key. The number of children per group is also important, with adults the ideal number is suggested as between six and eight participants (Kitzinger, 1995) but for children this number is between four and five particularly with younger children (Morgan *et al.*, 2002; Gibson, 2007). A smaller number is more appropriate for groups with children to ensure that discussion is interactive but not to such a degree that the environment becomes too noisy and difficult to transcribe (Morgan *et al.*, 2002).

It is important for the facilitator to maintain a balance between control of the group and the creation of an environment where those in the groups feel free to speak. This is particularly important but also difficult with children. It is important to create an environment with children where they feel relaxed and do not treat the facilitator like a teacher as this can affect the data obtained within a focus group. The use of first names helps children to view adults in a less formal relationship than that of a teacher as does using their language (Morgan *et al.*, 2002). Being seated in a circle can also make the facilitator appear as part of the group rather than in a position of power which may put the children at ease. Allowing children to choose their seating also provides an element of choice which can help to relax some children (Gibson, 2007). A set of rules may be shared with all participants at the start to encourage all children to participate and to respect the opinions of their peers to create a comfortable environment where the children feel secure. The use of activities helps to make the groups fun for children to participate in as well as drawing attention away from the facilitator (Morgan *et al.*, 2002; Gibson, 2007).

Location of the focus groups can also influence the environment for the children participating (Gibson, 2012; Woolley, Edwards and Glazebrook, 2018). For example, groups taking place at familiar settings such as schools can help to ease their anxieties about taking part, but it can also encourage

behaviours seen in that environment (for example raising a hand to answer a question posed to the group). Generally location is governed by budget and practicality for the researcher (Gibson, 2007). Scheduling maybe a problem, as fitting in a group around an already fully scheduled school day may be difficult. However, getting children in one location outside of school can also be a challenge so this depends on the researcher's desired outcomes for the focus groups (Gibson, 2007). A key part of the group will be the moderator; their personality and skills are extremely important as these will influence the success of the discussion (Gibson, 2012). The approach in market research may be to match the characteristics of the moderator to the group. However, this is not necessarily transferable to health research. As such knowing your participants and being patient, friendly and flexible are key skills to a successful group with children in this setting (Gibson, 2007). It is important for a moderator or facilitator to gain the children's trust. This can be helped by aiding the children to understand the purpose of the research and what they are being asked to do (Gibson, 2012). It is important to allow a child to make their own decision about participating in the research. Even if a parent has consented to their participation it is important that it is stressed to the child that they have a choice and the do not have to participate in the research and that they can leave at any time without having to give a reason (Gibson, 2007, 2012). This also reinforces the trust relationship with the child giving the focus group a greater chance of success.

Carrying out research with children in general can be difficult. The use of focus groups can help to overcome a lot of that difficulty as previously discussed. However, in this study the participants are a group of deaf or hard of hearing children. These children may experience difficulties with communication and as such the focus groups may be even more challenging for the researcher. This group of children may also be emotionally sensitive when discussing their experiences of sports and this may open topics such as bullying. It is therefore important to recognise the amount of skill required

from the researcher to conduct successful research focus groups. With children who are deaf or hard of hearing it is even more important for the researcher to ensure they use language in the same way as the children participating in the research to help with understanding of the topic. It is also important for the researcher to ensure that all children are given a chance to express their opinion. Some groups may contain children who use sign supported English as well as oral children and it is important to maintain a balance to all children are able to freely express themselves in the groups. Focus groups offer the children some form of security in that all children within the groups in this study are deaf or hard of hearing. This allows them to openly share their experiences with others in their situation. As such this can lead to a richer experience for the children in the group and for the data the researcher can obtain from the group. Focus groups allow the children to learn something from each other and elicit information that may not otherwise have been shared or discovered individually (for example from an interview). Mutual exploration can help to take insight to a new level and to overcome the challenges associated with the social model of disability (Asbury, 1995; Kitzinger, 1995; Smithson, 2000).

All research faces the challenge of producing high quality research and this is no different for qualitative research. How do we regulate or improve the quality of qualitative research? There are several things that can be done whilst conducting qualitative research to ensure quality. Triangulation may be used whereby results are compared from two or more different methods of data collection such as an interview and a focus group. The researcher looks for patterns within this data to develop or corroborate interpretations made by the researcher or made overall (Mays and Pope, 2000). However, some see triangulation as a way of being more reflexive with analysis of the data rather than a method for improving quality. The researcher may instead of triangulation choose member checking, otherwise known as respondent validation. During member checking the research compares their account

with the account of those participating in the research to establish a degree of agreement between the two. The reactions of those participating in the research are then included in the study findings. This may be a better way of improving quality compared to triangulation but it is extremely time consuming and in some cases, due to the nature of the research, can be impossible to carry out (Mays and Pope, 2000).

The researcher must ensure there is a clear process from start to finish in terms of data collection and analysis. The methods used in qualitative research may influence the item of investigation and so having a clear record of the process of collecting data and analysis is key. A researcher must be able to show a clear account of when data coding systems moved from simpler to more defined constructs. Reflexivity must also be shown by the researcher. Again, due to the nature of qualitative research the individual carrying out the research may have an impact on the way the data is collected due to their own previous experiences or ideals. This can also influence any analysis they undertake, and it is important to acknowledge this (Mays and Pope, 2000; Meyrick, 2006).

4.4 4.4 PILOT STUDY

4.4.1 Pilot Study One

i. Aim

The aim of the pilot study was to trial the activities to be used in the focus groups with deaf or hard of hearing children, to check for usability, and to identify any weaknesses in the plan for the focus groups. A secondary aim was for the researcher to familiarise themselves with thematic analysis.

ii. Process

A pilot study was carried out with hearing children who attended mainstream school. The study was carried out with hearing children as they are easier to access than deaf or hard of hearing children and it was felt this was the best way to develop the activities in the groups. The head teachers at local

schools were contacted with details about the pilot study. Nine children were recruited to the pilot study from a local secondary school and a local primary school. The children were in year 6 (age 10 to 11 years) and year 8 (age 12-13 years). Children were chosen based on their age, it was important that there wasn't too large an age gap as previous research has shown this can affect the quality of data obtained from a focus group (Smithson, 2000). Groups with larger age gaps share less commonality and it can be hard for a rapport to form in the groups, resulting in little conversation and expansion in the group (Smithson, 2000). These two age groups were chosen as those in year 6 were considered to be starting to make their own choices about participating in activities such as sport (Lansdown, 2000) and those in Year 8 have gone through the changes experienced in Year 7 and are more settled into secondary school. The Year 8 group consisted of four children (two female, two male) and the Year 6 group consisted of five children (three female, two male).

The focus groups were carried out at the schools at a time chosen by the school. Children with additional needs which affected their sports participation were excluded from the study. This was because it would be very difficult or impossible to distinguish between the barriers a child faces anyway and the barriers attributable to their additional needs. The focus groups lasted approximately 30 minutes. The children were asked to introduce themselves as part of an icebreaker for example "Hi my names Sarah and I like animals but I don't like drawing". Evidence shows that once an individual has spoken within a group they are more likely to speak again (Kitzinger, 1995). This is of particular importance in research with children to try and encourage the shy and less confident to contribute (Morgan *et al.*, 2002; Gibson, 2007). The researcher then held up A4 cards with pictures of different sports and athletes on them. Children were asked to name the sport and the athlete and to talk about whether they liked this sport or not. They were then asked to play a game where they had a pack of cards

containing different sports. They were asked to place the cards on piles for liking or disliking the sport.

The focus groups were audio recorded and transcribed by the researcher. There are challenges when transcribing group data compared to a one to one interview. For group data it can be hard to distinguish between speakers and as such encouraging each child to state their name a sentence about themselves not only serves as an ice breaker but also a reference point for transcription. There can also be difficulty when transcribing sections where group conversation occurs with participants talking over one another. It can be helpful to go back to group participants to ensure the transcript is accurate, but this is not feasible with children. Children participating in the focus groups were encouraged to talk one at a time so that this confusion could be minimised. The transcripts were checked for accuracy and analysed using thematic analysis.

iii. Results

Some of the children attended clubs outside of school together. The primary school children enjoyed team sports.

*“It is just fun and plus I don't really like being on my own in
like games” – Primary, Male Y6*

*“I like it because it is quite fun and I like playing in a team.”
– Primary, Female, Y6*

The primary school children were generally unhappy with school sport. The children appeared to be disappointed by a lack of variety in the sport provided at their primary school.

*“The school sports, it is not very good to be honest.” –
Primary, Male, Y6*

The sports the children had access to depended on the preference of their PE teacher. They did not experience different sports in each session. Some of the children complained about sport *“it's always the same, she does dance...”*

or *“she always did gymnastics because she didn’t like dancing...teacher we have got at the minute is obsessed with dancing...”* Or the children complained that the sports were not *“proper”*.

“I don't like tag rugby at our school. It is just boring and it is not as good as proper rugby.” – Primary, Male, Y6

The secondary school children identified with more complex reasons for enjoying participating in sports. A male in Year 8 spoke of *“it doesn’t just involve your physical; you have to mentally think about it”*. None of the children in the secondary school group participated in sports clubs outside of school. Children spoke of other commitments, *“chess club”, “go to cadets”, “I have got to do other clubs...”*

iv. Reflections on pilot study one

From pilot study one it was evident that the activities required some modification to ensure the focus groups were run more efficiently given the time constraints. With this in mind the resources for the activities were combined, the A4 pictures with athletes and the card packs with images of different sports. An additional pilot study was required to test the combined resources.

4.4.2 Pilot study two

The combined resources were tested in pilot study two. The groups ran better when the activities were conducted as one. The researcher had not initially considered what to do with cards if children had never played the sport and these groups highlighted the need for a place to put them. The children were therefore asked to stack the cards separately for sports they had not previously played. In the second pilot the children were asked to find the matching sport in their pack to the one the researcher held up and to place this under a happy face (like playing), sad face (don’t like playing) or to keep it in front of them if they had never played the sport. Once all picture cards had been shown they were then asked to place the cards they still had

in a row in front of them so that the researcher was able to see them. This highlighted the slight difference in primary and secondary school PE. For example, the primary school children were unsure as to what athletics involved and needed more explanation. The researcher also had to clarify that playing the sport did not include things such as playing tennis on a games console such as on the Nintendo Wii.

4.4.3 Discussion and implications for main study:

From the pilot studies it was clear that doing both the activities would take longer than 30 minutes. Reviewing transcripts from this group highlighted large amounts of crossover in the discussion of topics within the groups. The pilot study was important as it helped to refine the activities and resources and maximise information that could be collected in a 30-minute period. The children liked doing an activity and it appeared to keep them engaged. It was easier to generate discussion with the younger children using the activity. In both groups the icebreaker and activity also helped to put the children at ease; they began to speak more openly to the researcher, and the power balance became less of a problem. The researcher also wore smart / casual clothes for the focus groups so as not to appear as a 'teacher' by the children as this could have impeded them sharing some of their experiences. The researcher also encouraged the children to use their first name and not call her "Miss" again to move away from the perception of the researcher as a 'teacher'. It was also important to phrase questions in a way the children could understand and mirroring their language where possible appeared to help.

The pilot studies were also useful as they helped the researcher to develop coding skills for thematic analysis, checking that the correct procedures were being followed, codes were being identified and grouped into themes at the correct stage in the process. The focus groups also reinforced to the researcher that the broad agenda for the research was being addressed in the focus groups.

4.5 MAIN STUDY

AIM

The aim of this study was to explore the barriers to deaf or hard of hearing children's participation in sport.

4.5.1 PARTICIPANTS

Sampling:

A purposive sampling method was identified as relevant for this study. The study had limited resources and sampling was pragmatic with information rich cases being required (Palinkas *et al.*, 2015). Schools within Derbyshire were selected from the school's web directory (<http://www.schoolswbdirectory.co.uk/>). A total of 67 primary and secondary schools were contacted to participate in the study, the schools were chosen for provision to support deaf or hard of hearing children and out of convenience of location for travel for the researcher. Additionally, the six deaf clubs in the English midlands area with children were also contacted to participate in the study and to advertise the study. The head teachers of these schools were contacted via letter (see Appendix 1 and 2). Two people at the local councils (Derbyshire and Nottinghamshire) responsible for education were asked to share the study information. Of the schools and clubs contacted five were recruited to participate plus one of the deaf clubs approached in the midlands area. Of the schools who did not participate three declined as they had no pupils who met our studies requirements, two declined due to staffing issues, and the rest either did not respond or showed an initial interest and an appropriate person could not then be contacted again. Schools were provided with a participant information sheet for the children and for their parents (see Appendix 3 and 4) and an opt-out slip was provided (see Appendix 5). A follow up telephone call was arranged with each school to discuss the study and a date for the focus groups to run was arranged alongside provision of sign language support where required. The participating schools shared the participant information sheet with eligible

children and parents at their school. None of the opt-out forms were returned and all eligible children at each school were captured by the school. On the day of the focus group the children were again given the children's participation information sheet and told that participation was optional and they could choose to cease participation at any time. All children chose to continue and participate in the research and all eligible children participated in a focus group.

Inclusion / Exclusion Criteria:

The sample required that participants were deaf or hard of hearing children and all participants shared this characteristic. A total of 45 children aged 10 to 15 years participated (19 male and 26 female). Children with additional needs, e.g. severe visual impairment, which may affect their ability to participate in sport were excluded. The study focused on hearing loss and how this affects participation in sport. An additional need affecting sport participation may make it impossible to distinguish the barriers triggered by the hearing loss from the barriers attributed to the additional need.

4.5.2 PROCESS

This qualitative study used focus groups and thematic analysis to investigate the thoughts and feelings of deaf and hard of hearing children about participation in sport.

Setting and timing:

Each focus group lasted approximately 30 minutes and was conducted at the schools or clubs for convenience to participants.

School:

The focus groups run in school were carried out at the school and took place within school's time. Some took place at lunch times, during deaf club, or during lesson times. Schools chose the date and time. The children were brought together by their teachers into a room set aside for the focus groups. A teacher was also present at each focus group. In the pilot study the teacher

sometimes intervened too much and did not allow the children to answer questions, so helpers in the focus groups were asked to only sign the questions asked by the researcher and to sign the children's responses, rather than intervene in any way. They were asked not to interrupt the children during the group. Some sat in the room and did not contribute whilst others acted as sign language interpreters to help myself and the children communicate effectively. Some interpreters were asked to voice what the children said so that it could be captured on the audio recording.

Clubs:

For those groups run at clubs took place outside of school time during the summer break and at a location convenient to the club. Club staff gathered the children together in a room set aside by the club for the focus group. A club staff member was also present at each focus group.

Procedure on the day of the group:

The researcher engaged with the children prior to the group and explained the research. This allowed the researcher to familiarise themselves with the children and to also get a feel for the language they were using. This then allowed the researcher to frame the questions in the groups using appropriate language. The children did not appear to be inhibited in the groups or unwilling to discuss any topics. All children had received an information sheet designed for their age group prior to the focus group. This was sent out alongside the participant information pack for parents. Parents were asked to return an "opt-out" form if they did not wish for their child to participate. None of the parents contacted returned an "opt-out" form. The children were also asked again on the day after having the research explained to them if they wanted to participate (assent of the child). The children were also told they could withdraw their participation at any time without giving a reason for this.

The children were seated at a table and each child was given a pack of cards depicting images of sports. The sport was also written on the card (Figure 4.0). In the centre of the table there were pictures of a smiling face and a sad face. The smiling face represented liking participating in sport and the sad face represented dislike of playing sport. The children were asked to take part in two activities during the group. The first was to catch a ball at the start of the group and to introduce themselves with a sentence about their interests. For example, “Hi my names Sarah and I like animals but I don’t like drama”. The second used the pack of cards they were given. The researcher had a large A4 pack of cards with pictures representing different sports on them. The researcher held up a large card and the children looked for the matching sport in their pack. They were then asked to place these under the smiling face if they liked participating in it or the sad face if they did not like playing it, and to keep it in front of them if they had never played it. During the group it was emphasised that the focus groups were about the sports the children had played or wanted to play rather than sports they watched or played on consoles.



Figure 4.0: Sample image of a card given to children in a pack in the focus groups

The children were then asked questions about the sports they had put under the smiling and sad faces. They were encouraged to discuss openly their thoughts and experiences of the different sports. This sparked discussion in the group and the children were asked questions around what they liked or disliked about sports. The researcher made use of the topic guide when asking questions about the sports with the children. They were asked about what they enjoyed and what they found good or bad about taking part in sports inside and outside of school. The children were also asked about sports they would like to do and why they do not currently do them. At the end of the group all the children were asked if there was anything else they would like to share about taking part in sports, their deafness or hearing loss, or their experiences in PE at school. Figure 4.1 shows the topic guide used for the focus groups. The topic guide was used to ensure the information required for the study was covered whilst allowing the children to share and expand on their experiences. As the focus groups continued the researcher relied less on the topic guide as they became more familiar with the process and used it as a tool for reference.

Focus Group Topics:

Hi, I am Sarah and this group today is to help me with a project I am doing. It's a bit like projects you do as part of your school work. Today we are going to talk about sport. There are no right or wrong answers and if you don't like sport then that is fine.

We are going to play a little game. When the ball is thrown to you can you say your name and say something about a sport or hobby that you do, for example

"Hi, my name is Sarah and I like football but I don't like drama"

Session now opened with some pictures of famous sports people. Children asked to place pictures from their matching sets under smiley face (like playing) or sad face (don't like playing) or keep in front of them if never played.

Show picture and ask:

- What sport is this?
- Who is the person?
- Can you find the sport in your pack and put it under a happy / sad face or keep it in front of you?

Look at the cards on the faces and see what is put where

- Can see x amount of you have put netball in the like playing column, can anyone tell me a bit more about playing x
- Where do you play it?
- When do you play it?
- Who do you play it with?
- Why do you like it?
- Can you tell me more about it?
- What made you start playing?
- How long have you done that....
- Do your siblings (brother or sister) play...
- Can see you have put y under dislike playing, can you tell me more about that?
- Why don't you like playing it?
- Would you like to play it?
- Do your siblings play?
- Do your parents play?
- Can you tell me more about it?
- Have you ever played it?
- You've put other activities..... what other activities do you like doing?
- Are there any other sports that you like to play?
- Or would like to play?
- If you would like to play and don't play, why don't you play?

Figure 4.1: Topic guide used for the focus groups with children with hearing loss

The focus groups were recorded using audio recording equipment, one main machine and two in case of main machine failure, three in total. Some field notes were taken during the focus groups by the researcher to aid later checking of transcripts. A UK transcription service transcribed the audio files.

The transcripts were then checked for accuracy compared to the audio file and field notes by the researcher and any necessary corrections made. All transcripts were checked individually to ensure accuracy.

4.5.3 DATA STORAGE

Transcripts were audio recorded and transcribed by the researcher and a UK transcription service. Upon transcription and completion of checking for accuracy the original audio recordings were deleted. The transcripts were anonymised and all identifying data removed. The transcripts were stored on a password protected and encrypted drive with each transcript also having additional password protection.

4.5.4 ANALYSING QUALITATIVE DATA

Qualitative data analysis is either dependent upon a theoretical position or independent of this. For those dependent on a particular theoretical background such as interpretive phenomenological analysis (IPA) there is a fairly set structure for how the method of analysis is applied (Harper and Thompson, 2011). Thematic analysis has an inherent level of flexibility and as such can provide a detailed and intricate account of the data (Braun and Clarke, 2008). Qualitative research is often criticised for a lack of a systematic approach and it is important to ensure quality and rigour (Mays and Pope, 1995, 2000; Pope, 2000).

4.5.5 STUDY METHODS

The research involved a hard to reach group with limited time availability due to being set within a school or club schedule to carry out the research. This, along with difficulty getting children to speak in interviews given the power relationship with a researcher meant that a different qualitative methodology was chosen to interviews (Gibson, 2012).

Given the limited research investigating deaf or hard of hearing children's participation in sports an exploratory approach to the topic was used. An inductive reasoning approach was used for data analysis. An inductive

approach uses the data to develop a hypothesis or an idea (Thorne, 2000). As such this study used the Braun & Clarke (2008) approach to thematic analysis. The process consists of six phases. In the first phase the researcher familiarised themselves with their data. This involved listening to the interviews which were audio recorded. The audio recordings were then compared to the transcripts for accuracy and any necessary corrections made. Notes were then made alongside the transcripts and initial codes were made (phase 2). A lot of initial codes were generated which were based in the data presented to the researcher. These initial codes were either a direct description of what participants said, or an interpretation of what was said, or the motivation that was underlying. Broader themes were generated to enable better organisation and development of the codes. These themes were loose and encompassed a large amount of the data fitting with phase 3. These themes were then reviewed and refined (phase 4 and 5). The themes to be taken forward were then selected. Phase 6 consists of producing the report of your data and generating models. This was the final step of the analysis. The models were created using MS PowerPoint with the data handled in NVIVO(Braun and Clarke, 2008). One stage may appear to be complete but it is important to move back and forth between the stages as the coding and the themes are developed to ensure nothing is missed (Braun and Clarke, 2008).

Data consisted of the transcripts for the focus groups and the annotations the researcher made on these whilst checking the transcripts for accuracy.

Ethical approval was obtained from the University of Nottingham Faculty of Medicine and Health sciences research ethics committee for the study.

4.5.6 RESULTS

Eight focus groups took place at clubs and schools in the Nottinghamshire and Derbyshire area. The children were aged 10 to 15 years old and attended mainstream schools, schools for the deaf, and schools with supporting units for deaf children. The children came from a mixed background and had

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varying experiences of participation in sports. None of the children had additional needs which affected their participation in sport. Forty-five children took part in the study with 19 males and 26 females.

During one of the focus groups the recording equipment failed. On this occasion the researcher had to use a different backup recorder and this recorded but did not record any sound as there was a fault with the microphone. The main recorder also failed for an unknown reason. As such no data was obtained from this group.

Table 4.0: Number of participants, gender of participants and age for focus groups.

Focus Group	Participants	Age range
1	3 male, 1 female	12 to 13 years
2	3 males	14 to 15 years
3	1 male, 5 females	10 to 12 years
4	3 males, 4 females	12 to 14 years
5	5 males, 2 females	13 years
6	6 females	14 to 15 years
7	1 male, 7 females	10 to 12 years
8	3 males, 1 female	10 to 11 years

4.5.6..1 Data familiarisation

The first part of the analysis involved listening to the audio recordings of the focus groups and comparing them to the transcripts. The transcripts were checked for accuracy and any necessary corrections were made. The audio file was then listened to for a second time and notes were made about the initial feelings the researcher had about the topics with the individual groups. These were then compared with field notes the researcher had taken about how the groups had gone and any topics that had stood out at that time. This

information then helped guide further reading and initial coding of the transcripts.

4.5.6..2 Initial codes generation

The initial codes were generated from the transcripts stored in NVIVO. The coding was approached systematically with initial 104 codes identified and matched to extracts of data (Table 4.1). These initial codes were reviewed by a second researcher (PL). Initial codes covered diverse topics such as observation of people, lip reading, bullying, frustration, and confidence. After this the initial codes were merged if necessary or refined. Where necessary, data coding was amended to reflect changes to the coding frame. For example, 'problems with communication' was used as a code but this was too broad as it covered too many topics to be useful and needed to be divided into 'problems with communication with team mates' and 'problems with communication with coaches or teachers'.

4.5.6..3 Theme generation

A content analysis may have been used for the analysis of this data based on previous literature (Erlingsson and Brysiewicz, 2017). However, a thematic analysis approach was chosen as the researcher felt this offered a more in depth view of the lived experience of deaf or hard of hearing children's participation in sport (Braun and Clarke, 2008). The coding process for this study was inductive. All the codes generated were directly linked to what the participants said in the focus groups or to what was interpreted from their responses. Similar codes were the identified. These codes were then either merged (as identical) or brought together under a thematic header. Themes were then prioritised in conjunction with their explanatory power. Initial broad themes emerging from the data included communication for those with hearing loss, 'family', 'fear or feelings related to playing sport', 'friends and team mates', and 'sport type'. The identified themes were then compared to the following questions:

- What do deaf or hard of hearing children like or dislike about playing sport?

- Who do they play sport with?
- What gets them to first start to play sport?

The coding and theme grouping was checked with a second researcher and an agreement of the coding was reached. Table 4.2 shows a list of the themes identified from the data. Some initial themes were removed from analysis for this study as they did not relate directly to the research question, e.g. some children spoke of the use of the Wii (a games console) for playing sport.

From the initial set of themes, two overarching themes are presented here. These themes have been prioritised as they are closely linked to the research questions being explored in this study and PhD. The study sought to identify barriers to participation in sports for deaf or hard of hearing children from the children's perspective. Children frequently spoke of communication issues and family influence relating to participation in sport. Given the social model of disability being considered in this thesis these two themes were seen as pertinent. The social model highlights that disability is caused by society and the themes relating to communication for deaf children in sports and the influence of family on participation were of particular importance to this. Where communication needs are not met then a deaf child is disabled by the environment and lack of support, as they are unable to share their needs or their wants. Where family support is evident then a child can access the sports environment, that setting is no longer disabling, and the social model has been overcome. These themes are also presented because they reflect a focus of the group discussions and they help us to understand a deaf or hard of hearing child's perspective on their involvement with sports.

Table 4.1: List of initial codes generated from the focus group data

Initial theme	Code
Communication for those with hearing loss	Adaptation by coach or teacher
	Being told off
	Copying others
	Demonstration
	Distance from sound
	Learning new sounds
	Lip reading
	Observation of people
	Problems with hearing technology
	Radio
Console sports games	Removing hearing technology
	Technological advances
	Family
	Doing activity with sibling
	Family deafness
	Family encouragement
	Family providing transport
	Parent preventing activity
	Parents sporting activity
	Playing sport with a parent
Fear or feelings	Sibling preventing activity
	Sport as a family
	Wanting acceptance
	Exclusion or isolation
	Fear of damage
	Parents fear
	Worry
	Belonging
	Bullying
Negative	Aggression
	Frustration
	Hate
	Resenting
	Struggle
Positive	Happiness with teaching or coaching
Around deafness	Confidence to tell people of deafness
	Dislike telling of deafness
	Embarrassment of hearing loss
Mixed emotion	
Friends or team mates	Doing things with friends
	Confidence with friends
	Making friends
	Deaf friends
	Team mates
	Hearing friends
Information provision	
Liking activities	
Reference to gender	
Sport	Challenge and skill development
Emotion attached to sport	Dislike
	Favourite sport

	Hate
	Like
	Love
Hearing v deaf sport	Both hearing and deaf
	Deaf sport
	Hearing sport
Play or not	Don't play sport
	Not playing due to parents
	Never tried
	Play sport
	Used to play sport
	Due to other disability
Role model	
School sport, PE or out of school	Out of school
	School PE
	Assistance in PE
	Isolation in PE
	Teaching of PE
	Use of technology in PE
Team or individual sport	Individual sport
	Climbing
	Cycling
	Dancing
	Gym
	Horse Riding
	Independence
	Indoor Rowing
	Running
	Swimming
	Table tennis
	Tennis
	Trampolining
	Team sport
	Basketball
	Cricket
	Football
	Hockey
	Rounders
	Rugby
	What would children change about taking part in sport

Table 4.2: Themes generated from the initial coding and carried forward into model development

Theme	Sub theme	Codes
Communication for deaf children in sports		
	Experiences with sports educators	- Adaptation by educator - Being told off - Copying others - Demonstration - Lip reading
	Experiences with peers	- Doing activity with sibling - Confidence with friends - Deaf friends - Hearing friends - Making friends - Team mates
	Experiences with assistive technology	- Removing hearing technology - Technological advances - Positive experience - Negative experience - Health and safety - Acoustics of environment for sport - Removal of technology
Influence of family on participation		- Family deafness - Family encouragement - Transportation - Parent preventing activity - Sibling preventing activity - Playing sport with parents - Parents fear - Sport as a family

4.5.7 CHILDREN'S EXPERIENCES OF SPORT

A range of issues experienced by children relating to participation in sport were identified in the data. Table 4.2 shows the key themes identified from the data with communication being a key focus in different settings.

Communication is key to deaf children as it enables their participation. This section focuses on two overarching themes which were inductively identified from the focus group data. These themes are 'Communication for deaf children in sports' and 'Influence of family on participation'. These two themes are presented as they relate to the social model of disability. The social model states that society is a contributing factor in disabling an

individual. In this case a lack of communication support causes disability for a deaf individual as they are unable to participate fully. The influence of family is important as they can help to overcome this social model and facilitate participation. Information relating to these two themes was discussed frequently by deaf or hard of hearing children within the focus groups and provides an insight into their perceptions of participating in sports and some of the barriers they may face.

4.5.7.1 Communication for deaf children in sports: Experiences with sports educators

All groups mentioned interaction as a problem for them when taking part sport. Some children discussed difficulties with teachers or coaches and others with teammates. Children spoke of the need for their coaches / PE teachers to adapt to help them.

“...I have to ask the teacher all the time at the end, then the teacher says, “Watch them”. I was like, “I don’t know what to do”.” – FFG5MS (Female Focus Group 5 Mainstream School)

This child found it very difficult as the teacher was telling them to observe their classmates. She found it hard to understand what was happening in the PE class and to get involved and felt a frustration with the teacher. Other children spoke of how much easier it was to participate if their teacher was already aware that they were deaf or hard of hearing.

“... if you do PE at school, it is not like you have to tell because the coaches already know because have to in deaf school. So they probably already know we are deaf.” – MFG1DS (Male Focus Group 1 Deaf School)

Other’s spoke of the effect of location, at the front is better or ensuring they can see the teacher or an interpreter “...got to see a signer or signer can see us”- FFG2MS. Children found it easier if the teacher stood still, “The teacher...

they stay at the front so it is more easier". MFG2MS. This particularly helps the child with lip reading. One female spoke of everyone being able to see the teacher and the teacher checking for understanding. She found this very helpful and this enabled her participation in sports.

"They just make sure everyone can see the teacher don't they I suppose. The teacher makes sure we have all seen and understand what is happening. We get talks like, "Do you understand that?" and make sure everyone did". –

FFG5DS

A supportive PE teacher or one that is willing to help was frequently reported by the children as a supportive influence to participate fully in the PE classes. For other children where the support was not as good the PE teachers were an obstacle to their participation and enjoyment of sport. One female reported of the difficulty with a quietly spoken teacher and persistence of the difficulty even after speaking to the teacher about it. Because of this her enjoyment of PE was diminishing.

"...I think it's difficult like what teachers – the teacher talk fast and my teacher talk low. I have to tell talk louder when everyone was done I was telling "Can you talk louder?" –

FFG5MS

Another female spoke of her difficulty with the PE teacher who had previously been given training to assist her with hear hearing loss. At first this led to a positive change with the PE teacher ensuring the female understood what was happening and ensured her inclusion *"...he always puts me to the front, he's always doing things to make sure I know what I'm doing"*- FFG5MS. After some time, the changes were allowed to slip and the teacher had stopped checking with the student for her understanding *"He's not bothered to explain to me if I don't understand or I didn't hear"* – FFG5MS. This female went on to discuss the distress this causes her and her desire not to participate in school PE. There may also be an element where the teacher is unaware that

they have a deaf or hard of hearing child in their class. For example, one female spoke of not needing to tell a teacher if you understand in class. She did not see the point as she felt approaching someone and telling them your deaf seemed like an odd thing to do.

“If you understand then there is no reason to tell them. If you can understand and there is not problem communicating I don’t think you really need to tell them. I don’t know why but I always feel a bit embarrassed to just go up and say, “I am deaf.” It is such a random thing to say, even though it is not really necessary to tell them because it might make a difference. I don’t know, it just feels strange to go up and say that.” – FFG6MS

Communication problems were not just occurring in school PE classes but also in sports clubs outside of school. One female spoke of her coach’s reaction and continuous shouting and how this affected her. She dropped out of the sport because of how her coach and teammates made her feel.

“In the football club, it is a hearing football club and I am the only deaf girl in the club and it is really hard during the games because my coach is shouting stuff from the side... and I can’t hear a word he is saying and then he starts to get mad at me and then everyone is shouting behind me...” –

FFG4MS

There were several reports during the focus groups of children being ‘told off’ for not listening or hearing instructions. This was a barrier for the children’s participation in sport and in some cases led them to disengage with and leave that sport. Some children disengaged from sport altogether and others tried different sports. A male spoke of his experience at gymnastics lessons which ultimately led to his lack of participation in the sport. He spoke of crying and the emotions he felt. He started to play a different sport and was still participating in it at the time of the focus group.

“...when I was younger I used to go to gymnastic lessons... I kept doing the wrong thing... you had to land in a certain position and he just shouted, “Why don’t you listen to me!” like that.” – MFG1MS

A female in a different group also spoke of her feelings of embarrassment in PE due to being ‘told off’. This shows this happens both within the schools setting and outside of it. This female was frustrated by the lack of support from teachers in PE and generally as well.

“... and he will say to all of us and then I am like “I didn’t get half of that and then it is like, “You didn’t listen”. It is really, really, really annoying.” – FFG3MS

Other children spoke of being ‘told off’ and disciplined for not understanding what they were being taught. It was unclear if this had happened in PE as well as other classes as the children were talking more generally at this point. It would seem the sanctions are the same regardless of the class however a couple of children mentioned it was better in sport and that people had more time with them.

“This boy, he is deaf and the teacher said “Did you get that?” and he said “no” and he said he got detention for one day. Because he didn’t get it” – MFG3MS

“When I came home from school in tears, going to my mum giving her a hug...I remember she thought I wasn’t listening and got really cross in front of the class...I just didn’t hear because she was looking the other way and moving” – FFG6MS

Some of the children spoke about their feelings around telling coaches / teachers of their deafness. Most of the children did not feel confident to tell people of their deafness and would often try and see how things went first to see if they needed to tell the coach / teacher they were struggling to hear.

One child did not feel confident in telling others of his deafness and so

parents tended to speak to coaches and teachers for him so that they were aware.

“Would you go and tell your coach or your teacher, “I am hard of hearing. I need help. – Researcher Question” “I usually get my parents to do it for me” – MFG3MS

On response to the question “Would you tell coaches or teachers about your deafness? The answers from the children were quite varied. Some of the children clearly did not wish to tell of the deafness and either relied on a parent to do it for them or avoided telling the teacher or sports coach altogether.

“No, I don’t like speaking to people” – MFG3MS
“...just to see how they are. If they are really quiet I would go and tell them...is that because you don’t want to be seen as different?... [affirmative] mmm mmmmm”. – FFG6MS
“I don’t know. Sometimes I do if it is necessary, if it is a health and safety reason. But my mum usually has to tell them because I never.” – FFG6MS

Other children appeared more confident about telling others of their hearing loss.

“I just stand up for myself and just say to them, “Well, my nature of disabilities are,” then they just understand and they will just tell everyone else”. – MFG4DS

Having to tell people of their hearing loss can be a huge barrier to deaf or hard of hearing children. Several of the children felt that awareness needed to be raised of their deafness so that their coaches and teachers were better informed about their requirements.

“I think it would be easier if the actual teacher knew about my deafness and actually knew what to do because we have

to tell them what to do and it is not our place to tell them. It kind of is our place but it is kind of not.” – FFG2MS

“Sometimes it makes it hard (inaudible) when they are walking around the class because some deaf people look at their mouth because not many deaf people like look at them and listen because they might have a problem but they lip read but then if they are walking around it is hard to look here.” – FFG2MS

“About, letting you see your lips so people who lip-read like sometimes they turn away because they are demonstrating something or someone will stand in front of you and maybe let them know that you need to have to see their face to actually know what they are talking about.” – MFG3MS

4.5.7.2 Communication for deaf children in sports: Experiences with peers

Children discussed their interactions with their peers and teammates. There was a mixture of positive and negative interactions. The most commonly reported barrier was linked to difficulty with communication. This was with reference to lack of understanding in the class from the teacher as well as not understanding conversation or team interaction. One child spoke of a lack of desire to ask the teacher when instructions are missed due to a fear of being ‘told off’ for not listening.

“I go to one of the people in my class and I go, “Can you tell me what was explained?” and they will be like, “What do you mean?” and I will be like, “Well I can’t hear”. And they are like, “IT doesn’t matter anymore just ask the teacher. Ask the teacher.” And I am like, ask the teacher and I am like I don’t really want to ask the teacher that is why I am asking you.” – FFG3MS

Children identified a fear, or in some case’s a worry about telling others of their deafness. The children were worried this would lead to them being left

out. *“...I don’t know why... they pair up and I’m always left behind, they’re just not bothered...”* – FFG5MS. Some children reported the opposite and suggested it was much better to tell others of their hearing loss to help with their involvement, *“...and I think they knew that I had a hearing impediment because like they were fine with it...So making friends is not a difficult thing for me”* – MFG3MS. Children stressed the desire for acceptance and not to be treated differently because of their hearing loss.

“It is the same with friends, when I meet a new person I usually don’t tell them because I don’t think it defines who I am; I think it is just part of who I am.” – FFG6MS

One child spoke of the emotional distress she experiences in relation to her hearing loss. This same female also spoke of how this discouraged her from participating in team sports such as football as communication was so distressing for her.

“Well it depends what kind of situation I am in. If they have been doing it for a long while, my anger tends to build up and I burst...I don’t really want people to know and make myself embarrassed” – FFG4MS

Another child spoke of not wishing to tell their peers of their hearing loss. This child appeared to be very confident.

“Even though I am a very confident person really, it scares me. Not scares me, but I find it embarrassing”. – FFG6MS
“I don’t like telling people that I am deaf...when I told them I was deaf they laughed at me...” – FFG6MS

One child spoke of their participation in hockey (which was compulsory at their school) and the precautions she had to take with her CI. She spoke of how wearing a scrumcap made her feel like her deafness was obvious (more so than normal with just her cochlear implant). This again illustrates the desire of deaf or hard of hearing children not wanting to explain their

deafness to others. They find it a daunting and intimidating prospect and wish to be accepted for who they are rather than defined by their deafness. This feeling was showed by most of the children, with just two who were not worried about their deafness.

“At my school they are very helpful and they want me to be safe. I did hockey... I had to wear a scrum hat and I was the only person that would and I hated it. It’s just made it [hearing loss] even more obvious...” – FFG6MS

Another child spoke of difficulty with communication with teammates.

“I think football is a good game and you can learn lots from it and from like people on tele but if you have like a deaf person it can be harder because they cannot like communicate....” – MFG4DS

The children also expressed a desire for acceptance by their peers; they wanted to be seen in the same way as other children.

“They could because obviously not many people will have seen a deaf person in their life and they don't know anything about that deaf person and they don't know how to react so some people react differently to others. Some people bully. Some people try and help but it doesn't help. Some people you know, everyone tries their best but some people just give up and judge you and what the coach could do is like maybe try and get some, maybe it might take a session or two but just explain to them what deafness is because nobody really understands what deafness is and then do like a presentation or something like that. So they can fully understand and they know what to do.” – MFG4MS

“I think the first thing they should know is my name, where I live, what I like and dislike, me being deaf is just... it is just part of you, it doesn’t define you.” – FFG6MS

4.5.7.3 Communication for deaf children in sports: Experiences with hearing technology

Several of the children reported conflicting views about the use of hearing technology. Some had positive experiences and wanted to use technology, but others had negative experiences and did not like to use the technology. For some sports the technology cannot be worn for health and safety reasons. For example, children would normally be required to remove their hearing assistive technology in water. Some children who used CIs had used protective bags that allow them to wear the devices while swimming. Of all sports swimming appeared to be the one where the children were most readily able to adapt and felt less different from other children. This may be because of the environment. Swimming pools are large areas, often indoors with poor acoustics, noisy and loud and because of these factors coaching tends to be more visual making it easier for deaf or hard of hearing children to understand what is expected of them. The coach also tends to stay in one location in front of the children they are teaching or demonstrating for, *“...they stay at the front so it is more easier...” – FFG2DS.*

“I use sign language and lip reading and sometimes when I go swimming we use sign language to help me understand what we are doing” – FFG1MS

“When I was first swimming until I was like eight I had one to one... she just taught me like showing me moves and stuff...” – FFG3MS

Some children spoke of difficulty using radio aids as the microphones are extremely sensitive and pick up a lot of sounds that a hearing person naturally filter out. This makes it very distracting and particularly difficult for deaf children in team games if using technology.

“When we do swimming I have got these waterproof sacks and you put your implant in and then you zip it and seal it. You can't open it again and if it is like open, you have to cut it. So it is really sealed and you can hear through it. So when you put it on, it is like you put a head band on so you can keep it on and when you go in the water you can hear in the water, like fully in the water. Like if it is not splashed, if it is properly waterproof and I have tried it before and it works really good. But the disadvantage is it sounds really echoey.” – MFG1MS

“When I do swimming or if I do a sport where you can't wear my implant... I don't like doing, people doing front seat crawl, swimming and I will do butterfly, but I don't like doing back because it makes me very imbalanced.” -

MFG1MS

One child spoke of difficulty in using a radio aid (presumably concurrently with hearing aid use) with their teacher. They found it hard as the microphone worn by the speaker receives a lot of extra noise as well as the speakers voice. Several children reported this as a barrier to effective participation in sport.

“Does noise affect how well you can hear with your hearing aid?... Yes because when you are hearing you can...when you are deaf you just pick up everything because of the microphone” – MFG2MS

One child spoke of the difficulty she experiences with assistive technology when cycling describing background sounds and wind as being unbearable. This also happens on the sports field, when a coach is a distance away on a windy or rainy day their voice becomes distorted when shouting. When the coach uses a radio aid the wind and rain can also interfere with their ability to

understand the coach's voice. Deaf or hard of hearing children have difficulty with this.

"When like say your parents can't take you to the shop...go on your bike but with hearing aids it is hard...because it catches all the wind...because you have got a hat on and then you have got your helmet on and then you have got the wind coming in so if everyone is in front or behind you and they are saying something... I can't hear anything so have to stop." – FFG3MS

Some children spoke of difficulty in different acoustic environments, e.g. sports hall or sports field.

"Well sports hall are more better than outside because when you are outside I can sometimes hear the wind and sometimes I can't hear." – MFG2MS

"I don't like football because if they are miles away then I can't hear the whistle." – FFG7MS

Other children discussed how sweating made hearing aid use unpleasant. This did not act as a barrier to participation, but it did influence how long children wore the hearing aid for and when. Children often elected to remove the hearing aid when playing sport.

"I hate a really sweaty hearing aid. I have it on in PE but when it gets wet or something, I just take it off. I can still hear without my hearing aids in." – MFG2MS

Other children spoke of not wearing their hearing aid if they had forgotten one of them. They mentioned feelings of imbalance and it being harder work to listen and concentrate so they found it easier to remove the one they had remembered to bring.

“...if I haven’t got a hearing aid that day I won’t wear it because it is so hard because you have got to like listen to that but you can’t because of all that noise...”- FFG3MS

Several children spoke of their dislike of radio aids because they made their hearing loss more obvious. Some teachers made this worse as they did not know how to use the aid and their actions drew more attention to them as the deaf or hard of hearing child. This directly goes against the desire to be treated the same as the other children and to be accepted as mentioned previously by these children.

“I hate it because like, you give it to the teacher, but you give it to the teacher before the class, before the class get here but some teachers they are really dumb and they don’t know how to work it. So they are talking like “blah blah blah blah bah” and right in the middle whilst they are talking it is like “Oh no, oh no, quick sort it out” ... in front of everyone and it is so embarrassing...”– FFG3MS (1)

“The teachers shout and there is too much background noise. When you are outside it is too windy and all you are hearing is the radio and not the teacher talking but the teacher shouts when you are talking in PE so I don’t need the radio”. – FFG2MS

“Sometimes I take the receiver out it’s that annoying me, sometimes I even get a headache from it. So I just take the receiver and put it in my pocket... I will wait and then I will tell them it was the wrong way round because you don’t want to say it in the middle of like while they are talking...”–

FFG3MS (2)

One child spoke of her experience of being coached when using a radio aid. She found the experience very frustrating and ultimately quit as she was unable to cope with the emotions she was experiencing.

“And it got really frustrating after a while because in my helmet my implant would fall off and the radio she would actually rub the radio and it would really annoy me and like if my implant fell off while in the helmet, I had to stop the horse, get off the horse, take off my helmet put it back on, put the helmet back on, get on to the horse and start again and it got annoying after a while, so I quit and then I am still looking for a place and we found a place because we have bought some of this couple and they said their daughters go horse riding and they said it is a really good horse riding club and they said they have like disability class there as well.” – FFG3MS

“Erm, I use the radio wave in school just for normal classes. I'm not allowed to use it for PE in case I - in case it gets dropped on the floors and damages it. But they - it kind of annoys me, because sometimes they say, "Oh yes, they're really good, because they only pick up the teacher's voice and nothing else.” But for me, I don't know whether it's anyone else, but for me it just seems to amplify all background noise, not just the teacher's voice. It just makes everything louder.” – MFG5MS

The children mentioned feelings of annoyance and a general dislike of the radio aid in their classes other than PE. Some reported being allowed to use their radio aid in PE and others were not. Children did not report any benefit of using radio aids during PE sessions.

4.5.7.4 Family influence

For deaf and hard of hearing children family influence plays a large part in whether they participate in sports or not. Several children spoke of their desire to play sport but their parents prevented them.

“like my mum said I wasn't doing it because the hockey stick can easily wrap you on the head ... you have to hit quite hard and if you hit someone on the head and my mum didn't like, said rung up or something saying me not to do hockey because it can be quite rough as well.” – FFG1MS

“And also my mums wrote to the PE teacher that she doesn't want me to do rugby because that time I just had my implant operation and she was worried that somebody can, when you do the sort of tackle where you bang your heads together” – MFG1MS

Both quotes came from children who had cochlear implants. Their quotes illustrate parent's fears. The fear of the parent was expressed related to damage to the site of the implant and the potential future implications this could have for the child. There was a suggestion the children could wear some form of padded protection on their head, and for some this was satisfactory, but for others the fear of damage was too great, and the children were not allowed to try certain sports. One male child discussed playing rugby whilst wearing headgear. This child did not like the feel of headgear because it meant he could not hear whilst playing, which was his preference. As such, he chose not to continue playing for his comfort and safety. Instead he played tag rugby which does not involve tackling in the physical sense but the capture of a “tag” from an opponent's belt.

“Well you can if you are quite lucky maybe you can wear headgear but there is a chance it might come off and I prefer to hear when I am on the pitch. If I am wearing a head guard then you can't hear... [With reference to tag rugby] It is like where you have to wear a belt around you and you have a strap hanging off it and you have to pull that off...” – MFG2MS

In some cases, it appeared the decision was that of the child's parent and in others the child seemed to make the choice themselves.

"...he used to leave me until about five minutes of the last half. So I never got to play and everybody else did. So I quit the team." – FFG3MS

"...on the head and my mum didn't like, said rung up or something saying me not to do hockey because it can be quite rough as well." – FFG1MS

"...mums wrote to the PE teacher that she doesn't want me to do rugby...implant operation and she was worried that operation may need to be done again. I am not sure she wants me to do it next year when I am in year 8." – MFG1MS

Whether or not a child's family participated in sport also appeared to influence whether the children in the focus groups were active in sport.

"I would like to [play sport] but my family never got into sport, basically. They never liked it in their life. They just never wanted me to do any sport with them". – MFG2MS

4.6 DISCUSSION

The current study shows that deaf or hard of hearing children face additional barriers to participation in sport compared to their hearing peers, something previously unidentified in this context. These additional barriers include problems with communication and understanding, such as difficulty with communicating needs to coaches or teammates. These communication issues link in with the social model of disability.

The children in this study identified interactions with sports educators as impacting on their participation. Deaf or hard of hearing children can become frustrated with their sports educator resulting in negative emotions connected to sports which can discourage future participation. It is important that a child's first exposure to sport is a positive one to encourage

participation (Kirk, 2005; Bailey *et al.*, 2010; Bailey, Cope and Pearce, 2013; Tannehill *et al.*, 2013). This links with the literature evidencing the impact a sports educator can have on a child's experience of sport (Pelletier *et al.*, 2001; Allender, Cowburn and Foster, 2006; Bailey, Cope and Pearce, 2013). Children in this study reported that adaptable coaches help to facilitate their participation. Deaf or hard of hearing children viewed an adaptable coach as one who was prepared to be inclusive within their sports sessions and were deaf aware to facilitate their participation. Given the social model of disability states disability is the outcome of social barriers and a lack of societal awareness (Thomas, 2004) an adaptable coach would help to break down the barriers of societal awareness and facilitate inclusion.

This study identified communication as a key barrier to participation in sport for deaf or hard of hearing children. Communication as a barrier is multi-dimensional with the children sharing various experiences and desires relating to this. As previously discussed a sports educator can impact on a deaf or hard of hearing child's participation including their understanding of deaf awareness and communication strategies with this group (Kirk, 2005; Bailey *et al.*, 2010; Bailey, Cope and Pearce, 2013; Tannehill *et al.*, 2013). Sports educators were reported to misinterpret a child as misbehaving when a deaf or hard of hearing child had been unable to understand the instructions they had been given. Children within this study reported that they were discouraged from participating in some sports because of this. This again highlights a lack of societal awareness and social barriers faced by these children. Their disability is rooted in their social isolation and lack of inclusion in the mainstream environment, which is highlighted in the social model of disability. Deaf or hard of hearing children reported their adaptations within sports sessions to observe and copy others to try to include themselves as they often missed instructions. Sports educators using visual aids or demonstrations could assist with this (Turnbull, 1995; Dolati and Richards, 2010). Children are influenced by their peers when wishing to participate in

sports. This was identified here for deaf or hard of hearing children who were more likely to participate or try participating in a sport if a friend was present, or a sibling or family member was participating as well. This facilitation of social inclusion addressed the social barriers discussed in the social model of disability, peer support may play a role in overcoming barriers associated with the model (Lang, 2001; Thomas, 2004). This is widely observed for all children in the wider literature (Babkes and Weiss, 1999; Allender, Cowburn and Foster, 2006; Bailey *et al.*, 2010). The way deaf or hard of hearing children interact with their peers can have a large impact on whether they participate in sports. Children who were more confident appeared to access sports more readily whilst those who were more self-conscious appeared less likely to participate in sports, something also identified for children in general in the literature (Findlay and Coplan, 2008). Deaf or hard of hearing children listed interactions with others as a reason to participate in sports. They expressed a desire for inclusion and socialisation which helps to breakdown some of the barriers associated with the social model of disability (Terzi, 2004). Some of the deaf or hard of hearing children shared a desire to make friends as a reason to participate in sports, linking to the social benefits of participation (Murphy and Carbone, 2008; Eime *et al.*, 2013). Communication and interaction with teammates within the sports environment was shared by some deaf or hard of hearing children as a barrier to participation but was listed as a reason to participate for others. In some cases, those listing interaction with teammates could be linked to confidence and negative prior experiences of communication difficulties in the sports environment. The children in the study identified challenge and skill development as reasons to participate in sport. The deaf or hard of hearing children in this study reported elation when inclusion was successful but devastation when it was not. Deaf or hard of hearing children shared preferences for both team and individual sports participation. Those with a preference for individual sport reported the need for less communication in this context and listed this as the

reason for their preference. Those with a preference for team sport share a desire to interact with their peers and to socialise with them.

Some deaf or hard of hearing children make use of assistive technology such as cochlear implants or hearing aids. The children in this study reported instances where this technology had to be removed during sports participation. This was difficult for the children as they rely on this technology for communication. Again, deaf and hard of hearing children reported that if the coach was adaptable, or if they had the support of a parent, they were able to cope without technology. Deaf or hard of hearing children and children in general with supportive parents are more likely to participate in sport (Babkes and Weiss, 1999; Griffith *et al.*, 2007; Ellis, Lieberman and Dummer, 2014; Olivares and Cossio-bola, 2015). Parental support for deaf or hard of hearing children includes transport (as for children in general) (Babkes and Weiss, 1999; Olivares and Cossio-bola, 2015) but also includes the provision of communication support as identified in this study. Parents acting as communication support are helping to break down some of the social barriers associated with the social model of disability, and are supporting inclusion within the sports setting. Although parents are helping breakdown some of the social barriers it is worth considering that they may still be a form of barrier when children wish to communicate with their peers as other children may lose interest or not engage with a parent in the role of communication facilitator. Parents act as role models to their children which may also encourage social interactions and inclusion and breakdown barriers to participation.

Sporty parents were identified by children in this study as facilitators to participation, something also identified in the wider literature (Bailey *et al.*, 2010). Parents can act as a barrier to participation as reported by deaf or hard of hearing children in this study. Parents prevent their deaf or hard of hearing child from participating in sport due to fear of injury or damage to the

hearing technology they use. The children also shared their fears about participating and damaging their hearing technology.

In summary, deaf or hard of hearing children identified communication as a barrier to their participation in sport. This communication consisted of multiple dimensions from the perspective of the child. To enable a deaf or hard of hearing child to participate fully within sports it is important to understand how these aspects of communication impact on the experience of the deaf or hard of hearing child within sport. By understanding the experience of a deaf or hard of hearing child the barriers can then be addressed and the experience enhanced. This is critical to overcoming the social barriers commonly associated with the social model of disability. Given that societal arrangements are viewed as causing disability in the social model, and that an argument can be made for communication difficulties leading to a lack of inclusion and hence participation, it is important to understand and address these issues from the perspective of the child.

4.6.1 Study strengths and weaknesses

A purposive sample was used in this study but this was also a sample of convenience given the hard to reach population. A larger sample, geographically and ethnically diverse would have been preferable. The sample was predominantly white, with a good mixture of genders and those who did and did not participate in sport according to information shared in the groups. However, there were few Black and Ethnic minorities represented which is a weakness of the study when linking to other populations. This may be a reflection of the population within the schools in the area but this is unclear. It is also unclear if the sample was economically diverse and this is something to consider in future research. Especially when considering some of the barriers may be linked to cost of sports participation, travel and equipment.

Ideally there would have been a greater amount of time allocated for the focus groups to be conducted. The children had a lot to share and the

researcher had to keep discussions guided towards the topic of focus. With more time the researcher could have explored more about children's relationship with sports participation and the roles of external factors such as parental influences in this. For future studies it may be beneficial to have up to 60 minutes available for this type of study. This would be difficult for a school to accommodate within their busy academic schedules. Given that the groups had to take place within school time or during a club session the groups were kept to 30 minutes. This allowed them to fit into the school day or club programme without intruding too much on the activity taking place. The setting of the focus groups wasn't ideal as much of the literature reports a neutral venue being the best for holding a focus group (Kitzinger, 1995). This had to be compromised for these groups as it makes use of child participants who feel more secure in a familiar environment and hence are more likely to discuss sensitive topics with a researcher (Morgan *et al.*, 2002). The venue also had to be compromised given the need to access a group of hard to reach children at a specified time. Ideally when conducting focus groups a facilitator and another researcher would be present. This was not possible in this study. Some of the groups were quite small and having two unknown adults would have affected the group dynamics and the power relationship. The power relationship has been shown to be fairly difficult to negate with children (Ireland, 1996; Morgan *et al.*, 2002). As such a club member or teaching assistant at the schools was present whilst the group was conducted. This may have affected some of the information shared in the groups as the other person present with the researcher was with a staff or club member. This was necessary for the groups to run smoothly in case someone needed to leave the room, for example for a toilet break. The club or staff member also provided sign support for children in the group that needed it and provided voice over clarification for the audio recording. They were also only asked to voice over / repeat speech that would be unclear on

the tape recording. This resolved the earlier issues experienced in the pilot and all the groups went smoothly after this.

A weakness of this study is the lack of information on which children did or did not play sport specifically. Although any child who is deaf or hard of hearing was eligible for this study there was no stipulation that the child had to participate in sport to take part in the research. All children participating in the main study were deaf or hard of hearing but not data was collected on whether this was moderate or profound given that this information is difficult to obtain. It may have been beneficial to know the severity of hearing loss of the children participating as it is possible that this had an impact on their experience of sports participation. This study was analysed using thematic analysis. This method was chosen as it provides a structured method to analyse the data set via an inductive approach. Content analysis was also considered. Content analysis allows a broad sweep of the data and would have allowed an aspect of quantification in terms of the frequency in which barriers were reported. However, some of the context may have been lost as the reported barriers were not dependent on frequency of reporting but instead on the significance to the individual. Thematic analysis was therefore the more appropriate for this study given the research question and population involved.

4.6.2 Reflections

In an ideal world when conducting qualitative research we would come to the table with no prior experience or thoughts and feelings based upon a research topic. This is not possible as we bring pre-existing notions to the research process. As such it is important to acknowledge in this study that the researcher recognises that being a football coach and player may have influenced some of the themes identified within the data during analysis. This might have been an advantage as the researcher might have elicited themes that would otherwise not have been identified. Too many assumptions

were made initially during analysis and links were being made too early when another round of coding was needed.

One of the groups with deaf or hard of hearing children contained eight children in the younger age group in Year 6. The researcher felt afterwards that this was too many. The group became difficult to manage and maintain an environment conducive to using audio recording equipment. The larger group resulted in children talking over one another making it hard to distinguish between speakers on the audio recording. Younger children were more excitable in their responses and more difficult to control so a smaller group was deemed easier to manage. Future groups with younger children had a maximum of six participants. It was felt that this number was more manageable as children were too easily distracted in the bigger group. The researcher had to introduce a 'speak when you hold a toy' rule. This may have affected some of the interactions within the group as the children were not able to speak as freely as they would have liked. This was necessary to maintain control of the group and to ensure that a good audio recording was obtained. If all the children had been allowed to talk at the same time transcription would have been very difficult.

4.7 SUMMARY AND CLOSING COMMENTS

From this study it is evident that deaf and hard of hearing children face numerous barriers to participating in sport. They should have the same access to sports as their hearing peers and this study has identified that this is not always the case. This aligns with the social model of disability. Deaf or hard of hearing children are facing social barriers and barriers linked to a lack of awareness for inclusion in society. Previous literature has suggested the benefits of participation in sport include better mental and physical health. It is important that the barriers facing deaf or hard of hearing children are addressed so that they too can access these benefits.

One of the most salient barriers identified in this study was a lack of deaf awareness among their peers and sports educators. This is a key concept within the social model of disability, a lack of societal awareness. If we can overcome this barrier we can encourage inclusion and participation and reduce the disability by society. This is something that may be rectified with an education programme or accessible online resource.

CHAPTER 5. WHAT HELPS OR PREVENTS DEAF OR HARD OF HEARING CHILDREN FROM PARTICIPATING IN SPORTS: USING SEMI-STRUCTURED INTERVIEWS TO INVESTIGATE THOUGHTS, FEELINGS AND EXPERIENCES OF PARENTS AND SPORTS EDUCATORS OF DEAF OR HARD OF HEARING CHILDREN

5.1 OVERVIEW

This chapter addresses the experiences of sports for deaf or hard of hearing children from the perspectives of parents and sports educators. There is a focus on the social benefit of sport participation, adaptation, communication, parental support, and sports educator training. This is linked to the social model of disability whereby inclusion is to be encouraged to remove the social and societal barriers associated with this.

5.2 INTRODUCTION

So far, we have seen in Chapter 2 the mental and physical health benefits of sport and the additional benefits participation can offer for children. We have also seen the positive and negative experiences associated with first exposure to sports participation. Chapter 4 highlighted the importance of sport for deaf children and their mental and physical well-being alongside the social interactions offered in the sporting context. These social interactions can help to overcome social isolation linked to the social model of disability. Chapter 2 highlighted the need for support for participation in sport from coaches, teachers, and parents for all children. We have seen that deaf and hard of hearing children face barriers to participation in sport. They do not appear to have the same access to sports as their hearing peers, and it is important to address these barriers to enable participation from youth into adulthood. The most common barrier deaf or hard of hearing children identified was a lack of deaf awareness amongst their peers and their sports educators. A lack of societal awareness is linked to this with the social model

of disability. Children also discussed their preferences for individual or team sports and their reasons for this.

Parents and sports educators act as gatekeepers to sports participation and as such can have a role as both barrier and facilitator to children's participation in sport. Parents provide funding, time, and transport to enable children to participate, and previous research has shown that active parents are more likely to encourage their children to also be active (Brunton *et al.*, 2005; Griffith *et al.*, 2007; Olivares and Cossio-bola, 2015). For most children, the first experience of organised sport takes place during physical education classes at school. Research has shown that this early experience can influence a child's future participation. If this first encounter is a negative experience children are less likely to participate and engage with sport (Kirk, 2005; Bailey *et al.*, 2010; Townsend *et al.*, 2015). As such the sports educator has a pivotal role in influencing future generation's participation in sport. Previous studies have also shown that positive experiences with sports coaches influence children to continue participation in sport and that parents have a role to play in the facilitation of this (Kirk, 2005; Bailey *et al.*, 2010; Bailey, Cope and Pearce, 2013; Tannehill *et al.*, 2013). An adult's perspective on participation in sports for deaf or hard of hearing children will influence the amount of support and encouragement offered to these children and impact on the social model of disability. An adult who is supportive is more likely to facilitate participation, overcome social barriers and facilitate social inclusion alongside providing mechanisms for involvement in sports. This study sought to explore adult (parents, PE teachers, sports coaches) perspectives on deaf or hard of hearing children's participation in sport. Barriers, benefits, and possible strategies to improve their participation are considered.

5.3 METHODS

5.3.1 Study Methods

In Chapter 4, I provided a critical review of different qualitative methods.

Here I consider qualitative interviewing as a distinct research method.

Qualitative interviews account for an individual's lived experience and although varied in style share a commonality of numerous features (Mason, 2002). Interviews can be one to one, focus group, face-to-face, over the telephone or online. Interviews are generally stylistically informal as a one to one interview is like a conversation rather than a more formal question and answer structure. This can help participants to relax and share their experiences readily. Within this methodology there is also the sense that knowledge is contextual and that relevant contexts are drawn out to give a bigger picture.

There are three types of interview which can be classified as structured, semi-structured, and in-depth interviews (Britten, 1995; DiCicco-Bloom and Crabtree, 2006). A structured interview will usually collect quantitative data and is conducted by a trained interviewer having fixed choice answers for a participant (Britten, 1995; DiCicco-Bloom and Crabtree, 2006). In depth interviews are guided conversations which cover one or two key issues related to a research area in greater detail (DiCicco-Bloom and Crabtree, 2006). Semi-structured interviews have less rigidity and make use of some open-ended questions relating to a given area of research or topic of interest. This gives both the participant and the researcher an amount of freedom to be able to move away from the schedule and explore areas of interest in an exploratory research scenario. The semi-structured interview method of qualitative research was a good fit for research interviews with parents and sports educators of deaf or hard of hearing children. They provide some structure to give an overview of shared experiences that parents or educators may have but allow enough freedom for further areas of research to be explored.

There are several options for conducting semi-structured interviews including; face to face interviews, telephone interviews, instant messenger interviews and email interviews (Opdenakker, 2006; Leavy, 2014). A face to face interview allows interviewer and interviewee to observe subtle nuances that would be difficult for example over the telephone (Opdenakker, 2006). There is little time delay between questions and answers of the participants and the response is spontaneous rather than formulated and perhaps a truer reflection of their response (DiCicco-Bloom and Crabtree, 2006). The researcher can audio record this interview type creating a more accurate recall than relying on field notes written during an interview. Face to face interviews offer an opportunity to create a rich dataset including not only the information communicated orally by the participant but also notes taken by the researcher on observations of facial movements, tone of voice and body language. This gives a deeper insight into participants lived experience of a topic. This method of conducting semi-structured interviews would be of use in this study as it allows a deeper insight into the thoughts of adults involved with deaf or hard of hearing children's participation in sport. This method is often only viable with participants in the local area given the cost of travel to the participant's location to conduct the interview.

Telephone interviews are useful as a participant only needs access to a telephone so a wide geographical area can be accessed as can hard to reach populations. There is a reduction in the interaction when compared to face-to-face interviews and there is a risk the telephone interview is interrupted as the researcher does not know where the participant is located. Telephone interviews provide much of the same information as that in a face to face interview but they miss out on the subtle facial clues and body language of participants (Novick, 2008). This method is useful in this study as it offers convenience for the participant in terms of location of researcher and participant and there is an inherent saving in cost as travel is not necessary (Groves *et al.*, 2001; Novick, 2008). It is important to offer additional

methods of conducting interviews to ensure the study is fully accessible to all participants. Some of the participants in the study may be deaf or hard of hearing and telephone interviews may not be suitable or accessible for them. An alternative is to use an instant messenger service. However, this removes social cue as there is no voice or visual information being shared between researcher and participant. Participants can use emoticons to indicate their feelings, but these may have different meanings to different people and different cultures. Due to a lack of social cue and being 'hidden' behind a keyboard a level of anonymity is afforded to the researcher which may encourage participants to disclose more information than would have been possible in a face to face interview (Meho, 2006; Opdenakker, 2006; Fielding, Lee and Blank, 2008). Instant messenger service interviews and email interviews share a benefit in terms of a reduced cost to conduct them as there is no travel for researcher or participant and no central location is required (Opdenakker, 2006; Leavy, 2014). However, they take up to twice the amount of time of a telephone or face to face interview (Fielding, Lee and Blank, 2008; Ackland, 2013; Rogers, 2013). There is an instantaneous transcript from both email and instant messenger interviews as it is simply a record of the conversation.

It is also important to consider the use of qualitative methodology with participants with disability. Qualitative research can be very accessible for those with disability and gives a voice where otherwise they may remain unheard (Nind, 2008; Farmer and Macleod, 2011). To understand the lived experience of sports educators and parents of deaf or hard of hearing children it was important for the research methodology to be inclusive. Those with hearing loss may have communication difficulties and it is important for the researcher to be able to adapt to this (Nind, 2008). An exploratory approach to data analysis making use of inductive reasoning can help to elucidate meaning for the data (Braun and Clarke, 2008; Farmer and Macleod, 2011). Taking into consideration the potential difficulties with

communication a variety of methods for semi-structured interview participants should be offered. Given the diversity of the population being interviewed in this study (parents, sports educators, hearing and deaf or hard of hearing) it was necessary to consider different approaches to semi-structured interviews to ensure participants requirements were met. For example, a telephone interview may not be suitable for an individual who is deaf or hard of hearing but an email or skype interview may be.

5.3.2 Aim

The aim of this study was to explore the perspectives of parents and sports educators of deaf or hard of hearing children on barriers to their participation in sport.

5.3.3 Participants

Participants in this study were adults aged over 18 years and a purposive sampling strategy was used. The study sought to recruit equal numbers of parents and sports educators to allow an overview of experiences of adults involved with sports participation and deaf children. An even distribution of genders was also desirable, although a higher proportion of females was expected due to the role of mothers in children's activities both in and out of school. For sports educators, recruitment aimed to include those with specialist insight into sports participation for deaf or hard of hearing. This range of experience would help to address the societal and social barriers faced according to the social model of disability. For parents, it was important to have a variation of participants from hearing to deaf. This is to allow commonality and difference to be identified for their children. It could be that those from a deaf family are better equipped for sports participation in a deaf setting but less so for mainstream sports and vice versa. This study focuses on the experiences of sport for deaf or hard of hearing children from the perspective of sports educators. This viewpoint is important as it offers a different angle and adults may view different barriers or facilitators to participation than children themselves. The viewpoint of the parents is also

important regarding a deaf or hard of hearing child's participation in sport. Family influence was identified in Chapter 2 as an important factor in participation in both sports and physical activity. As such it is important to understand this viewpoint alongside those teaching sport to deaf or hard of hearing children. Parents and educators were recruited with the help of sporting bodies, deaf organisations (Ear Foundation, Action on Hearing loss and UKDeaf sport) and schools.

For parents to be eligible for the study, they had to be based in the UK with at least one of their children being deaf or hard of hearing and over 4 years of age. For educators to be eligible for the study they needed to have delivered a sports session where at least one child who was deaf or hard of hearing was present. This experience varied from those coaching only deaf children to those coaching a mix of children. Please see Appendix 7, 8 and 9 for participant information sheets.

Initially, schools and clubs in the local area were contacted to advertise the study. These were contacted to reach a range of parents and sports educators to try and create a broad sample. The researcher used their own contacts within schools and the football coaching community to share the details of the study as participants were potentially within a heard to reach group given demands on their time. Social media was used as a tool for recruitment with the researcher sharing frequent updates on the project and details of the study on platforms such as Twitter. The aim of using social media was to reach a wider audience across a national level to gain an insight of commonality and difference in the UK. Enquiries were received from parents in France and America to participate in the study as they wished to share their experience. However, they were not included as the study was focused on the UK population. Those individuals expressing interest via Twitter were instead asked to send the researcher key points or a few paragraphs about their experience of their deaf or hard of hearing children's experience and interaction with sports. Action on Hearing Loss, an

organisation for the deaf and hard of hearing, also allowed the researcher to post a short blog about the study which aided recruitment. Several parents were interested in participating in the study but were excluded due to their child having an additional need which affected their child's ability to participate in sport. This study was focused on experiences of participation in mainstream and deaf sport. To understand the experience in both and the ways in which deaf children can be included to allow them to access the same benefits of sports participation as their hearing peers.

5.3.4 Process

This study used semi-structured interviews and thematic analysis to investigate the thoughts and feelings of parents and educators about sports participation in deaf or hard of hearing children. Where the term educator is used, it is a reference to both PE teachers and sports coaches. An interview schedule was developed from a list of initial questions for this study with the aid of public involvement. This involved piloting the questions with volunteers, some of whom were personal contacts of the researcher. The questions were piloted on parents of hearing children, some of whom had other health issues which may influence participation in sport, e.g. an asthmatic child. It was important to test the questions on parents of children who are hearing and those with additional needs to ensure questions were relevant to all. The questions developed with parents of children with additional needs helped to tailor some guidance for use in interviews of parents of children with hearing loss and the final questions are shown in Table 5.0. The questions for the educators were also piloted on sports coaches and a PE teacher (Table 5.1 and 5.2).

Table 5.0: Interview schedule for parents used in the semi-structured interviews

1	Can you tell me a bit about your child/ren with hearing loss?	- Age and gender - How long have they had hearing loss? - What technology do they use if any? - Any other disabilities?
2	Do you have a hearing loss...?	- Can you tell me about this? - Did it start as a child?
3	What sort of school does your child attend?	- Mainstream, deaf, with support unit
4	Can you tell me about your thoughts and feelings about sport?	- Are you active? - Clubs - Still playing / Leisure time
5	Can you tell me about your thoughts about your child and sport?	- Do they play? - Do they do any clubs? - What do they or don't they like? - Do they face any issues taking part?
6	Do you have any concerns about your child participating in sport?	- Can you tell me more about this...
7	Is there anything you think may stop your child taking part in sport?	- Communication, technology, friends...
8	Is there anything that may help your child take part or continue to take part?	- More support - Understanding from coach
9	Does your child prefer deaf or hearing sport?	- Why do you think this is...
10	Does your child have hearing friends?	- Or deaf friends, or both, ask to expand
11	Has your child's teacher or coach had any training to help them teach or coach your child?	- If no, would you like them to have? - If yes, what type / are you aware?
12	What does your child think of their PE teacher?	- Are they able to understand? - Are they happy in PE? - Are they happy at school, expand ...
13	What do you think about their PE teacher?	- Expand
14	If child participates in sport outside of school what do they think of their coach?	- Are they able to understand? - Are they happy in PE? - Are they happy at school, expand on the above...
15	What do you think about their coach teacher?	- Expand
16	Does your child have any issues with communication when taking part in sport?	- Can they hear? - Do they use their hearing aids/technology? - Are they allowed to wear them or are they asked to remove them?
17	Does your child use a radio aid or FM system in class?	- How do they find using this? - Do they use it in PE or sport – why or why not? - What do they think of it?
18	Are there sports your child prefers?	- Why do you think this is?
19	Are there any sports you wouldn't want your child to do?	- Can you expand on why...
20	Are you aware of any resources to help your child take part in sport or clubs?	- Such as Me2 NDCS project resources
21	If there was information available to help your child play sport how would you prefer this?	- Expand...
22	Is there anything else you would like to tell me?	

Table 5.1: Interview schedule for PE teachers used in the semi-structured interviews

1	What school do you teach at?	- Can you tell me about the school - Mainstream, Deaf, Support unit
2	How old are the children that you teach?	- if specific or range
3	How do you encourage children to play sport?	- Are you active..... - Clubs at school.....
4	How many children do you teach with a hearing loss?	
5	Can you tell me about the children you teach who have a hearing loss	- Age, Gender - Technology
6	Tell me about the children with hearing loss taking part in sport...	- How many - Mixed group - Technology, wear / remove - Out of school clubs / after school clubs v PE - Particular sports, team / individual
7	Can you tell me about interactions in your class?	- If mixed group - If all deaf or hard of hearing
8	What are your feelings about children taking part in sport?	- Positives, Negatives
9	Are there any special adaptations made for deaf or hard of hearing children in sport?	- At your school - In your class - Anything different
10	What do children seem to dislike about sport?	- Does this differ for deaf or hard of hearing compared to hearing?
11	Are you aware of any resources or courses to help you with teaching deaf or hard of hearing children?	- have you used any, good or bad - how easy to find and access
12	Is there anything else you feel that could be done to help you teach deaf or hard of hearing children in sport...	
13	If there was information available to help you teach children with hearing loss how would you prefer this?	- leaflet, video, both, other ideas
14	Anything else you would like to share with me?	

Table 5.2: Interview schedule for sports coaches used in the semi-structured interviews

1	What sport do you coach?	- Can you tell me about the sport
2	What club do you coach at?	- Deaf or hearing or a mixture?
3	Do you have a hearing loss?	- How long have you had this?
4	How old are the children that you coach?	
5	How do you encourage children to play sport?	- Are you active... - Advertising - Going into schools
6	How many deaf or hard of hearing children do you coach?	
7	Can you tell me about the deaf or hard of hearing children that you coach?	- age, gender, technology
8	Tell me about the children with hearing loss taking part in sport...	- How many, mixed group, gender - Technology, wear or remove, out of school or after school clubs - particular sports, team or individual
9	Can you tell me about the interactions in your session	- If mixed group - If all deaf
10	What are your feelings about children taking part in sport?	- Positives, negatives
11	Are there any special adaptations made for deaf or hard of hearing children in sport?	- At your club - By you
12	What do children seem to dislike about sport?	- Does this differ for deaf or hard of hearing children compared to hearing children
13	Have you had any training for coaching children with a hearing loss?	- If not was it offered - Aware of any - If yes, what training, how were they made aware of it
14	Are you aware of any resources or courses to help you with teaching HI children?	- Have you used any, good or bad - Ease of use and access
15	Is there anything else you feel that could be done to help you teach children with HI in sport...	
16	If there was information available to help you coach children with hearing loss how would you prefer this?	- Leaflet, video, both - Other ideas
17	Anything else you would like to tell me...	

Interviews lasted between 30 minutes and 90 minutes and were conducted via telephone, face-to-face, instant messenger, or email. For participants who were themselves deaf or hard of hearing the options of instant messenger or email interview were provided. The researcher contacted the participants prior to the interview gaining informed consent for participation in the study by filling out a consent form or receiving verbal consent. Before the interview date the researcher contacted participants to arrange the interview at a convenient date and time for the interviewee. The telephone and face-to-

face interviews were audio recorded and some notes were taken during the interviews by the researcher to allow further exploration of certain topics. For the email and instant messenger interviews participants were asked not to use any form of 'search engine' to find the 'right' answer as their experience was of interest in this research. They were also asked to allocate between 30 and 90 minutes for the duration of the interview and to finish the interview in one sitting (to be comparable to telephone and face to face interviews). Responses were spontaneous and followed the same semi-structured interview schedule as for telephone and face-to-face interviews. A UK transcription service transcribed audio files. The transcripts were then checked for accuracy compared to the audio file and field notes by the researcher and any necessary corrections made.

All transcripts were checked individually to ensure accuracy and notes were taken alongside these to help with analysis later. For the instant messenger and email interviews transcripts were created by copying into a word document the text, personal data were removed and anonymised.

5.3.5 Data analysis

An inductive reasoning approach was used for data analysis as this uses the data to help develop a hypothesis (Thorne, 2000). A thematic approach to analysis was used in this study as per Braun & Clarke (2008), as described in Chapter 5. However, the researcher approached this data set in the same way with an inductive approach. It is important to state this for transparency on the researcher's behalf. The data set for this study consisted of the transcripts for the semi-structured interviews and the annotations the researcher made on these whilst checking transcripts for accuracy. The transcripts were managed in NVIVO. Ethical approval was obtained from the University of Nottingham Faculty of Medicine and Health sciences research ethics committee for the study.

5.3.6 Data familiarisation

The initial stage of analysis involved listening to the recordings of the interviews conducted by telephone and comparing them to the transcripts for accuracy. The email and messenger interviews were reviewed, and any queries were checked for accuracy with the participants. The audio files were reviewed and notes taken identifying initial thoughts and feelings the researcher experienced in relation to the topics covered in the interview. This process was also followed for the email and messenger interview transcripts. These were then compared with any notes the researcher had recorded during the interviews which helped to guide further reading and coding of the transcripts. This mapped on to Phase 1 of the Braun and Clarke method for thematic analysis (Braun and Clarke, 2008).

5.3.7 Theme generation

The researcher reviewed data from the qualitative interviews and generated initial codes. This coding was intuitive in nature and captured ideas of interest within the data. These codes were then revised to remove any overlap and duplication so that each code was clear and distinct in the data it encompassed. The coding was then moved towards a higher level of organisation with the introduction of themes which were then focussed to address the aims and objectives of this study.

5.4 RESULTS

Twenty-seven interviews of parents and educators (18 female, 9 male) of deaf or hard of hearing children were conducted. The parents and educators were varied in age (20 – 55 years), and were hearing (n=24), deaf or hard of hearing (n=3). Interviews were either via telephone (n=23), email (n = 1) or messenger (n=3).

Eleven parents (8 female, 3 male) were interviewed. All parents that were interviewed were hearing. The parents varied from having a single child up to having three children. In some families, the child discussed was the only one

in the family who was deaf (n=7) and others either their siblings, mother or father or close family relatives were deaf (n=4). Of the 11 parents eight had one deaf child either as an only child or amongst siblings and three deaf children had deaf siblings. This gave a varied insight and experience from a parental perspective in terms of the experience their child has when participating in sports. Two parents worked at mainstream schools which had support for deaf children. One of the mothers ran a deaf organisation which offered multiple experiences for deaf children. This included opportunities to participate in various sports including a deaf football team. Her insight was valuable as both a parent and organisational lead. She gave insights into various challenges that deaf or hard of hearing children face as well as ways to overcome these. She also shared individual and organisational barriers she had faced to enable deaf children and her own children to participate in sport.

Nine sports coaches participated in the research. The sports coaches offered a different perspective on participation to that of PE teachers. For the sports coaches the clubs are non-compulsory and outside of school-time so children have more choice regarding attendance. The children the sports coaches will have interacted with were more likely to have identified a sport that they liked and wished to learn more about. These children will have been engaged and the coach will play an important role in encouraging them to continue participation. Sports coaches are often unpaid volunteers, but this is not always the case. Of the sports coaches five coached a specific sport and four coached more than one sport. This offered a varied insight into the types of adaptations or challenges deaf or hard of hearing children may face in different sports. One of the coaches worked as a disability officer for their local area and specialised in cricket. He was able to offer a niche perspective in a specific sport but also on a wider organisational scale. He was able to share experiences of success in enabling deaf or hard of hearing children to participate successfully and at a high level in the local mainstream and county

teams. A success which was being used to inspire further generations. Another coach was a deaflympic gold medallist who is profoundly deaf. She had experience of coaching both hearing and deaf in sports.

Seven PE teachers (2 male, 5 female) were recruited to participate in the study. Five taught at mainstream school and two taught at schools for deaf or hard of hearing children. This mix provided useful insight into the experience for deaf or hard of hearing children in the different settings, the advantages of the different settings and the positive experiences the children had in these settings. Deaf or hard of hearing children feel a sense of belonging amongst their peers at a school for the deaf which may not be experienced at a mainstream school, but the variety of sports offered and competitive experience available at mainstream can be very different to that offered at a school for the deaf.

Sports educators had varying backgrounds with some having taught a single deaf child to others having coached entire groups. This range of experiences is important to highlight commonality and differences in barrier and facilitators for participation in sports for deaf or hard of hearing children.

Table 5.3: Number of participants, role and gender

Role	Gender
Parent	3 male, 8 female
Sports Coach	4 male, 5 female
PE teacher	2 male, 5 female

5.4.1 Initial code generation

The initial codes were generated from transcripts stored in NVIVO. An initial 472 codes were identified and matched to extracts of data. These initial codes were validated by a second researcher (PL) and covered topics such as

'belonging', 'benefits of sport for child's confidence', 'child didn't want to wear technology during sport' and 'child feels they have friends but the parent doesn't think so'. After a consensus meeting with PL initial codes were merged and refined as necessary creating 423 codes. Coding was then reviewed and validated and coding amended to reflect changes to the coding frame. This maps Phase 2 and 3 of the Braun and Clarke framework (Braun and Clarke, 2008). Table 5.4 shows a list of the key themes identified from the data.

Table 5.4: Themes generated from the initial coding of interviews of parents and sports educators of deaf or hard of hearing children

Theme	Sub theme	Codes
The need for adaptation		
	By the children	- Children good at adapting - Child adapting to situation - Copying others - Children just getting on with playing sport - Enjoys visual cues
	By the adult	- Understanding how to assist with lip reading - Position when explaining - Coach adapting communication - Coach knowing needs of group - Coach / Teacher must be willing to adapt
The influence of the sports educator upon participation		- Child receiving praise - Deaf child enjoys participating with coach - All about education, inspiration and fun - Educator supportive of child into sport outside of their own sessions - An accommodating educator has a positive influence on participation - Role model
Communication experiences and equality in the sport setting		
	Communication with team mates	- Difficulty in sports environment - Child struggling to gain independence - Child struggling to interact with peers - Child accepted as good at football - Communication difficulty with team mates - Team mates explaining the practice
	Communication with sports educators	- Need to have a good strategy for communication to be inclusive - Must be approachable - Directional sound and location of educator - Use of a support worker - Smaller groups for communication - Slower communication - Use of visual aids
	Communication linked to independence and the social benefit of sports participation	- Socialisation with peers - confidence / lack of confidence - Inclusive environment - Slower communication in cricket, individual sport also offering benefits of team socialisation - Acceptance when a child is good at sport e.g. football
	Equality in sport	- Need to have a good strategy for communication to be inclusive - Deaf children do not see deafness as disability and want to be included in mainstream sports - Child treated differently because they are deaf - Deaf children just as capable as anyone else - Equal right for deaf children to participate and access sport - Parents see more barriers than a child

The emotional impact on children and the importance of parental support		- Motivation for sport must be intrinsic - Deaf child being bullied in sport - Experience of deaf awareness in sport has put parent off allowing child to participate in mainstream sports - Parents providing communication support - It's always a battle, if not then something is wrong (parent) - Child feeling a sense of belonging in sport - Child gaining confidence from participation individually and with peers
The need for training for sports educators		- Lack of awareness / advertisement of available courses - Difficult for PE teachers to make time to access training, have to justify - Disability awareness included in swimming teacher training - No specific deaf awareness training relating to sport in school - Not enough training for referees in deaf sport

5.4.2 An adult's perspective on deaf children's participation in sport

A range of issues were identified in this study from the perspective of sports educators and parents of deaf or hard of hearing children. Table 5.4 shows the themes that emerged from the data and which are particularly pertinent to deaf or hard of hearing children and linked with the social model of disability. The communication challenges raised are particularly relevant to the social model of disability as if there are not overcome then the environment effectively disables a deaf or hard of hearing child and severely limits their participation. If the communication issues can be addressed via adaptations or training then the social model can be overcome and inclusion achieved. Information relating to the themes presented in the table will be discussed in the following section.

5.4.3 The need for adaptation

There were cases where the need for adaptation was discussed. Parents reported cases where they removed a child from participation in sport due to either a lack of deaf awareness or the coach not engaging their child.

"The coach that we had problems with before, that was not deaf-aware, I think its confidence. I think he's gaining that

confidence now. He's certainly still reliant on us being there to support him"- Parent, female, interview 10

"We pulled him out of the swimming club and we are going to look at a different one where we can hopefully get him in a bit smaller group or one-to-one swimming" – Parent, female, interview 5

Parents expressed their need to push for these adaptations in sports. The consensus appeared to be if parents did not ask for the adaptations or make people aware that they were needed nothing would happen.

"So if the coaches aren't asked, told, reminded, then I can see, if their kids are perhaps not as confident, if the parents aren't as confident, then they will come once and think, "I don't like that."" – Parent, female, interview 3

A particularly poignant quote came from a sports coach. Many parents, teachers and coaches discussed adaptation to enable engagement in sports for deaf or hard of hearing children. The majority seemed to feel that the adaptations could be made easily and without much extra preparation time (if any).

"A typical saying that is always said is: "Anything that is good for a deaf child is good for everybody." To make something more visual and to make something more accessible: it probably would work with most mainstream classes anyway."" – PE teacher, female, school for deaf, interview 4

i. By the children

Adaptation was discussed in all interviews with parents, PE teachers and coaches. It appeared to be a significant topic for all involved in sports with deaf or hard of hearing children. There was a suggestion that children are good at adapting. This can be aimed at the deaf or hard of hearing child or their peers.

“Children are brilliant at adapting. If there is a hearing-impaired child within a class, all the other children just get on with it.... they will adapt to make sure that child is included”- Coach, Male, mainstream, interview 1

Parents also suggested that their children would adapt to the sports environment to make participation easier for themselves. For some children participating in mainstream sport coaches reported children handling communication issues with their peers well and adapting to use their own signs to communicate (even where their peers were not aware of sign language).

“The thing that we find most is he is very good at adapting to those who don't sign, and he is very good at getting across what it is he wants.” – Parent, female, interview 5

Deaf or hard of hearing children did not just adapt their communication with their peers to enable their understanding but also with their sports educators. It is difficult to continually ask for something to be repeated and to save embarrassment children adapted in other ways. Sports educators and parents reported occasions where children would observe and copy to participate in a session and on the most part this was successful.

“yes, she doesn't need to hear, she just follows and, you know, it's great. She feels included with the whole group” – PE teacher, female, mainstream, interview 2

ii. By the adult

Sports educators also have an important role to play in adaptation to enable deaf or hard of hearing children to fully participate. Parents reported that where the coach was good and willing to adapt, deaf or hard of hearing children had a better sports experience and were more likely to continue to participate.

“So I gave him (the coach) the basic sign book. Even though [Name] speaks and everything, if he was at the back of the class, he could sign something, and then he'd know what he was doing.” – Parent, female, interview 11

Sports educators who adapted their sessions did so in different ways to engage, encourage and enable deaf or hard of hearing children to try sports. Some had learnt British Sign Language to help with communication whilst others found different ways such as visual cues, videos, and demonstration to communicate.

“We can use a lot of demonstrations. So we get somebody to perform a skill first and then they copy. We use things like flashcards” – Coach, female, mainstream, interview 3

For one coach learning sign language helped them to interact directly with the deaf or hard of hearing children they were coaching. This is important to enable a coach / participant relationship to develop. The coach felt frustrated at the language and communication barrier and adapted their own skill set to enable deaf or hard of hearing children to participate.

“Because I have always been interested in sign language... when I found that I was teaching lots of deaf groups that came into the centre... just wanted to cut out the middle man really” – Coach, female, mainstream, interview 2

“They don't just want to see a couple of cones out with a ball and a club ...I would say I am the same really with those who are hearing and those who are deaf... I just communicate differently” – Coach, male, mainstream, interview 5

The coaches and teachers interviewed appeared to be familiar with adaptation to enable participation for deaf or hard of hearing children. Some did report on the difficulties they faced initially when coaching these children. Either because they were not aware that a deaf or hard of hearing child was

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in their session or because they did not know what to do as they had no previous training.

"You just presume, in sessions, that you don't have anyone with any issues...it would be great if I just understand that there are going to people with disability and issues surrounding doing sport. So it would be nice to identify them." – Coach, male, mainstream, interview 6

"I honestly didn't know she had a hearing issue. But from then on, I had to make sure that I would demonstrate a lot more clearly, as opposed to verbally telling them what to do. It was quite difficult, actually, because when you're on your own with 30 children, you can't really focus on just one person...."- Coach, male, mainstream, interview 6

Some of the coaches reported hostility relating to their inexperience of delivering sessions to deaf or hard of hearing children.

"...just the helper. She sat down with me after a session and said, "Look, are you aware that she's got-?" She was quite to the point, and I think she was a little bit angry. I said, "Look, I didn't know. No problem."" - Coach, male, mainstream, interview 6

Other coaches reported where they had been informed of a child's hearing loss by parents. This was either the coach or club being proactive and receiving that information or from the parent approaching them. This helped the children to engage within the sessions and have good exposure to participation in sports.

"[Name] tends to have a long conversation with the parents beforehand, and the young people, to understand where they're at, what they might need, how we can encourage

them more, what we can do - that kind of understanding.” –

Coach, female, mainstream, interview 4

“[Name] was the first deaf child in the cycling group, from hundreds of kids, but they had not taught one before. So it is all those little practical things, as a teacher of anything, that unless you have come across it you don’t comprehend why that would be difficult or how doing such a small change can make a massive difference.” – Parent, female,

interview 3

5.4.4 The influence of the sports educator on participation

The sports educator has an important role to play in the participation of deaf or hard of hearing children in sport. Some parents withdraw their children from a sport or even all sport because of issues with coaches.

“The first squad coach was very open, very smiley, very tolerant of [Name], and very good at encouraging him to focus. He then went to another coach, who absolutely had no deaf awareness training at all, no understanding of how to actually approach [Name].” – Parent, female, interview

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During the interviews, there were repeated issues raised relating to the sports educators influence on a child’s participation in sport both in general and for deaf or hard of hearing children. There were several references to an intrinsic motivation for sports educators.

“I think if it affects them directly they will want to access it. The teachers who have got deaf pupils, pupils with any disability, problem, gifted and talented or whatever then they are happy to access that because they see why it affects them and their class.” – PE teacher, male,

mainstream, interview 1

“So it’s a bit like you can lead a horse to water. So giving people deaf awareness training would help but for other people, I don’t think anything would’ve helped because if they’re not going to be aware, they’re not going to change...I think if a person is that way inclined then deaf awareness training and some signs would benefit them....”-

Parent, female, interview 4

Sports educators themselves discussed the need for knowledge on how to fully include deaf or hard of hearing children. There were reports from some sports educators who reported a fear of making mistakes and there was a suggestion that this would deter some coaches from coaching deaf or hard of hearing children.

“A lot of coaches don’t want to dip their toe in the water of coaching disability or hearing-impaired sport because they don’t want to make a mistake.” – Coach, male, mainstream,

interview 1

The bad experiences some coaches and PE teachers had been exposed to deterred them from coaching future sessions or damaged their confidence in delivery. One coach abandoned coaching altogether due to feeling inadequate and having failed one group containing a deaf child.

“If you can’t deliver to a number of children, and people are not doing what you’re saying, and people are getting distracted because you’re not engaging them, it puts you off a little bit. It affects your confidence, and it has done with me. The whole experience, particularly with the lack of information and discussion between myself and the school...then getting a little bit of a rollicking from a lady, it put me off a little bit. ...” – Coach, male, mainstream,

interview 6

Another coach suggested that fear of making a mistake may deter some coaches from coaching children with hearing loss and that when people start teaching or coaching sport that they make mistakes anyway. There was a suggestion that how this impacts on an individual sports educator can be determined by how confident they are either in their abilities or to learn from their mistakes.

“Well, actually, when you started coaching mainstream children, way back whenever it was, you made mistakes. You would get them all sat down and look down on top of them with the sun behind you.... However, realise that you’re going to make mistakes, learn from them, and, actually, just have the confidence to go: ‘I’m going to do this.’ Then, seek support and work with people who have experience.” As a coach, that would be my real one thing to get across to new coaches: “Have confidence and don’t be afraid to give it a go.”” – Coach, male, mainstream, interview 1

One coach who was deaf himself spoke of his negative experience in football as a child and how this drove him away from this sport and into rugby. This led the coach to be particularly passionate about rugby and the need for inclusion for all in sport.

“I was approached by a coach (footballer emoticon doing kick ups) if I would like to join their club which was in the old division 2 back in the day but when the coach realised that I was deaf as I couldn’t understand him...he changed his mind.... My dad told me that my team used to blame me for losing and hearing bad words against me...he couldn’t accept this as it is a team work ...11 players to play...in the end, he took me to rugby and that where I’ve enjoyed rugby” – Coach, male, deaf sport, interview 7

Other coaches felt they were equipped to adapt and enable deaf or hard of hearing children to participate as they coached people and that was their interest.

“...but the coaching principles are all exactly the same because, at the end of the day, you’re coaching people. It’s just the sporting context changes.” - Coach, male, mainstream, interview 1

“I think as soon as individuals see or hear that the group they are about to teach is deaf, or some of them are profoundly deaf, or whatever it is, I think immediately panic mode sets in. Actually, at the end of the day, they are children or adults. They just need a different sort of communication. Actually, whether you have got training, or awareness, or you can sign or not, you can always communicate with somebody, and to not be scared about it, to embrace it.” – Coach, female, mainstream, interview 2

For other sports educators who had recognised a need for training there were barriers to this including time and cost.

“I suggested that I'd quite like to learn sign language, because I like to think that when I am conversing with students who maybe can't lip read, then I do use some visual cues... That was one of my training needs that I said I would, perhaps, like to do. The only issue with that, of course, is time.” - PE teacher, female, mainstream, interview 2

A parent reported the need to inspire deaf or hard of hearing children within sport and spoke of mechanisms to assist with this. Whilst one of the coaches shared that a deaf or hard of hearing child will relate to a deaf coach more, particularly as they are viewed as a role model.

“What I try and do is I try to educate and inspire through the sessions. So hearing parents come along, they can talk to the coaches, they can find out about mainstream pathways, but they can also find out about deaf pathways, which interests a lot of the kids because it means that actually they’re inspired to jump up the ladder quicker than they would if they were going mainstream, if you like. It’s all about educating, inspiring and having fun.” – Parent, female, interview 1(ran a group for deaf children)

“As a result I also try and get involved in the development side of things as there is no doubt that deaf players relate to a deaf coach more.” I have the empathy and understanding required and of course deaf awareness...” – Coach, female, deaf sport, interview 9

Sports educators also discussed the general teaching of sport and there was a feeling that in some instances the focus of sports coaching and teaching is misguided.

“It is outcome focused rather than process focused. I find that children respond best to giving them individual challenges or small group challenges than they do, “Let’s play a game.” They want to play games because they are kids. It is a case of if you structure a session in a way that you are praising the process and the challenge is in the process rather than in the outcome then they learn much more effectively.” – PE teacher, male, mainstream, interview 1

“Speaking generally rather than specific to different schools I would say that sport is undervalued. There is a growing appreciation that physical activity needs to be happening more in schools. In terms of sport specifically I don’t think

the focus is quite where it should or could be. “– PE teacher, female, mainstream, interview 3

In summary, sports educators have a large influence on the future participation of deaf or hard of hearing children in sport. It is important to get the balance right and to encourage positive engagement and enablement.

5.4.5 Communication experiences and equality in the sport setting

Both parents and sports coaches reported incidents of deaf or hard of hearing children being left out of sport because of difficulty with communication. A deaf coach stated that the *“biggest adaptation in coaching deaf players and its understanding this aspect such as the communication do's and don'ts.”*

Without effective and clear communication, deaf or hard of hearing children and their peers can find sport difficult to access.

i. Communication with team mates

There were several reports of difficulty within team sport where children need to communicate with their peers in a sporting context.

“Whereas the other children I don't think can necessarily understand that he can't hear that. So if they shout instructions and he doesn't get it, they either think he is rubbish, ignoring him or not being a team player. They won't involve him because they don't quite understand at that age why he is doing that...” - Parent, female, interview

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“I think it's if they're in a group situation and there are instructions flying around, and a lot of shouting going on, and they're not entirely sure what's happening. They know the rules and everything, but things like football and, sometimes, other team sports, the rules don't necessarily govern how the play is going at that time.” – PE teacher, male, mainstream, interview 7

ii. *Communication with sports educators*

Communication was mentioned frequently in the interviews with parents, coaches, and teachers. Sports educators identified communication as a key barrier to participation in sport *“The biggest barrier is going to be the communication side of it”*. Different types of adaptation were also discussed. Some interviewees spoke directly of communication issues. Others spoke of practical ways of overcoming any communication barriers and how to engage deaf or hard of hearing children. Several coaches spoke of coaching deaf or hard of hearing children as being no different to coaching hearing children *“the principles of sport are the same for all”* and *“I see it as coaching people. All it is, is a slight change in how I deliver; not a massive change”*.

“I would do it for all the children, but I would demo for them to see and then I would get them to have a go at that in front of me so that I was reinforcing that understanding, if you like, and just making sure that they’d either lip-read what I was saying and/or seen my demo as well” – PE teacher, male, mainstream, interview 1

One parent reported difficulty with the child’s swimming coach and reported her child being ‘told off’ for misbehaving when he had not understood or heard instructions he had been given. She also recognised the risk of her child being “put off” or feeling embarrassed during sports participation because of this.

“It was things like they would stand behind him and tell him what to do, and then tell him off for not doing what he was told. It was just utterly frustrating...they get quite embarrassed about stuff like that. We would, let alone kids.” - Parent, female, interview 3

There were also instances reported of deaf children missing sports opportunities due to a breakdown in communication. One parent reported their child enjoying football and playing for a club outside of school.

However, they had never tried to get onto the school team because they were unaware of when the trials were. This highlights the need to ensure information is communicated well to all pupils to allow them an equal opportunity at school sports.

“Yes, I think he is, his PE teacher seems to really rate him... it’s interesting that he’s never played for the school football team. And I think in a way it’s historical, when he first started school, all the hearing kids knew when the football training was, he didn’t; he missed the training, missed the trials, and then since then he’s never bothered to get back into it.” – Parent, male, interview 7

Sports educators highlighted the different types of communication required in different sports. There seemed to be a suggestion that communication in team sports such as rugby and football were much faster, but an exception was cricket where communication was slower.

“Because football and rugby are a lot of quick movement and running around, communication is done by shouting; sometimes too much shouting, but it’s generally done by shouting to communicate. Whereas, in cricket, communication can be done by visual means as well.” – PE teacher, male, mainstream, interview 1

One coach highlighted how cricket is an individual sport played as a team.

“In terms of cricket, obviously, it’s a team game, but every aspect is an individual aspect; so, if you’re bowling, you’re the only one that can bowl, so you influence yourself; batting: you’re the only batter; wicket-keeping and fielding: it’s an individual game within a team environment, so in terms of skill-sets, it’s actually a very individual thing. However, communication is then very important with your

*teammates at different times” – Coach, male, mainstream,
interview 1*

Other sports educators and parents spoke of ways of adapting communication to include deaf or hard of hearing children in their sessions.

“There is a lot, because when they bat, they have to shout and they have to call. So, as you can imagine, we're teaching children to shout, "Yes" or "No," if they want to run, and obviously, these two lads will struggle with that. What we did as a club, we worked and, for example, we made sure that the lads batted with someone that they knew well. They put their hand up if they didn't want to run, etc. That's how we got round working with peers.” – Coach, male, mainstream, interview 8

For some sports, there is a recognition of a difficulty in the environment, e.g. the acoustics at a swimming pool, and the need for children to remove hearing technology.

*“Yes, swimming, it's hard anyway, because for any kid or adult, to listen to instructions in that environment is difficult. So when you have something like a hearing loss it is really hard. Then when you are trying to lip read and you have got goggles on or the splash, it just makes it even harder” –
Parent, female, interview 3*

The same parent spoke of their experience with a good coach who had adapted their communication strategy to fully include their child.

“one teacher who was fantastic and he always made sure that when they were standing on the side in a group giving instructions, he would purposely, and he always did it without realising, but he always just touched [Name] on the head as he walked past, just to get his attention. It was

something that none of the other kids would have noticed” –

Parent, female, interview 3

Coaches spoke of a fundamental approach to ensure all children are included. Coaches were conscious of not isolating children as this can be detrimental to participation. By using the same approach for all children, the environment is inclusive. The use of flash cards helps aid communication for deaf or hard of hearing children as they act as a visual cue.

“So we're encouraged to use the fundamental approach and use the use of games to achieve an objective within a lesson. And actually using those flashcards, achieves that objective as well. So they can achieve an objective as a class using those flashcards and then that child doesn't feel left out and the only one using a flashcard, but actually the rest of the kids enjoy it as well” – Coach, female, mainstream, interview

3

One parent reported the use of radio aids in a sports session which had been borrowed from school to help improve communication. However, having tried using radio aids they felt this did not help with communication in sports because of the nature of the environment (wind and rain during outdoor sports).

“Yes, they have got radio aids. ... and [name] in fact aren't actually wearing them in PE either now, partially because the wind and the rain issue, but partially because they just find it easier to go up and either lip read or hear and then go off again.” – Parent, female, interview 1

A coach reported encouraging hearing children in mainstream sport to also use visual cues and sign to help integration and build a team ethic for all.

“I think the socialisation can tend to range. Most of them have sign language as well as – some have speech, some

don't have speech... The ones that don't have hearing loss are encouraged to use sign language as well..." – Coach, female, mainstream, interview 4

Both sports educators and parents reported good strategies for communication with a deaf or hard of hearing child and adaptations that had worked for their children or in their sessions.

"...he just touched him on the head, he looked up and he always made sure he stood so that [Name] was near the front, so he went to the children instead of getting the children to come to him. So he didn't have to say, "[Name] come to the front", in front of everybody, so that [Name] was at the front and could see. "– Parent, female, interview

3

iii. Communication linked to independence and the social benefits of sports participation

Parents and sports educators discussed the importance of communication in the sporting context. The ways in which barriers were overcome, the potential issues sports educators may face when delivering to a group with a deaf child, and good communication as a whole. Parents particularly raised concerns about their child gaining independence in sport. Some felt this was something that would be difficult for their child to achieve.

"...it's just the independence thing. Until things change which I can't perceive happening in my child's youth...If there were interpreters or communication workers within sports clubs then he would be able to gain independence but at the moment I don't think things will change. I can't see it. There just aren't the resources available to make things change" – Parent, female, interview 2

“At the moment I do it [act as an interpreter] but as he gets older I doubt he is going to want his mum standing there doing it for him...” – Parent, female, interview 5

Some issues with bullying were reported by parents but not mentioned by the sports educators. This may indicate issues with deaf or hard of hearing children gaining independence in sport. The issues with bullying or misinterpretation were related to the children’s peers and in some cases the coaches.

“... he was struggling with like what his role was, and he was getting picked on by the other boys... [After introducing a radio aid] But there’ll be some matches when he comes off and he is picked on, some children do say things, and it upsets him, because he is quite emotional that way.” – Parent, female, interview 8

Another parent reported their child had no confidence in playing team sport because he did not socialise with other children in the team. However, it is worth noting that this child was particularly sporty, and this had not discouraged them from participating in sport entirely though they had not enjoyed football. The parents also indicated frustration from other children.

" He just has no confidence in doing it, you can just tell, he just didn’t integrate with the other kids; he didn’t make any friends, it was just like two sessions, and by the end of it, he just had no reason to go back...I’ve noticed periodically like other kids getting more frustrated with him because he doesn’t hear them when they say, “Oh I’m free” or whatever...Also, I just tend to notice that maybe he doesn’t get the ball passed to him as much as some other players might.” – Parent, female, interview 7

There was a suggestion from parents that deaf or hard of hearing children struggle to benefit from the social aspects of sport. This can be with

teammates on the sports pitch or the 'banter' off the pitch and in the changing room.

"He's a very sociable little boy and he will go up to people, stick his thumb up and smile at people and say hello but he's kind of limited in making friends. It's not that he doesn't want to. It's not that he doesn't try but there's not that easy chatter or banter that you get in teams...." – Parent, female who provides British Sign Language support for her child
"He finds it hard in training sessions, he can't join in the social banter before and after, and sometimes I feel quite sorry because he's left out." – Parent, female, interview 4

One parent reported seeing a difference in their child when participating in mainstream sport compared to participating in deaf sport. This highlights the importance of communication as a social benefit rather than a sporting practice benefit.

"If they're playing in a deaf team, you'll see all the normal banter that you'd get in a hearing team; do you know what I mean? They'll all be playing jokes, and having a crack, and all the rest of it. So I think that's what I mean, really, is that they will probably get more out of it because of their communication with their friends." – Parent, male, interview 6

"I think that if you're in a team game, let's say, and you're the only deaf child, you're probably going to have problems communicating with your team-mates. So you can't have, let's say, banter for want of a description, you can't have that sort of banter with your friends." – Parent, male, interview 6

Some parents suggested that being deaf or hard of hearing in some cases protected their child from the criticism they were receiving, as they could not

hear people being critical of them. They felt in some cases it made their child more driven as they were not as open to distraction.

“It’s strange that he goes for team sports because when I’ve gone to take him to football matches and watched him and things, he misses all the team players going “Over here, over here”, calling across the pitch, asking for the ball to be passed. He just can’t get it because that’s a noisy environment. In matches, his dad runs up and down the side-lines signing to him if there is something that he needs to be alerted to. But in a way as well, because he is deaf and he’s not distracted by all the comments, he is incredibly focused on the ball” – Parent, female, interview 4

There was a call from parents, PE teachers and sports educators for more training around communication to enable deaf or hard of hearing children to engage in sport.

“In terms of coaching and hearing-impairment players, it’s around communicating across the technical skills, demo’ing and assisting in body movement to have that understanding, and then in terms of the communication within the team, it’s around having that understanding early on signals, communication routes, etc.” – Coach, male, mainstream, interview 1

“I would say needs to have deaf awareness in the coaching training course and also basic signing would be of help...this would hopefully help the coaches to encourage deaf children in taking any sports as it would show the Deaf children that the coaches are willing to support them in playing any sports, not brushing them aside....” – Coach, male, deaf, interview 7

In summary communication is an important aspect of both engaging children in sports and encouraging their future participation. When good communication strategies are employed by sports educators, children can fully participate and gain experience of the sporting environment. This facilitates their inclusion and combats social isolation. Deaf or hard of hearing children may struggle to access the social benefits of sport without appropriate support.

iv. Equality in sport

Parents and sports educators discussed the need for equality in sport for deaf or hard of hearing children. One parent made a particularly poignant quote *“If it’s not a battle, we think there’s something wrong now. That’s become the norm”*. There is a feeling that if parents aren’t having to ask for or demand that something is wrong for the deaf or hard of hearing children because they are *“very much treated as different, you know the inclusion’s not totally there”*. Another parent said:

“You know what, I always tend to be really cynical and think... When he was younger and I’ve always had to fight for his rights and stick up for him and I’ve always been there as his mum on the guidelines and shouting at him and interpreting and helping him all the way, and I think that’s pretty much what it’s always been like and I don’t think it’s going to change a lot” – Parent, female, interview 4

Parents also spoke of inclusion of their deaf or hard of hearing children with their peer group and how in some cases being accepted was difficult for them.

“Yes, definitely, I don’t think he’s sometimes – in groups of boys, he’s as readily welcomed into groups of boys, for example with the new football team, there’s some boys who

*will treat him differently because he's deaf" – Parent,
female, interview 7*

*"I think as he gets older, I guess the concern is going to be,
whether or not he's given the same opportunities as other
kids who aren't deaf, I don't believe he is, but people may be
judgemental about deaf kids and just decide that maybe it's
too much hassle to progress them into a different team or
move them on a bit." – Parent, female, interview 11*

One parent also spoke of their child being *"raised in a way where he understands that he's different from other kids, and has to accept that basically part and parcel of being deaf is that some people look at you differently and you're going to be different"*. There appears to be a need for the deaf or hard of hearing child to be recognised as different. A parent reported that their child did not class himself as *"one of them"*, referring to deaf children. Another parent had concerns about whether they were doing the best for their child, they want to enable them to participate and expose them to new experiences.

*"It's all a bit of a list of pros and cons and you want the best
for your child but you don't want them to be too cocooned
that when they do become older they kind of go out and go,
"Well I didn't realise it was this different" because you've
tried to support them so much, but if you don't support
them how are they going to be able to cope with it?" -
Parent, female, interview 5*

PE teachers also reported instances where a deaf or hard of hearing child did not take part in sports as they did not wish to be with hearing children. By helping these children to become more familiar with their hearing peers the PE teachers are enabling these children to access diverse sporting opportunities with both deaf and hearing peers.

"We've had situations before where there has been a child whose parents are deaf, whose siblings are deaf, they're just not used to interacting with hearing peers, and have signed, "I don't want to go with the hearing." ..." PE teacher, female, school for the deaf, interview 4

A PE teacher spoke of the need for equal right and inclusion for deaf kids and the important role sport has for establishing opportunity. One of the coaches also spoke of inclusion and there being no point in groups without it in the sporting context.

"Really, my response to why it is important to deaf people is exactly the same. I just think there should be an equal right. There is no more that is needed, but just, for deaf pupils, it is even more important that they have the opportunities to compete with others, be that those in their own deaf community or in the hearing community. At home, they don't necessarily live near any of their friends, so they might not get the opportunity at home to go and have a kick-about or to go and ride on their bikes because their parents are too scared that they are deaf and are going to get run over. Equally, they haven't the peer base at home. I suppose, in that sense, it's more important that we set up and establish opportunities for them to follow up. "– PE teacher, female, school for the deaf, interview 4

"You know, there'd be no point in the group, really, if there wasn't a whole inclusion. I mean, sometimes things are slightly different but that's only because we're catering for their needs so when we sign, it's because we cater for their needs but I don't ever try to make a big thing out of it. I just think working with young people with hearing loss is like working with any young people..., they can do anything and

*be anyone and - do you know what I mean?" – Coach, male,
interview 5*

One sports coach had been approached as a swimming instructor to see if they would do deaf swimming lessons. They didn't feel separate lessons were appropriate and inclusion was successful in their teaching methods. They make use of visual aids for all children and did not tend to use their voice, so the hearing loss did not affect their participation to the same degree it may in other sports.

"Because, sometimes - I mean we have been approached in the past to see if we would do deaf swimming lessons. And actually we don't feel like we need to as such, because they integrate really well within our class. And it might be that that child needs the flashcards, but actually one thing that we're taught as swimming teachers is not to use our voice"–

Coach, female, mainstream, interview 3

Other parents spoke of their child being included and not treated any differently. This was important to the parent and they felt they were being fair to both their child and their peers.

"And to be fair, his football coach that trains the team he's with now, he understands him, and he tries to do the right thing by him. He's not pampered, and he's not treated any different for having a disability, to anyone else, and I wouldn't – if that was happening, I wouldn't be happy, because it's a big world, and I don't think it's fair on him or any other child. So he's equally treated. "– Parent, female,

interview 8

There was a concern that deaf or hard of hearing children were not given the same opportunities within mainstream sport to compete and participate as their hearing peers.

“One of the really important things that coaches look for, I think, or people who are scouts, coaches, looking to develop footballers, is how good they are at following instructions from the coach, that you’ve got to be bang on, like if you want to progress, then you’ve got to do exactly what you’re told to do in training” – Parent, female, interview 7

There was also a sense of mainstream sport failing deaf children and mainstream sport itself being disadvantaged as it lost talent and opportunity.

“That’s one of the sad things, I think, about deaf kids and sport is that, you know, there’s just never going to be the expertise around in terms of the mainstream, to give kids the same sort of enjoyable experience, and I think that’s why so many deaf people will just end up turning to deaf sport, and therefore plump for a lower level of performance... and I think sometimes the most excluded children in deaf sports are the ones who can’t sign.” – Parent, male, interview 7

For some children who persevered there were stories of success in mainstream sport. One particularly talented footballer had been selected by local academies and had been selected for the school football team.

“So he’s in the school football team which is quite a coup, I think he’s the only deaf kid who’s been in the school football team because they’ve got a lot of children. “ – Parent, female, interview 4

A PE teacher discussed the desire for equality in sport in the mainstream setting but the practical aspects that can present a challenge. The deaf or hard of hearing children were included in the mainstream sessions but with adaptations. The adaptations were done in such a way that the child was not isolated, and it was not evident to the rest of the group why this change would have been made hence enabling inclusive sport.

“is very difficult because you don't really want to allow students to not take part in something and that's not our decision, really, to do that. That's my job, really, to make sure they're safe. However, there are some times when you do have to say, "We are going to play this. " We do have to adapt, i.e. then we arrange a free zone for them. Let's say for example if you're playing football: you might have your wingers and you might have your strikers in the middle, and the defenders. It might be that the game would have to - they would all have to pass to each of the four zones before they could score a goal and that's how we would make sure that everybody's included.” - PE teacher, female, mainstream, interview 2

A comment from an interview with a PE teacher was that children are capable of anything with the correct support.

“I think the students have the tools to join mainstream teams. It's whether the mainstream hearing teams have the openness to accept them in the way that this cricket team has.” – PE teacher, male, school for the deaf, interview 5

In summary, it is important for sport to be inclusive of deaf or hard of hearing children where it is safe to do so. However, there may be some circumstances where adaptations need to be made for them to participate. There may also be occasions where these adaptations are not possible as particular sports may be too dangerous. Parents have concerns as to how inclusive sport can be, but sports educators feel it is their responsibility to make sport inclusive wherever it is possible.

5.4.6 The emotional impact on children and the importance of parental support

A concern for emotive concepts such as equality, inclusion, exclusion, and socialisation make it unsurprising that feelings and emotions were a frequent

topic of conversation in the interviews. Some of the coaches reported that some children simply do not like sports.

“I do think children don’t like about playing sport, depends on their personality which it is not suitable to play sport, mostly girls think playing sport is not enjoyment” – Coach, male, deaf sport, interview 7

Several reasons why children dislike sports participation were reported. Weather was one aspect commonly reported by sports educators. They also reported that finding sport difficult can also cause children not to engage.

“Sport in general I would maybe say the weather depending on what the sport is. The cold, they tend to moan about it being cold... Also some people will just find sport hard. That can put them off it as well.” – Coach, male, mainstream, interview 6

During the interviews parental emotions relating to sports participation were discussed on several occasions. They reported a feeling of facing a battle to get their child involved and feeling like something was wrong if it was not hard for them to get their deaf or hard of hearing child involved in something.

“If it's not a battle, we think there's something wrong, now. That's become the norm. You know, we always feel like we have to challenge.” – Parent, female, interview 10

Prior negative experience of sport resulted in a parent of a deaf or hard of hearing child preventing their participation in sport. The parent had dealt with the feelings the child had gone through after being upset by a coach and wanted to protect their child from that experience in the future. They felt the best way to do that was to not engage with sport. The previous coach had not been deaf aware.

“There are some local ones, but I suppose to be fair it is probably more reluctance on the deaf awareness because of

our experience with the swimming coach; it's made me a bit more reluctant to approach, because I don't want him to get into it and then have to pull him out again.” – Parent, female, interview 5

Another parent touched on enabling and enacting their child to participate in sport by more direct communication and assertiveness with those responsible for delivering the sports session.

“...me having to man up and be a bit more firm when I'm having this conversation of “Look, you know, this is what he needs, are you able to accommodate?” before I actually get him into it.” – Parent, female, interview 5

Similarly, a parent reported their child's willingness to have a go at anything and they would not let their fear or emotion stop him from doing so.

“No, he will literally have a go at anything so there's nothing that he's found that he can't do yet and there's nothing that we would not want him to do.” – Parent, male, interview 2

Another parent spoke of their worry about their child participating in contact sports such as rugby, but they did not let this fear stop their child trying new and different sports.

“When he was in secondary school, I didn't really like the idea of him doing rugby, but I never stopped him. I was worried about the karate bit, and when they had to do spars and things, but I was fine in the end. I don't know, I think it was the idea of contact sports, but he never did much sparring anyway.” – Parent, female, interview 11

Other parents felt that a child's desire to take part in sport needed to be intrinsic. There was a suggestion that without this inner desire a child would not enjoy participation.

“I’ve always believed about sport and kids, is that kids motivation for sport has got to be intrinsic, so it’s got to come from their own personal desire to play the sport or want to succeed, rather than extrinsic motivation from me because I want him to do it or because I’m going to pay him or reward him for it.” – Parent, male, interview 7

Parents of children with cochlear implants appeared to be more fearful for their children participating in contact sports such as rugby and hockey. Parents of children with hearing aids and removable technology were slightly more relaxed about their participation in such sports. One parent reported worry about participation in boxing because their child had a cochlear implant. They went on to state they only allowed their child to participate in rugby because they felt the school PE teacher had the skills and expertise to look after the child properly and understand their needs.

“Boxing because of his cochlear implant. And I’m wary about rugby... I would be wary about him playing rugby because of his cochlear implant, maybe being tackled in a scrum and things like that...Because if there is a blow to the head and it does damage inside the cochlear implant, it’s different if it’s a hearing aid and the hearing aid gets broken. It could do internal damage to him” – Parent, female, interview 4

“No, he does do full contact rugby, even though he’s got cochlear implants, but I’ve reasoned with – my reasoning is, is that he only does it as part of PE, which is, you know, a few times a year, so I think he knows that he’s not allowed to – even though his PE teacher said he’s rapid and he’s a really, really good rugby player, he’s not going to be playing it.” – Parent, male, interview 7

"I am concerned sometimes that school sports, everybody is hearing, he's the only deaf child, is he going to get injured because he's not heard something? We were umming and ahhing with hockey" – Parent, female, interview 1

A PE teacher also reported the potential worry for them relating to deaf or hard of hearing children participating in some sports, again an issue highlighted for cochlear implant users.

"There needs to be a level of differentiation in there because of what it is safe for them to do and what they may or may not be able to do. Things like gymnastics their implants might get in the way. Generally with those who have got a level of hearing I don't find there to be any real issue." – PE teacher, female, mainstream, interview 1

Parents spoke of their child being bullied in mainstream sports. They also spoke of the damage this did to their child's confidence and how a bad experience in sport was impacting on the rest of their life. Others spoke of their children being happy and liking both deaf and mainstream sport.

"...there'll be some matches when he comes off and he is picked on, some children do say things, and it upsets him, because he is quite emotional that way. He wasn't confident at all, especially about sports, and that had affected everything. It affected home life, it affected school"

– Parent, male, interview 8

"Well we've been to deaf clubs and he has those friends...If I ask him if he "Likes sign or speaking?" he tells me he "likes both". I think at the moment he is very happy in either, he feels quite comfortable in both." – Parent, female, interview

In summary, parental emotion, worry and fear of their children having a negative experience in sport can affect deaf or hard of hearing children's

participation in sport. By ensuring that sports educators are aware of a deaf or hard of hearing child's needs parents will be reassured that their child will be safe during a sports session. Parents will also feel less worried about their child's participation and be more likely to encourage them to participate.

i. Parental support

Parents in this study spoke of encouraging their children into an active lifestyle and playing sports.

"Well, we've always encouraged both of them to play sport, and to be active. They are physically very active kids, they're physically very fit and healthy...And so they enjoy sport, they're good at it. We do some sport as a family, so we'll go off and play golf, both kids play golf. They play sports in terms of clubs. They go to a climbing club, they go snowboarding in a club." – Parent, male, interview 6

Sports educators also spoke of the impact a parent can have on a child's participation in sport. If parents are themselves active their children are more likely to be active outside of the school setting.

"I think that does reflect if they do exercise outside of school. If it's the norm as a family to go for a walk, to go swimming or to go to the park, then, it is more acceptable, but if it is the norm to stay at home, play computer games and not even venture into the garden, then, to run a cross-country course seems a massive challenge" – PE teacher, female, school for the deaf, interview 4.

One sports coach spoke of a 'missing link' in sports, particularly at primary school.

"The reason for that is that sport is doing a lot of work, schools are doing a lot of work, and sport and schools are actually working a lot together, but I think the missing cog in

that, especially at primary school, is the parents. There is that breakdown between the school and the sport area and that parent engagement. I think that's really where both schools and sport need to work harder to get that parent engagement and actually say, "It's good for your child to go and do physical activity." – Coach, female, mainstream, interview 2

One of the sports coaches also highlighted the importance of parental support for deaf or hard of hearing children and their engagement in sports.

"No, not really. The only thing – and this is a general thing that we come across in the special schools – is that parental support is an issue. Obviously, because they've got a disability, generally, the parents will want to take them everywhere and be with them. It's making sure that the parental support is there as much as possible" – Coach, female, deaf sport, interview 9

A parent spoke of their experience of difficulty in transporting their child to training sessions. Another parent shared their experience.

"Yes I'd be absolutely happy for him to go and do it, it's just getting him there that's usually the problem and consistently, because you wouldn't want to take him once and then not be able to go again for three months. If we are going to go I want them to go and do it properly" – Parent, female, interview 5

"No, because I think we would always make ourselves available. He's an only child. He had our undivided attention and if he wants to go somewhere then we'll do whatever is possible"- Parent, female, interview 2

One coach highlighted that parents may act as a barrier themselves because they see a lot of barriers their deaf or hard of hearing child may face when wanting to participate in sports.

“We see more and more barriers from parents, thinking that because they're disabled, they can't be involved. But obviously, if we can make it open and make them more aware that they can, obviously, we'll start to see more participation.” – Coach, female, deaf sport, interview 9

There were also reports of “pushy parents” being a problem for children’s participation in sport. There appears to be a balance between a parent being supportive enough to enable and enact their child’s participation and engagement, but not being so overbearing that their child loses any desire to participate in sport.

“I've noticed is some really pushy parents and the parents that want - they their child and they force that child to come swimming or whatever every week when the child actually isn't enjoying it...So by the time they get to choose kind of their sport and it's supposed to be a fun exciting opportunity to go into diving or water polo or whatever the kids are absolutely fed up because they've just been forced to do it, rather than actually enjoying it.” – - PE teacher, female, school for the deaf, interview 4

“The negative things I see about kids in sport is pushy parents. Parents putting their child down if they do something incorrectly or maybe not to the ability that the parent thinks they could. Just let them have fun, it is about them having fun. The more they can have fun the more likely they are to carry on doing the sport.” – Coach, male, mainstream, interview 6

Parental support can also be in the form of communication support at sports sessions for their deaf or hard of hearing child.

“If that child has got good parental support and they’re willing to engage with that club, so if I wanted him to go rock climbing, I engage with the club personally and say, “I want my kid to come down, he’s deaf, this is what’s in the way, this is what you have to do; do you think you can do it?” And you come across someone good, then yes, you’ve got a chance.” – Parent, male, interview 7

“My husband has always gone along and at the training sessions I used to be there on the sidelines, interpreting everything to him. But [his new club] were much more deaf aware and he could cope because they realised, they had him up at the front, they gave clear signals, he’s always allowed to lip read and they were very good and very proactive...” – Parent, female, interview 4

Another parent spoke of their desire for their child to gain independence. They were happy to support them into sport but felt at some stage something or someone else needed to be in place to aid their continued participation.

“I think we’ve got to a stage where people are very aware about access in terms of physical access into buildings and into sport but I think hearing loss is something that is never really considered. I think resources need to be made available to have communication support workers, not necessarily interpreters but just people that can support my child if he’s struggling to lip read or someone is struggling to get their point across.” – Parent, female, interview 2

Sports educators spoke of the need to engage with parents to enable more children to participate in their sports clubs. They also spoke of the role parents can play in getting children to become active.

"I would go through the parents. A lot of the school stuff I do literally a letter goes round to every child in their book bag. With some of them the child might tell mum or dad, "I want to do it." Mum or dad might just sign them up to do golf. It is a tough one, but most of the children I teach I have got them through the parents" – Coach, male, mainstream, interview 6

Some parents also spoke of the need for them to be confident to approach a club or team to ensure their child's needs were met so that they could participate fully. One parent mentioned the notion of a battle and *"something being wrong if it's easy"*.

"The barriers for children who are hearing-impaired getting into sport are quite significant, because as parents, unless you put your foot over the line, it's going to be very difficult. You might be lucky and find a deaf sports group of some description" – Parent, male, interview 6

"When I took him to football club, there were, I don't know, in his age group probably 40 children, and he was the only hearing-impaired child. He wouldn't go on the pitch, he couldn't communicate with other kids. The coaches couldn't communicate with him. It wasn't going to happen unless I became a coach, you know. So I became a football coach."
– Parent, male, interview 6

Some parents talked about their child accessing disability sports sessions. They also talked about confidence. Some parents felt that a confident deaf child would preferentially access mainstream sports rather than disability sports sessions.

"I think if [Name] was not as confident as he is, he would definitely be more suited to the disability sessions where there is a lot more awareness or it is smaller groups and

things like that. I have taken quite a few of our children from our deaf group there and you can see the difference.”

– Parent, female, interview 3

In summary, parental support for sports participation is important. Children who have supportive parents are may be more likely to participate in sports than those who do not. The interaction between parents and sports club and/or coach is important for enabling inclusive participation for deaf or hard of hearing children.

5.4.8 Training for sports educators is needed

It became apparent during the interviews that sports educators were either not aware of training opportunities to assist with communication with deaf or hard of hearing children or that this training was not available to them.

Some coaches had received some form of general disability training during their initial qualifications but nothing directly relating to deaf or hard of hearing children in sports. For the coaches that had received training the amount varied by type of sport. The majority of swimming coaches had received training to teach deaf or hard of hearing children.

“... it's not a huge part of the course... but it is covered and they've got to think about those things and decide how they could perhaps adapt. And then there's CPDs they can go on as well. So I've been on learning disabilities CPD and a physical disabilities CPD. And that physical one covered hearing loss, sight loss as well as loss of limb and stuff like that. – Coach, female, mainstream, interview 3

The same coach also reported the release of a “swimming CPD that’s just come out for deafness”. However, availability of the course was very limited with few being arranged so far. Other coaches were aware of training in workshop format from Sports Coach UK and Sport England. The workshops the coaches were discussing were aimed at general inclusion and were not

specific to involving deaf or hard of hearing individuals. Some parents reported that there was a lack of deaf awareness training available, particularly in the sporting context.

“The other one, again, not a massive amount of deaf awareness training. There doesn't appear to be a massive amount available, but I know it's there. But certainly in sports. There doesn't seem- I know there is stuff out there, but we've had coaches who have come for a specific HI tournament, or referees in particular, they don't have any appreciation of it.” –Parent, female, interview 9

Some parents and sports educators felt that training should also be on offer to officials within sports that deaf or hard of hearing children will compete in. There were reports of negative experiences in sport relating to breakdown in communication with referees.

*“In deaf football though when he plays for the Centre of Excellence and they employ referees to referee the matches, and they don't get enough training because they don't wave their flags often enough. They keep blasting the whistle, almost as if that's going to work for the fifth time....” –
Parent, male, interview 7*

“Yes. One was sort of- this was on Gaelic football, he fouled someone, the referee was talking to him, and he walked away, not realising he was being talked to. They ended up sending him off, because of a lack of- what do you call it- respect...And there was something similar in the football, where the referee didn't appreciate that he might not be able to hear him.” – Parent, male, interview 9

Sports educators suggested some items of training that would help them to enable, enact and engage deaf or hard of hearing children in sport. There is

little awareness around current available training and the profile of this needs to be raised to make it more accessible or more training needs to be offered.

“I think information should be available through a number of different media and means because everyone has a different learning style; so, websites, leaflets, booklets, books, workshops, online seminars that people can look at in their own time, and all the different ones. You hear less people moaning about too much communication and too much information than you do not enough” – Coach, male, mainstream, interview 1

“I would say needs to have deaf awareness in the coaching training course and also basic signing would be of help...this would hopefully help the coaches to encourage deaf children in taking any sports as it would show the Deaf children that the coaches are willing to support them in playing any sports, not brushing them aside” – Coach, male, deaf, interview 7

“There could be a course geared around, maybe, coaching deaf children. I'm sure there is one out there, but maybe, it could be a little bit more accessible. Being fully aware of it, as I say, I'm sure if I looked on the internet, etc., that there would be something out there.” – Coach, male, mainstream, interview 8

Time may be a big obstacle to accessing training for sports educators. PE teachers reported being extremely busy and that finding time in their schedule to undertake additional training would be difficult.

“A bit of both. I think a large part of negatives in the profession in general at the moment is just because of the amount of hours and the amount of things they are required to do...If training isn't directly relevant then they are not

going to use the time because they have got plenty of other things to use that time on.” -PE teacher, female, mainstream, interview 1

“Because time to try to get away and attend courses or seminars is quite difficult. So when you're in full-time coaching, it does prove difficult to attend these, I guess if someone was maybe doing it part-time or had a bit more time available, then definitely, seminars or conferences would be worthwhile.” -Coach, male, mainstream, interview 8

A PE teacher also suggested that there were few deaf and hard of hearing children in a mainstream school which may make provision of training difficult as there may be a low uptake. They also raised the issue of cost of training.

“I feel wider advertising of the training and a wider training provision is going to be of benefit. That is difficult from the point of view of people running the courses because these things all cost money. You are in a situation where as an area across the 23 primary and seven secondary that we cover as the School Sports Partnership. If in that group we have got six children who are hearing impaired then the likelihood is that we are only going to get three or four people on a course and it is not going to be cost effective to run. I think that is one of the biggest barriers “- PE teacher, female, mainstream, interview 1

Sports educators suggested useful alternatives to a formal course that they would be able to fit in around their current working schedules. They would not need to take blocks of time out from teaching or coaching if the training was in the format of a webinar, leaflet, short video etc.

“I would very much go down the online route really. A webinar would be good. You Tube videos would be fantastic

because they are available 24/7. Maybe a smartphone app as well could be quite good, I think that would maybe help the deaf people as well. Since the mobile phone has developed, originally a deaf person would never have a phone because they wouldn't be able to use it. Now they have all got them because they can do pretty much everything on them, it is a really useful tool for them. Some sort of app I think could appeal as well to people.” – Coach, male, mainstream, interview 5

“Leaflets are good because they are easily distributed, you can hand them out, they can take them away, they can read back to them. Then from that then perhaps you can have links or videos or interactive learning or that sort of thing.” – Parent, female, interview 3

“If there was some kind of way of a site that could tweet what's going on regionally for deaf sports... again, I suppose that comes down to your sports development officer, if they could have a blog or whatever of, “This event is on, that event is on.”” – Parent, female, interview 1

Some coaches were keen for a course encompassing sport and deaf awareness and did not report that allocating time for this was a problem. Some coaches were also passionate that those wishing to coach deaf or hard of hearing individuals should be proactive and seek out training for sports or communication.

“Any sort of course either a morning or a training day put on by England Sport or by a deaf group to help coaches work with deaf children. At the end of the day the coach needs to get off their bum and go and learn sign language really...if you don't learn sign language it is going to be very difficult

*to teach deaf children” – Coach, male, mainstream,
interview 5*

*“Seminars, as long as they were localised and easy to get to,
and obviously at convenient times, would be great. Because
when you are in the room with people, they may not teach
the same thing as you, but I think at the end of day,
regardless of what you are teaching, you use the same
methods whether you are teaching someone to ski down a
ski slope or kick football, other than the actual skill that you
are teaching yourself, the delivery of the teaching is similar.”*

– Coach, female, mainstream, interview 2

One PE teacher was particularly keen for freely accessible resources and felt most enthusiastic, conscientious teachers and coaches would access this to make their sessions accessible.

*“Personally if I knew there were online webinars, example
sessions and those sorts of things then I would certainly
access those as I think would most conscientious teachers
and coaches. Those sorts of easily accessible free online
access training, I think there would be a high take up on
that.” – PE teacher, male, mainstream, interview 1*

One parent suggested that sharing the experiences of deaf children involved in sport and gaining insight from them into what works and what does not work would be useful.

*“I think the experiences of older children saying this was
what was great and which was not so great would be really
helpful...If similar children could say, “We really enjoyed the
club but this was a problem”. Some children won't say
because they don't want their parents to stop taking them,
probably like I did with swimming, but to know that and to
kind of get a bit of an insight into, “Oh so that was a*

problem for them”, or they didn't want to go because of that.” – Parent, female, interview 5

Another parent suggested that current resources needed to be updated for sports educators to refer to. There was a suggestion that current resources can lead to coaches isolating the child.

“Probably just resources on deaf awareness, some sort of...Because I think, I don't know, the ones I've come across, it's like... They make it known. They don't mean to be, how can I put it, like, “Oh, I'll talk slower if that's okay,” and they do it in front of everybody. And the child doesn't feel like... Do you know what I mean? So, they're in the spotlight.” – Parent, female, interview 11

Some of the sports educators suggested visual means of education would be useful for them for both deaf awareness training and working with deaf children in the sports environment. A form of shadowing or observation appeared popular.

“I think PE is very visual, so to see someone delivering a session for deaf children would be the way forward” - PE teacher, female, school for the deaf, interview 4
“Maybe also observing some deaf coaches. I've had a lot of deaf coaches visit me. There's one particular coach who's deaf who's come in and done football coaching. She's outstanding to watch. I've got a lot of ideas from her about good ways to deliver. Yes, I just think there isn't anything out there for deaf coaches, and perhaps there needs to be.” – PE teacher, female, school for the deaf, interview 5

In summary, more training is needed for both sports educators and officials involved with deaf or hard of hearing children in sport. There is little existing training within sports educators initial sports training courses and the addition of this resource was seen as useful by both parents and sports

educators. Some sports educators also expressed difficulty in accessing training given the small number of deaf or hard of hearing children they may encounter. A free form of training may help to counteract the challenge of justifying funding for this and make sport more accessible to all.

5.5 DISCUSSION

This study sought to better understand the experiences of the parents and sports educators of deaf or hard of hearing children in relation to their participation in sport. It is evident that from the perspectives of participants in this study that children face barriers to participation in sports, and that deaf or hard of hearing children face additional barriers. The reported themes included the need for adaptation, the influence of the sports educator on participation, communication experiences and equality in the sport setting, the emotional impact on children and the importance of parental support and training for sports educators.

Data saturation was considered as being reached for this study for parents. There is a suggestion that 12 interviews will result in data saturation for qualitative work (Guest, Bunce and Johnson, 2006), or 6-12 for particularly hard to reach groups (Baker and Edwards, 2012). Data saturation was reached after 11 parent interviews within this study as findings were being repeated and no new codes or themes were being identified in later interviews. However, for the sports educators there was some variation in barriers and facilitators highlighted by PE teachers and coaches. This can be attributed to the different settings in which they operate. PE sessions are compulsory for pupils and PE teachers operate a different setting to that of coaches outside of school. PE teachers are salaried to teach sport to children whilst some coaches some are voluntary and others are salaried. As such, viewpoints may differ. Across sports educators, new findings were emerging even in the later interviews. More interviews with this group may have added to the dataset but they were difficult to reach and it was difficult to engage them to participate in the study. PE teachers were particularly busy and keen

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to focus on delivery of the curriculum, with some declining interview due to a lack of time.

This study suggests adaptations by both deaf and hard of hearing children, and the adults they interact with in the sports environment, may be needed.

This is to enable inclusion in sport for deaf or hard of hearing children.

Inclusion is important if we are to address the social model of disability as inclusion is a right for all. Inclusion in sport is important given the benefits of participation discussed in Chapter 2, and that inclusion in sport focuses on participation by those with disability once an opportunity has been secured (Kiuppis, 2018). This is particularly important given that those with disability report poorer experiences when participating in sports compared to their non-disabled peers (Stevenson, 2009).

Barriers to participation in sport for those with disability include a lack of awareness and understanding for involvement in sport, a lack of opportunity to take part and lack of access to facilities due to physical barriers along with limited information and access to resources (DePauw and Gavron, 2005). For deaf or hard of hearing children, similar barriers were identified including a need for adaptation of either the sport or sporting environment and a lack of deaf awareness. Additional barriers identified by parents and sports educators were linked to education, communication, and the emotional aspects of sports participation for those children who are deaf or hard of hearing. A lack of training for educators leads to a lack of understanding of disability and an inability to encourage informed inclusion, of particular importance for deaf children is the lack of deaf awareness. A lack of opportunity and a lack of access are directly linked to the social model of disability where society is seen as contributing to the disability. Without appropriate facilities for deaf or hard of hearing children and appropriate opportunities then these children will not be included in the sports environment and the sports environment is contributing to their disability. If we can address these barriers we can facilitate inclusion for deaf or hard of

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hearing children and reduce the disability they are experiencing according to the social model as society is able to put actions in place to assist with inclusion.

For deaf or hard of hearing children it is important for a sports educator to be able to identify signs that a child may be unable to hear instructions and to adapt accordingly, especially given that a child may not wish to divulge this information for fear of negative judgement by their peers. A child may be perceived as 'naughty' if they are not responding to auditory instructions, but this may signal an adaptation is needed for the child (Reich and Lavay, 2009). This adaptation can be linked to the social model of disability whereby they can facilitate inclusion. Some practical adaptations by the sports educator, such as demonstrations and use of visual aids, can help facilitate inclusion. The children themselves may adapt by adjusting their position to facilitate lip reading and better access instructions or they may ask their peers (as reported in Chapter 4). Unlike for physically disabled individuals the adaptations needed to include those who are deaf or hard of hearing are perhaps less costly and more easily implemented given that physical access to the sporting environment is unlikely to be an issue.

Previous research has shown that sports educators can influence children's participation in sport (Olivares and Cossio-bola, 2015). A key aspect of enabling sports participation are the 'gatekeepers', identified as the sports educators within this study. These 'gatekeepers' control access and opportunity within the sports environment and can facilitate inclusion for deaf or hard of hearing children. Early experiences within PE are key with sports educators playing a vital role in children's future participation (Kirk, 2005). This study identified sports educators received limited training during their initial training courses to enable them to effectively teach sport to deaf or hard of hearing children. There was a call from educators for more accessible training to enable them to engage this group of children effectively and a need for training for officials was also expressed. This could be fulfilled

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by local governing bodies or by those delivering the initial training courses. An initial negative experience was shown in the study to discourage some deaf or hard of hearing children from participating in the future, something shown for all children within the literature (Kirk, 2005). The provision of training for educators this will help remove barriers to sports participation caused by the environment for deaf or hard of hearing children, which helps to address issues identified in the social model of disability and encourage inclusion.

Communication difficulties were identified by adults within this study as a salient barrier to participation in sports and in the wider literature has been linked to social isolation (Luckner and Muir, 2001; Kurková, Válková and Scheetz, 2011). It should be noted that the studies discussed here are not based within the UK. This thesis presents the only work relating to participation in sport for deaf or hard of hearing children in the UK and studies based outside of the UK may be contextually different. Parents within this study identified communication with teammates as a challenge for their deaf or hard of hearing children, and reported the mainstream sports environment as a challenge for their children because of the interaction with hearing peers. The literature also shows communication challenges with hearing children for deaf or hard of hearing children (Martin and Bat-Chava, 2003; Bat-Chava, Martin and Kosciw, 2005; Kurková, Válková and Scheetz, 2011). Parents reported within the study the frustration their deaf or hard of hearing child experiences due to difficulty with communication both in terms of the environment and their hearing teammates. This frustration could be eased by provision of additional support for those who are deaf or hard of hearing as discussed by both parents and educators. Developing friendships and communication adaptation by the deaf or hard of hearing child may aid them in participation and has been shown to be important in their everyday life (Luckner and Muir, 2001) and key to breaking down barriers associated with the social model of disability. Encouraging this and assisting with

participation may improve deaf or hard of hearing children's confidence with their peers (Findlay and Coplan, 2008), and in turn encourage further sports participation.

This study has identified a potential lack of equality in sport for deaf children. Deafness is a hidden disability, and previous research has shown that children with disability are less active, and face difficulty accessing sports (Longmuir and Bar-Or, 2000; Murphy and Carbone, 2008; Shields, Synnot and Barr, 2012). This study suggests that deaf or hard of hearing children can also face difficulty when wishing to access sports, but the barriers they face differ to those faced by physically disabled children. For deaf or hard of hearing children in the mainstream environment there are increased opportunities for interaction with their hearing peers but alongside this is a risk of isolation, and further communication challenges (Martin and Bat-Chava, 2003). This is important given that in the UK 78% of school-aged deaf children attend mainstream schools (Consortium for Research in Deaf Education, 2016). There is a requirement in the PE environment for inclusion although on the whole disabled children are not exposed to the same range of sports as their non-disabled peer group (Sport England, 2000; Thomas and Smith, 2009; Shields and Synnot, 2016). This difference may be due to a lack of PE teacher knowledge around disability inclusion, including deaf or hard of hearing children (Thomas and Smith, 2009).

Previous research has shown that parents can have a large impact on their children's participation in sport and physical activity (Griffith *et al.*, 2007; Olivares and Cossio-bola, 2015). Parents are important for encouraging and supporting participation as they can be an active influence in overcoming some of the barriers deaf or hard of hearing children face, including providing a channel for communication and providing transport, funding, etc. for participation. Supportive parents provide communication support for their child within the sports context but parents in this study shared their concerns over the impact this has on their child's independence. Parents who provide

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encouragement and support help their child to access sport (Weiss *et al.*, 2004). Shields & Synnot (2016) investigated perceived barriers and facilitators to participation in physical activity for children with disability and identified family support as integral to participation in physical activity.

Additional communication support from sports providers or the 'gatekeepers' would enable deaf or hard of hearing children to participate in the sporting environment and to counteract the exclusion that children experience. This has also been identified in other studies on supporting disabled children into physical activity (Shields, Synnot and Barr, 2012). However, the provision of additional support was reported within this study as being costly. It is important for sports educators and sports providers to consider the communication needs of deaf or hard of hearing children especially given parental reports of 'deafness as a hidden disability' and the need for equal rights for the deaf or hard of hearing. Children with parents willing to travel and accommodate their children's sports clubs enable their children to gain a diverse experience of sports participation.

When parental support is lacking this can reinforce the barriers from society and children may not experience the support that need to overcome these barriers for inclusion. Parents who are inactive may influence their children to also be inactive, with the mother's physical activity being of particular importance (Griffith 2007). This has also been identified with deaf children with their level of physical fitness being linked to parental physical activity (Ellis, Lieberman 2014). Sports educators reported 'pushy parents' as a barrier to participation in this study. Parent's forcing their children into a sport and not allowing the child to learn and discover themselves were reported to discourage sports such as swimming and football. Overly competitive parents were also cited as having an impact on their child's desire to participate in sport. It is important to recognise the fine balance between parent as an enabler and parent as a barrier. There is also the possibility that a coach's perception of a parent may also act as a barrier. Particularly for

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deaf or hard of hearing children where the parent may need to be more involved to enable communication. For deaf or hard of hearing children parental involvement is extremely beneficial and can enable their participation. In this study parents identified a positive change in their child's confidence gained through sports participation.

Profoundly deaf children do not have auditory feedback during their learning and regulation of motor skills nor do they have auditory feedback from their own movements (Hartman, Houwen and Visscher, 2011). Visual cues are particularly important for a deaf or hard of hearing child and demonstrations and aids to enhance their participation (Reich and Lavay, 2009). Amongst the coaches and parents was the consensus that *"The biggest barrier is going to be the communication side of it"*. Some of the more experienced coaches and PE teachers felt that coaching a deaf or hard of hearing child was no different to coaching any other individual, *"the principles of sport are the same for all"*. The sports educators within this study reported a need for further training to assist with inclusion of deaf or hard of hearing children within sport.

The adaptation and provision needs to be both practical to allow integration of changes and adaptations, and conceptual to allow a deeper understanding of need and how to adapt, to enable coaches to generate practical solutions during delivery of a sports session. By educating those delivering sports to deaf or hard of hearing children this will enable them to not only adapt their sessions for inclusion but to understand how to include deaf or hard of hearing children and how to spot difficulties a deaf or hard of hearing child may face. Provision of this educational support is needed to enable those delivering sports to deaf or hard of hearing children to access training and raise awareness of training opportunities for working with this group. By addressing this issue a step would be taken towards overcoming barriers associated with the social model of disability for these children.

5.6 STRENGTHS AND WEAKNESSES OF THE STUDY

This research study was accessible to all participants, deaf or hearing. By offering face-to-face, telephone, email, or messenger interviews the study was inclusive. This is something of great importance given the focus of the study. This allowed a fuller and more representative picture to be built within the study.

I experienced recruitment difficulties during this study. The most straightforward group to recruit to the study was parents of deaf or hard of hearing children. There is a risk that those wanting to participate in the study did so because they had specific views about participation in sport to share that those not coming forward in the study may disagree with. However, parents were recruited from different locations in the United Kingdom with varied backgrounds. Some were working full time, others were homemakers, some were volunteers and others were very active within deaf rights. This gave a varied sample with a range of viewpoints which are an asset to this study as they give a rich picture of the current state of participation for deaf or hard of hearing children from a parental perspective. It would have been useful to have had parents from more varied ethnic backgrounds as most participants were white British. The sports coaches had varied experience of coaching sessions where all participants were deaf or hard of hearing to coaching sessions where one child in the group was deaf or hard of hearing. Some coaches were themselves deaf or hard of hearing and there was a mix of male and female coaches. It may have been useful to interview coaches who led specific disability groups although it may have been difficult to isolate the potential challenges of coaching deaf or hard of hearing children as disability groups tend to focus more on physical disability. Coaches appeared keen to participate in the study although two male coaches expressed an interest in participating in the study but did not reply to correspondence relating to the study. There was great difficulty in recruiting PE teachers to the study and so there may not be as great a range of experiences

represented as there were with the other participants. PE teachers seem to be extremely busy with little time to contribute to this sort of study. I was unable to offer an incentive for participating other than sharing the results of the study with participants. Perhaps in future studies of this nature it would be worth offering some form of voucher or equipment for the schools of the participating PE teachers. None of the participating PE teachers were themselves deaf which would have provided an additional perspective and dimension to the richness of the available data. A PE teacher who is deaf would be able to provide a unique perspective into delivery of sport to deaf or hard of hearing children and perhaps recount some of their own experiences of participating in sports, the difficulties, the benefits and what they had learned from this. A deaf perspective was offered for parents and sports coaches participating in the study. Being able to interview more deaf or hard of hearing coaches and parents would have offered more diverse views for the study, for example interviewing more profoundly deaf parents may have highlighted communication techniques they use with deaf or hard of hearing children which could be used or adapted by hearing coaches. That said, this study and thesis are particularly interested in integration in mainstream sport for deaf or hard of hearing children given the shortage of funding for deaf specific sports sessions. It is important to understand how to ensure that sessions are fully inclusive for deaf or hard of hearing children and the unique barriers they may face relating to participation.

5.7 REFLECTIONS

Given that the study involving focus groups (Chapter 4) with deaf or hard of hearing children was conducted prior to this study it is possible that some of the preconceived ideas from that study influenced some of the analyses in this interview study.

It is also important to recognise that being a sports coach and player myself may have influenced some of the items identified in the analysis. There is a possibility that I may have considered sports coaches favourably given my

background as a sports coach. It may have been easier to talk to and recruit coaches given that I understand the perspective of a volunteer and the pressures they face. However, I also understand the challenges PE teachers face and the time constraints they face for both training and participating in research. A large portion of coaches are volunteers and outcomes of their coaching aren't linked with a salary whilst for PE teachers they have targets to meet which directly impact on their livelihood and their priorities may differ.

I understand some of the difficulty sports educators' face when liaising with parents about their children, but I also understand the impact of parents who are not as involved and do not support their children in sport. I am also a parent, but my child is not yet involved in sport. Whilst I understand the desire to protect one's own child I do not yet understand the emotional impact on my own child from a personal perspective. However, this may also be an advantage as I have a unique insight into the sporting world which can help me to identify and relate to certain topics that may be discussed in the study and to delve deeper to gain further information from participants. I am also positive about children's participation in sport which may have influenced my approach to analysis with an eye for the positives of participation. However, this did not influence my identification of barriers as this is what was shared by parents and sports educators alike. Being a female may have influenced more female parents to participate. However, it is also likely that the female is the primary care giver and as such had more availability to discuss their child's experiences with me. Some parents had discussed the research prior to my interviews and as such the mothers were able to share some of the fathers perspectives. It may have been useful to have interviewed both parents of a child to see if there were differing viewpoints within a family but this was not practical in this study but should be considered in the future.

A specific piece of recording equipment was purchased for use in the telephone interviews. This connected to the telephone and the Dictaphone.

This worked well and most recordings were clear. Initial tests were done using a Dictaphone and a telephone on speakerphone but the recordings were not as clear. In some instances, those participating in the interviews had poor quality mobile phone signal. It may have been worth asking for the interview to be conducted on a landline telephone as the researcher was calling the participant.

5.8 SUMMARY AND CLOSING COMMENTS

The message from the adults interviewed in this study show that deaf or hard of hearing children should participate in sport but they may face barriers to doing so. Some sports educators felt that teaching sport to deaf children was no different to teaching hearing children but that visual demonstrations and a slight adaptation in communication was required. Parents felt that their children may not have the same opportunities for participating in sport as hearing children as there is a breakdown in communication relating to accessible sports opportunities.

With a supportive network or parents willing to provide sign language support, educators willing to access deaf awareness training and greater provision of training deaf and hard of hearing children will have more opportunities to access sport. The focus should be taken away from the deaf or hard of hearing children and place on the adults and 'gatekeepers' involved in enabling their participation in sports to facilitate inclusion in the sporting context.

CHAPTER 6. SPORTS PARTICIPATION FOR DEAF OR HARD OF HEARING CHILDREN: A SYNTHESIS

6.1 INTRODUCTION

Summary of findings from individual studies

Thus far this thesis has consisted of independent studies with a common theme. These studies included a systematic review of the barriers to participation in sport, focus groups with deaf or hard of hearing children identifying barriers and facilitators to their sports participation, and qualitative semi-structured interviews with parents and sports educators on participation in sports for deaf or hard of hearing children. All studies made use of qualitative methods, but each was conducted independently to prioritise distinct voices. Deaf or hard of hearing children have a different perspective to that of their parents or sports educators. By conducting these studies separately, the specific barriers and facilitators for these groups were highlighted.

In Chapter 3 the general barriers to participation in sport for children were identified through a systematic review. The barriers identified from quantitative studies included in this review were 'time', 'cost', 'opportunity/accessibility' and 'friends'. The barriers identified from qualitative studies included 'politics', 'lack of enjoyment', 'feeling self-conscious', 'lack of interest', 'others too competitive', 'conformity', 'bullying', 'lack of voice and choice', 'lack of motor skills' and 'dislike of strangers', and related mostly to emotion and lived experience. It is of interest for this thesis that a 'lack of enjoyment', 'lack of interest' and 'bullying' were identified as barriers to participation in sport in general as these are also likely barriers for deaf or hard of hearing children. These can be related to the social context and environment of sport but for deaf or hard of hearing children these may be linked to communication. The barriers identified in this systematic review were generalised to all children. This enabled the identification of barriers

which are specific or more salient to deaf or hard of hearing children's participation in sports. The barriers to participation in sport for deaf and hard of hearing children are likely to be in addition to those faced by all children.

In Chapter 4 deaf and hard of hearing children shared their experiences of sports and this information was ascertained through focus groups. Children shared the impact PE teachers and coaches had on their participation experience, interaction with other children, use of hearing technology, family influence, what they liked about taking part in sport and disliked about participating in sport. Those who had a generally positive experience of sport were more likely to express desire to continue participation, whilst those with negative experiences were likely to disengage with sport altogether or avoid certain sports. Barriers such as 'lack of deaf awareness' and 'communication issues' were identified by deaf or hard of hearing children in this study. The 'lack of deaf awareness' and 'communication issues' were considered alongside the social model of disability and how these impacted on inclusion for these children.

In Chapter 5 sports educators and parents of deaf or hard of hearing children shared their experiences. Common themes discussed by adults included 'adaptation', 'coach/teacher/educator influence', 'communication', 'equality in sport', 'feelings/emotions', 'parental support' and 'training for sports educators'. A key message from this chapter from adults was that deaf or hard of hearing children should participate in sport but they may face barriers to doing so. Parents felt that their children might not have the same opportunities for participating in sport (and inclusion) as hearing children as there is a breakdown in communication relating to accessible sports opportunities. This highlights societies impact on disability and how exclusion was occurring. Communication was also identified by deaf or hard of hearing children as a barrier to participation and inclusion in sports and the impact this has on inclusion. A lack of deaf awareness was also identified as a barrier

to participation by parents and its relation to fears for their child's safety and this was also recognised by coaches.

6.1.2 Synthesising evidence

Qualitative findings can be hard to interpret and to access for those implementing change in relation to these findings. Rather, an overall picture of the findings across studies may be required rather than individual snapshots of key areas. A synthesis approach can fulfil this requirement by providing an overview, in this case of the barriers and facilitators to participation in sport for deaf or hard of hearing children from a shared perspective. Whereas in previous chapters data were considered independently of the broader agenda of the thesis, in this chapter I synthesise the evidence and conclude from the broadest perspective, on future measures and initiatives for the involvement of deaf or hard of hearing children in sport. This chapter makes use of a synthesis approach used in mixed methods research.

The use of a synthesis here is appropriate as the individual studies had their own distinct findings reflecting the distinct voices offered within each. The synthesis approach aids clarification of agreement and resolution of conflict between the findings from the various studies in this thesis. This generates an insight fully informed by multiple perspectives to generate new knowledge.

In mixed methods research both qualitative or quantitative approaches are used (Brannen, 2005; Creswell and Plano Clark, 2011; Silverman, 2013). It can also involve working with different types of data and has been referred to as multi-strategy research (Bryman, 2015). This approach can also be used to extract different aspects of a phenomenon (Silverman, 2013). An approach involving a mixed methods synthesis here is beneficial as mixed methods encourage an individual to 'think outside of the box' (Brannen, 2005; Creswell and Plano Clark, 2011). Here I draw upon a more formalised world of

systematic reviews and synthesis to make explicit the decisions made in prioritising and linking data.

A key approach comes from Walsh & Downe (2005) and involves framing the synthesis with an appropriate research question, and a correct scope for the subject matter, like that of a systematic review. If the scope is too broad, the findings from the synthesis may be too large and if the scope is too narrow, then there may be no addition to furthering knowledge. A decision must be made on what to include in the synthesis and how to compare and contrast results, e.g. using tabulation and comparison (Walsh and Downe, 2005).

I aim to connect, mix & link the findings in this thesis to offer a single, coherent, multi-stakeholder informed assessment of participation in sport, to inform future strategies. The method chosen allows both critique and evaluation of prior research and enables the creation or affirmation of theory beyond the level that could be ascertained in an individual study (Walsh and Downe, 2005). I will consider the primary results from each chapter with equal weighting and map them onto a series of statements summarising the work in this thesis. This synthesises the understanding generated from the studies individually and addresses any inconsistencies. This allows the reinforcement of key messages relating to the different perspectives gathered prior to the synthesis. This synthesis is important as suggestions made by deaf or hard of hearing children could be implemented in the sporting context but there would be little impact if not supported by parents and sports educators. This synthesis was informed by the social model of disability whereby an informed approach to the inclusion of deaf or hard of hearing children in sports is shown.

6.2 METHODS

The model for synthesis used here was adapted from Walsh & Downe (2005), who offer a transparent systematic framework for the synthesis of qualitative data.

6.2.1 Analytic technique

This synthesis connected, mixed and linked findings from the different primary data in this thesis. All carried an equal weighting during this synthesis.

ii. Extracting results / primary data

The first stage in the synthesis involved extracting the data from the primary studies. After review of the primary data summary statements were created from Chapter 3 systematic review, Chapter 4 focus groups and Chapter 5 interviews. These statements were inputted into excel and colour coded for clarity so that the sources of the data were easily identifiable. This is an important preservation process during this synthesis given the varying populations involved in the different studies. The next stage in the process was to determine how the statements might be related, and to compare and contrast these statements.

iii. Reciprocal translation

This reciprocal translation involved sorting the statements into categories loosely based around a theme, for example 'communication' or 'adaptation'. The statements which contrasted within the grouping were starred (*) to make it clear when analysing the results statements which were considered similar and which were considered different in their context. This step was key given the importance of contrasting statements to a synthesis (Walsh and Downe, 2005).

The table of statements was then reviewed by two researchers (SS and DH) to check for agreements, i.e. findings that were common to different studies (Appendix 12 gives full table). A consensus meeting was held with two researchers (SS and DH) and the groupings were discussed along with the appropriateness of the groupings and revised accordingly. The groupings were then compiled into a second series of statements showing the comparable and contrasting statements relating to the same topic. These

were then reviewed by a third researcher (PL) independent of the analysis. The researchers ensured the preservation of meaning from the primary results so that the synthesis was a true representation of the data within this thesis.

iv. Development of final statements

Once the summary results statements were agreed, analysis for the synthesis was undertaken. The first step in the analysis involved colour coding the statements and grouping the statements into categories such as 'communication', 'parents' and 'adaptations'. Colour coding the statements highlights which study the information has been taken from which is useful for the compare and contrast element of this synthesis. The grouped statements were then reviewed by two researchers and contrasting statements were starred (*). This initial categorisation was discussed at a consensus meeting and the statements were grouped into the following themes; 'participation', 'resource', 'adaptations', 'family support', 'safety', 'with peers', 'misunderstanding/miscommunication', 'sports environment', 'deaf awareness', 'time', 'motivation', 'ability', 'socialisation', 'practical barriers', 'education', 'cost', 'stereotype', 'prejudice', and 'voice'. A set of statements was then compiled from these groupings (Table 6.0). Statements were then reviewed by the researchers for accuracy against the original results statements, and to check that the meaning had not been lost or misinterpreted from the previous studies.

6.3 RESULTS AND DISCUSSION

Previous research has shown the physical and mental health benefits of participation in sport. Sport offers an opportunity for added socialisation and interaction which can help to develop children's confidence both within and outside of the sporting context. Participation offers multiple benefits including improvement in academic grades, reduction of shyness, and stress relief. Previous research also identified age, gender, resources available, and family setting as key influences on participation in sport. The synthesis in this

Chapter reinforces some of these points, offers context and detail for others, but represents contrasting findings for some elements.

The following section highlights the statements from the synthesis. Each set of conclusions is grouped under a theme heading.

Table 6.0: Synthesis summary statements for all studies included in the synthesis

Conclusion	Categorisation	Statement
1	Participation	Parents report communication difficulties act as a barrier to their deaf or hard of hearing child's participation in swimming
2	Resource	Additional resource is needed to enable deaf children to participate in sport, although some parents do not report any difficulties in accessing sports for their child and report clubs being willing to adapt
3	Adaptations	Adaptation of communication methods helps to facilitate participation in sport for deaf children
4	Family Support	Supportive families encourage participation in sport for deaf children but unsupportive parents act as a barrier to participation in sport
5	Safety	Parents report safety concerns as a barrier to them allowing their deaf child to participate in sport and deaf children reported fear of injury and of damaging their hearing technology
6	With Peers	Deaf children participate in sport to interact with their peers and their friend's activity choices and a desire for acceptance by hearing peers influences their participation choices
7	Misunderstanding/ Miscommunication	Parents and children report missing instructions being interpreted as misbehaviour due to misunderstanding for deaf children
8	Sports Environment	The sports environment creates difficulties for deaf children due to long distance or extreme echo, however deaf children report exposure to the hearing environment as a reason for participation in sport
9	Deaf Awareness	Lack of deaf awareness from sports educators and lack of training for deaf awareness in the sporting context acts as a barrier to participation for deaf children
10	Time	Children report a lack of time as a barrier to participation
11	Motivation	Adults and children report a lack of intrinsic motivation to participate in sport and a lack of enjoyment as a barrier to participation
12	Ability	Children who are good at sport and have the appropriate skills are more likely to participate whilst deaf children may lack confidence in their own ability and fear embarrassment
13	Socialisation	Deaf children reported socialisation as a facilitator to participation in sport but negative experiences discouraged participation, with some deaf children preferring individual sports
14	Practical Barriers	Children in general report a lack of choice as a barrier to participation whilst deaf children and their parents report practical barriers related to their hearing loss
15	Education	Sports educators identified that coaching principles are the same for all children but they were worried about making mistakes with deaf children e.g. forgetting to look at children
16	Cost	Children and parents report cost of participation in sport as a barrier to participation and parents of deaf children report the increased cost of private sessions as a barrier to participation
17	Stereotype	Children in general report conforming to stereotypes including gender stereotypes and boy's domination of space as barriers to participation in sport
18	Preconceived Ideas	Preconceived ideas affect deaf children due to a hidden disability resulting in a lack of inclusion
19	Voice	Children report a lack of voice as a reason for non-participation

6.3.1 Internal (personal) barriers

This synthesis identified multiple personal barriers to participation in sport for deaf or hard of hearing children. This included prominent barriers related to (1) socialisation, (2) sporting preference (individual or team), (3) lack of intrinsic motivation, and (4) sporting ability, and (5) confidence.

Socialisation: was identified as a common and important categorisation within this synthesis. Deaf children participate in sport to interact with their hearing and deaf peers (Conclusion 6). Their friend's activity choices can influence their own participation. The literature shows that 'developing new social networks' act as a motivator for children's participation in sport (Flintoff and Scraton, 2001). Some children shared their desire to participate in mainstream sport for the 'challenge' and to 'make friends'. Peer support also acts as motivation for children to participate in sport (Coakley and White, 1992; Luckner and Muir, 2001), also identified in this synthesis (Conclusion 6). Children involved in sports participation have been shown to have improved confidence with their peers (Luckner and Muir, 2001; Allender, Cowburn and Foster, 2006). For boys the most effective way to achieve friendships with hearing peers was being good at sports. Friendships play an important role for deaf or hard of hearing children in their support in everyday life (Luckner and Muir, 2001). They also play a role in supporting inclusion and helping to overcome societal barriers linked to disability within the social model.

Deaf or hard of hearing children reported socialisation as a facilitator to their participation in sport but negative experiences discouraged their participation (Conclusion 13). Negative experiences have also been shown to affect those participating in sport with a disability (Shields, Synnot and Barr, 2012) and without a disability (Somerset and Hoare, 2018). The literature has shown for those with intellectual disability that they are less likely to have a peer to be physically active with and may find learning the physical activity more challenging (Stanish *et al.*, 2016). The latter may also affect deaf or hard of hearing children as they may have difficulty accessing the environment

through difficulty with communication. This has been discussed frequently throughout this thesis in relation to the social model of disability as deaf or hard of hearing children may feel isolated and disabled by the sports environment, this can be seen in data from Chapter 4 and from Conclusion 1 in this synthesis.

Participating in sports provides an opportunity for socialisation and interaction that may otherwise not be experienced for children. For deaf or hard of hearing children friendships can play a key role in their inclusion with their peers and in society (Luckner and Muir, 2001). Participation in sports has been shown to improve children's confidence in their interaction with their peers (Findlay and Coplan, 2008). Participation in sport has also been shown to help children and adolescents with emotional self-efficacy (Donaldson and Ronana, 2006; Valois *et al.*, 2008). When participating in sport a child's overall health has been evidenced to improve with a reduction in body fat and pulse (Felfe, Lechner and Steinmayr, 2016). This was identified alongside an improvement in academic performance and behaviour and a reduction in problems with peers (Valois *et al.*, 2008; Snyder *et al.*, 2010; Felfe, Lechner and Steinmayr, 2016).

Given the communication difficulties children may face daily, the sports environment offers deaf or hard of hearing children a new setting in which they can interact with their peers. The same can be said for all children participating in sport, as one of sports benefits as discussed in Chapter 2 is the offering for interaction with individuals from various backgrounds. The sports environment offers an arena for formation of friendship, improvement of self-esteem and a reduction in shyness and development of initiative. In a review of qualitative studies Allender and colleagues (2006) highlighted a potential link between improved confidence with peers and sports participation regardless of ability. Whilst a causal link cannot be identified from a qualitative study, the frequent reporting of confidence and peer relationship alongside sports participation may suggest some form of

relationship being present. Given that disability can be isolating as evidenced within the social model of disability then the impact of sport for those with disability can encourage social inclusion both within and outside of the sporting environment.

Sporting preferences: were also a common barrier. Preference for individual sports, were reported by many children, parents, and coaches. Some deaf or hard of hearing children expressed a desire to participate in team sports because of the challenge this presents both physically and skilfully. Children lacking motor skills (Strong *et al.*, 2005; Hartman, Houwen and Visscher, 2011; Khan *et al.*, 2012) or confidence (Findlay and Coplan, 2008) are perhaps more likely to choose individual sport because they perceive the associated pressures from peers or competition as being lesser. Deaf or hard of hearing children's preferences appear to differ from that of those with disability as up to 90% of disabled people prefer participation as part of a team, according to the EFDS (English Federation of Disability Sport, 2013). Further research into this area is needed to identify the social interactions of deaf children and their peers in the sports environment as well as how the children themselves feel about this and its impact on sports participation. Given the evidence in the literature highlighting the importance of sports participation for development of life skills such as initiative, managerial skills, conflict resolution, dealing with criticism, loyalty, empathy, and team ethic (Hansen, Larson and Dworkin, 2003), it is important to understand the nature of social interactions in this environment for deaf or hard of hearing children, especially given the need for equality in the sport setting and the impact society has on disability according to the social model of disability.

Lack of intrinsic motivation: was an important barrier to participation in sport (Conclusion 11 & 12). Intrinsic motivation may be influenced by perceived barriers (Papacharisis and Goudas, 2003) and may also be impacted by ability, isolation, and a lack of enjoyment or appropriate space (Stellino and Sinclair, 2008). By recognising and reducing these barriers future research and

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practice may have a positive impact on intrinsic motivation. A study of 390 sports students investigating motivation for participation in sport in Slovenia, Germany and Croatia evidenced various motivations for participation (Kondric *et al.*, 2013). These included skill development and competition, achievement, team atmosphere, friendship, fun and energy release were key motivators for participation (Kondric *et al.*, 2013). These motivations were also shared by deaf or hard of hearing children in this thesis.

Sporting ability: alongside competition was shared as both barriers and motivators for participation by deaf or hard of hearing children. Children who are good at sport and have the appropriate skills are more likely to participate in sport whilst deaf children may lack confidence in their own ability and fear embarrassment. The literature has shown that this particularly affects boys. A lack of skill, both social and physical, has been identified as a barrier to participation for those with disability (Shields, Synnot and Barr, 2012). Difficulty with learning activities was also identified as a barrier to participation for those with intellectual disability (Stanish *et al.*, 2016). PE can place less emphasis on verbal interactions (which may benefit deaf or hard of hearing children) and can allow easier communication with peers by displaying sporting prowess (Luckner and Muir, 2001). This can help to facilitate inclusion and break down some of the barriers highlighted by the social model of disability. Removing some of the societal barriers by an individual showing their capabilities in the sports setting can facilitate interactions with their peers that may not otherwise occur. This may be of particular significance for boys who gravitate towards team sports such as football (Luckner and Muir, 2001). Deaf or hard of hearing boys who are good at sport are more readily accepted by their peers (Luckner and Muir, 2001; Martin and Bat-Chava, 2003). Children who are able to communicate orally and using sign language are more readily able to communicate with their peers and these skills equip this group more readily for sports participation (Moog *et al.*, 2011).

Confidence: Deaf or hard of hearing children who are more confident are more likely to engage well in sports as they are more likely to request repetitions of statements from their hearing peers, and this would also assist them socially. Children who are confident and willing to engage alone in sports activities are more comfortable interacting with their hearing peers (Martin and Bat-Chava, 2003). This was also identified in the studies within this thesis, with the more confident and outspoken children in the groups being the ones willing to participate in sports with their hearing peers, and in some cases expressing a preference for this sports arena. Participation in organised sport has been identified as a moderator for 'shyness' in children, and linked with an improvement in social skills and self-esteem (Findlay and Coplan, 2008). Self-confidence has also been shown to have an impact on participation in sports for those with physical disability (Sport England, 2000; Jaarsma, Dijkstra, *et al.*, 2014). In a longitudinal study of Dutch children aged 10 to 12 years, participation in sport was found to help improve psychosocial health (Moeijes *et al.*, 2017). A total of 487 children reported on their sports participation and psychosocial health. For those who were active members in a sports club, had moderate to high frequency of sports participation, were participating in team sports, were involved with outdoor sports, involved with sports competition or involved with contact sports, there was evidence of improved psychosocial health and a reduction in the internalisation of emotional problems.

In summary, deaf or hard of hearing children face personal (internal) barriers to participation in sport. These barriers include (1) socialisation, (2) sporting preference, (3) lack of intrinsic motivation, (4) sporting ability and (5) confidence. Socialisation was also identified as an important motivation for participation in sports for these children. Socialisation in the sporting context can help to facilitate inclusion in this group which can help to overcome some of the societal barriers highlighted by the social model of disability. Inclusion in the sports setting may also help to facilitate inclusion socially outside of

this environment, particularly for those involved within a team or group setting. For future research, it is important to understand how socialisation can support integration and inclusion for this group both within the sporting context and beyond it.

6.3.2 External (other person) barriers

This synthesis identified multiple external (other person) barriers to participation in sports for deaf or hard of hearing children. The barriers included (1) lack of support from families, (2) difficulty with hearing technology and communication, (3) lack of choice of environment. The literature has shown that children's participation in sports is influenced by their parents and sports educators. This is also the case for deaf or hard of hearing children and is supported within this body of work.

Lack of supportive families: Supportive families encourage participation in sport for deaf or hard of hearing children but unsupportive parents act as a barrier to participation (Conclusion 4). This has also been shown in the literature for those with physical disability. A systematic review of perceived barriers and facilitators to participation in physical activity for children with physical disability identified parental and sibling support as an important facilitator to participation (Shields, Synnot and Barr, 2012). Another systematic review of barriers to and facilitators of sports participation for people with physical disabilities identified a lack of support from parents as a barrier to their participation (Jaarsma, Dekker, *et al.*, 2014). Parents may support their child's participation by providing funding, transport, communication support, and moral support (Griffith *et al.*, 2007; Bailey *et al.*, 2010; Shields, Synnot and Barr, 2012). A lack of support from parents can have a big impact on participation in sport for all children but a supportive parent can make a difference for a deaf or hard of hearing child. Hopper *et al* (2005) investigated the impact of a school-based exercise program which included a parental component. The parental component involved both parents and children completing activities and gaining points for both exercise

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and nutrition (Hopper, Munoz and Gruber, 2005). This study highlighted the value of involvement of parents in interventions as they provide a practical approach to improving levels of activity and can work alongside sports educators to facilitate involvement in sports. One way of successfully involving parents in an intervention obesity prevention was highlighted in a qualitative study (Kipping, Jago and Lawlor, 2012). This study highlighted that the use of newsletters and set homework helped encourage parental involvement in the intervention. Parents also found this enjoyable and were able to recall items that they had undertaken with their children. Another positive example of involvement included parents in an active play intervention in preschool children (O'Dwyer *et al.*, 2012). The intervention was shown to increase sports participation and physical activity of both parents and children. This could be used with parents of deaf or hard of hearing children in conjunction with sports educators to help advise sports educators on how to encourage inclusion of their children in sports.

A systematic review of barriers to and facilitators of sports participation for people with physical disabilities identified a lack of support from parents as a barrier to their participation (Jaarsma, Dekker, *et al.*, 2014). Parents may support their child's participation by providing funding, transport, communication support and moral support (Griffith *et al.*, 2007; Bailey *et al.*, 2010; Shields, Synnot and Barr, 2012). Parents may act as a barrier if they are unable to support funding for participation, provide transport or have no interest in sport themselves (Allender, Cowburn and Foster, 2006; Shields, Synnot and Barr, 2012; Jaarsma *et al.*, 2015). This has been identified in the literature for deaf or hard of hearing children and their hearing peers (Ellis, 2001). Parents are an important support mechanism for participation and often provide funding and transport to sporting activities (Babkes and Weiss, 1999; Allender, Cowburn and Foster, 2006; Bailey *et al.*, 2010). In the case of deaf or hard of hearing children they may also provide communication

support (Ellis, Lieberman and Dummer, 2014), although this may lead to problems with children gaining independence in the sports environment.

Parental support is of particular importance for young children who are more likely to participate and to enjoy participation if they are supported (Allender, Cowburn and Foster, 2006; Ellis, Lieberman and Dummer, 2014). The wider literature shows that family can have a positive and negative impact on participation in sport for children. Participation in sport for children is more likely if they have a 'sporty' parent (Bailey *et al.*, 2010) as parents act as a role model to their child (Babkes and Weiss, 1999). This participation is more frequent when home life is stable compared to those without this support network (Bailey *et al.*, 2010). There is also the notion within the literature that negative support from parents acts as a barrier to participation (Bailey *et al.*, 2010), e.g. parents who are disinterested, overcritical, shouters, instructors, or over-concerned (parent is overly concerned about child's safety in sports and may stop participation because of this) (De Knop *et al.*, 1998; Shields, Synnot and Barr, 2012). There is a large body of evidence investigating the influence of parents on children's participation in sport but there is little on the role parents of deaf or hard of hearing children play (Babkes and Weiss, 1999; Bailey *et al.*, 2010). An area for future development would be to understand the role parents play in participation in sport for deaf or hard of hearing children in terms of communication support. This may help to provide a path for clubs to provide appropriate support themselves or to increase the availability of training to encourage inclusivity. There would also be potential impact on policy within sports clubs to support inclusivity of this group.

Parents may act as a barrier to participation for deaf or hard of hearing children due to a fear for the safety of their child (Conclusion 5). This has also been identified in the literature for those with physical disability (Shields, Synnot and Barr, 2012). Porter (2002), a market research report (no longer in circulation), made use of in depth interviews with parents of children aged 223

under five to discuss their views around physical activity and sports participation. The interviews provided information on views about facilities and opportunities, local access issues, safe local environments, family based activities and provision of organisation for drop off at activities. Participants were from a range of social and ethnic groups and encompassed single parents, 2 parent families and first time and experienced parents. It should be noted that no response rate was reported in this study. Parents are more likely to allow their child to participate in sport if the environment is safe (Porter, 2002). An over-concerned parent is less likely to allow their child to participate in sport (De Knop *et al.*, 1998; Shields, Synnot and Barr, 2012). Parents of deaf or hard of hearing children have concerns over their child's safety due to communication issues as seen in section 6.1.1. Parents can feel more comfortable if their child were to attend a deaf sports club given the shared experience with other children in terms of their hearing loss (Stewart and Ellis, 2005; Hyde and Punch, 2011; Moog *et al.*, 2011). However, this would not suit all deaf or hard of hearing children as some express a desire to be more competitive and participate in mainstream sports.

Technology and communication: Some deaf children make use of assistive technology including CIs, but this carries an inherent danger in the sports and wider environment. An assumption may be made that a CI allows an implant recipient to develop oral language skills but this may not be the case for all children with some struggling to adapt (Hyde and Punch, 2011). Parents express their fear that their child will damage the implantation site and wish their children to avoid contact sports such as rugby, boxing and football whilst other parents did not wish for their child to avoid football. Swimming was also reported as being difficult for deaf or hard of hearing children and particularly those using CI's as they had to be removed to participate in this environment. Parents were then concerned their children would not be able to communicate and would not hear key instructions which may put them at risk of injury (Conclusion 1, 7 and 18). Conclusion 8 highlighted the difficulty

the sports environment creates for deaf or hard of hearing children. Within the sporting context communication over long distance may be required which leads to instructions being distorted or misheard. The same is true of an indoor sports arena such as a school sports hall where reverberation and echo create difficulty for a deaf or hard of hearing child and their communication. The sports environment needs to be accessible for deaf or hard of hearing children as highlighted in the social model of disability. Shouting over long distances and echoing sports halls are not inclusive environments for deaf or hard of hearing children and ways to overcome this must be considered to encourage inclusivity. Addressing communication needs with training may help to resolve some of these issues and encourage inclusivity as evidenced in the social model of disability.

Socialisation and inclusion have been identified throughout this thesis as important to deaf or hard of hearing children. Some deaf or hard of hearing children participate in sport to interact with their hearing and deaf peers. These children may be influenced by their friends participation and the literature shows that 'developing new social networks' act as a motivator for children's participation in sport in general (Flintoff and Scraton, 2001). The literature has shown that for deaf or hard of hearing children friendship plays an important role in their social support both in and out of school (Luckner and Muir, 2001), as identified within the sporting context in this thesis.

The PE and school environment creates a potential location for social inclusion and exclusion of deaf or hard of hearing children. For those attending a mainstream school there may be no shared language experience and this can lead to social isolation. This was also identified here within the PE setting with some children feeling isolated and being discouraged from participation. Socialisation and inclusion have been identified in the wider literature on disability and participation in sport. A recent systematic review of social inclusion for children with disability identified that children are still feeling isolated in numerous contexts with their peers (Woodgate *et al.*, 225

2019). The literature shows that those children equipped with oral and sign language are able to communicate more easily with their hearing peers (Moog *et al.*, 2011). This was not identified directly in this study although as previously discussed communication issues create problems for participation. A large portion of the sports educators within the thesis shared that a mobile application or training video (e.g. on YouTube) would help them to understand the needs of a deaf or hard of hearing child and implement changes accordingly. However, the literature shows mixed success rates for the use of applications on both mobile phones and tablets (Silveira *et al.*, 2013; Vriend, Coehoorn and Verhagen, 2015; Van Reijen *et al.*, 2016). Vriend *et al.* (2015) developed an app for prevention of ankle sprain recurrences and concluded that whilst an app was well received it only reached 2.6% of its target population of adults whom experienced ankle sprains. This should be considered when designing an app for implementation with sports educators of deaf or hard of hearing children as similar issues may be encountered. A good application must be appealing to the user, in this case it must be appealing and relevant to sports educators of deaf or hard of hearing children. For a sports educator, the application would need to have information or key pointers for working with deaf or hard of hearing children and videos of good practice. The sports educators called for something simple, fast and effective and this would have to be considered when designing an application for this group. For educating sports educators a wide age range may need to be encompassed within the design of any app-based training, and Silveira *et al.* (2013) have shown the potential for success in older groups. However, Van Reijen *et al.* (2016) did not identify a difference in compliance with neuromuscular training in athletes compared to using a booklet. This may be specific to injury recovery but should be noted when considering the design of a mobile app for the sports educators, parents, and deaf or hard of hearing children.

Lack of choice of environment: Schools for the deaf make use of the sports environment and its opportunities for inclusion by arranging competitions with other local schools to give children the opportunity to compete as part of a team or in individual events against competitors with similar backgrounds and experiences (Stewart and Ellis, 1999, 2005; Hadjidakou and Nikolarazi, 2013). In this thesis, some deaf or hard of hearing children shared their desire to participate in mainstream sport for the ‘challenge’ and to ‘make friends’. Children involved in sports participation have been shown to have improved confidence when socialising with their peers (Luckner and Muir, 2001; Allender, Cowburn and Foster, 2006), also identified in this body of work. This synthesis identified a lack of choice as a barrier to participation for all children but deaf children and their parents reported practical barriers to participation alongside this. These practical barriers include the use (or removal) of hearing technology and health problems. This can impact on communication and create a greater difficulty for deaf or hard of hearing children. In general children report a lack of choice of sports as a barrier to participation (Somerset and Hoare, 2018)s. It is important to understand exactly what is meant by a lack of choice and the types of sports that children would like to participate in.

i. Encouraging inclusion through social interaction

Future work to encourage inclusion should focus on the influence of deaf or hard of hearing children’s peers and whether hearing, or deaf or hard of hearing peers have different influences on children’s participation in sport. An intervention targeting peer influence on sports participation would be beneficial in this area. A study involving an RCT for children with obesity investigated the impact of peers on weight management (Fonseca *et al.*, 2014). This study was designed to use peers as peer influence in childhood is a major influence as discussed within this thesis. The results of this trial are not yet available. The concept of peer interaction on enabling inclusion and facilitating change is one which fits within this thesis and could be helpful for

deaf or hard of hearing children. Interventions such as point of decision prompts (e.g. signage for using the stairs) (Kahn *et al.*, 2002) and educational interventions equipping people with information to make informed choices (Kain. *et al.*, 2012) may be of use for deaf or hard of hearing children. Use of social support within communities have been shown to be effective within the community and school environment, and to increase participation in physical activity (Hopper *et al.*, 1992; Kahn *et al.*, 2002; van Sluijs, McMinn and Griffin, 2007). A social intervention with deaf or hard of hearing children would need to focus on developing and maintaining a supportive relationship to change behaviour, perhaps along the lines of a buddy system which, in this thesis, was reported by some sports coaches as being effective. The use of individually adapted programmes can help participation as shown in the literature (Brehm *et al.*, 2005; Fjeldsoe, Marshall and Miller, 2009; Glazebrook *et al.*, 2011). Glazebrook *et al.* (2011) evaluated the efficacy of a school-based programme of activity in a population of children with risk factors for adult obesity. A 10-week programme with 9 – 11 year olds in primary schools making use of an activity diary, circuit training, dance DVD and motivational interviewing were used to promote activity (Glazebrook *et al.*, 2011). The activity diary could be implemented with deaf or hard of hearing children to evaluate not only their activity levels but the types of sporting activity they engage with. Brehm *et al.* (2005) investigated via longitudinal study the impact of a health-promoting exercise program in sedentary adults. The study made use of an exercise programme, one ninety-minute session per week, administered for a year and participants were given the option to remain in a follow up programme or to transfer to another programme with the same club for an additional year (Brehm *et al.*, 2005). Although this study was conducted in an adult population there are concepts which are transferable to deaf or hard of hearing children. The idea of regular provision of deaf friendly sports club access for a set amount of time per week over a year could be implemented. It would benefit not only the children but also

the clubs providing the opportunities. The children would access sports and have the opportunity to access the benefits previously discussed within Chapter 2 of this thesis and the sport educators would have the opportunity to learn by education and experience how to make their sessions inclusive. Children and sports educators if involved in this type of intervention could keep a self-reflective diary of their experiences beginning to end which could then be analysed.

In summary, this synthesis identified several external (other person) barriers to participation in sport for deaf or hard of hearing children. The barriers included (1) lack of support from families, (2) difficulty with hearing technology and communication, (3) lack of choice of environment. It is important to understand and address these barriers. Support from families can help to overcome some of the barriers highlighted in the social model of disability with supportive families providing a channel for communication and offering a pathway for inclusion. Addressing barriers associated with technology use and communication can facilitate inclusion by providing an accessible environment. If we can overcome these barriers we can provide more accessibility to the sporting environment and encourage participation in sports and afford participants the benefits that go along with this.

6.3.3 Resource, Education, Awareness

This synthesis identified resource, education, and awareness as themes within the data. Barriers relating to these themes include (1) deafness as a hidden disability, (2) missing instructions, (3) lack of deaf awareness, and (4) cost of participation.

Deafness as a hidden disability and the experience of a lack of inclusion because of this was identified by deaf or hard of hearing children (Conclusion 18) and some parents. Participating in a mainstream sports environment provides an increased opportunity for interaction with hearing peers for deaf or hard of hearing children but also provides an increased risk of isolation and

potentially further communication challenges (Martin and Bat-Chava, 2003). Parents of children with disability in the literature spoke frequently of barriers to participation in sports linked with a lack of knowledge and attitudes of service providers towards their disabled children (Bedell *et al.*, 2011; Shields, Synnot and Barr, 2012; Jaarsma *et al.*, 2015). Within the PE context there is a requirement for inclusion (Pocock and Miyahara, 2018), although on the whole disabled children are not exposed to the same range of sports as their non-disabled peer group (Sport England, 2000; Thomas and Smith, 2009; Shields and Synnot, 2016). This difference can be attributed to a lack of knowledge for PE teachers around inclusion of disabled (including deaf) children (Thomas and Smith, 2009; Pocock and Miyahara, 2018). Provision of this additional resource is important as participation of children with a disability in the sporting context helps to promote inclusion in society and acceptance by their peers (Murphy and Carbone, 2008). Deaf children may make use of technology to support communication including; cochlear implants, hearing aids, radio aids and microphones. Whilst these technologies have their benefits there are situations which will render them either useless or reduces their effectiveness (Conclusion 8), such as the swimming pool environment (Martin and Bat-Chava, 2003; Bat-Chava, Martin and Kosciw, 2005).

Missing instructions: Both parents and children reported missing instructions being misinterpreted as behaviour problems in deaf or hard of hearing children (Conclusion 7). Children equipped with both oral and sign language may cope better with receiving instructions than those who are either oral or sign only (Moog *et al.*, 2011), as these children are equipped with more tools for communication. For deaf or hard of hearing children, the literature has shown that a supportive friend may help reduce the chance of miscommunication and missing of instructions (Luckner and Muir, 2001). A supportive friend will help break down societal barriers associated with the social model of disability including exclusion.

Lack of deaf awareness was identified in this synthesis as affecting participation in sports for deaf or hard of hearing children (Conclusion 9). This can be directly linked to the social model of disability whereby a lack of training can impact on inclusion. Deaf awareness involves being able to spot signs that a person may have hearing loss and being able to adapt a situation for them accordingly. There is a lack of deaf awareness training in the sporting context and this can act as a barrier to participation. Parents of children with disability speak more frequently of barriers to participation than those without disability (Bedell *et al.*, 2011). A lack of knowledge of a particular disability was cited by Bedell and colleagues (2011) as a barrier to participation. PE teachers and sports educators may lack the knowledge for inclusion of disabled children (including deaf children) within their sessions (Thomas and Smith, 2009; Shields, Synnot and Barr, 2012).

Local mainstream sports clubs may not be equipped for the inclusion of deaf or hard of hearing children due to a lack of people using sign language or a lack of deaf awareness (Brunton *et al.*, 2003; Bailey, 2005). This was reported in this thesis on several occasions from the perspective of parents, sports educators and deaf or hard of hearing children. This links with the barriers highlighted in the social model of disability. Where there is a lack of training or awareness there is likely to be a lack of inclusion due to societal barriers. For those who are disabled living in a rural area, the literature has identified a lack of provision for those with disability in the local area and a lack of those with disability to attend sessions (Belley-Ranger *et al.*, 2017). Sports educators and parents (Chapter 5) felt that there was a lack of accessible training for deaf awareness or a lack of awareness of existing resources such as those provided by the NDCS. A lack of training is identified as a barrier to inclusion in the social model of disability, which is highlighted here. It is important for future research and to encourage future participation to understand the current resources that are available to assist with the inclusion for deaf or hard of hearing children and to see how these may be

improved to create wider use. It would be worthwhile investigating the level of awareness of these tools and to see how widely they are used and by whom. Sports educators did share that an online training session, video of good practice or resource would be useful and accessible for them, perhaps more so than accessing traditional training such as attending a course as they have little time due to a demanding role and the cost implications, this has been shown to be effective in the wider literature (Silveira *et al.*, 2013; Vriend, Coehoorn and Verhagen, 2015).

This synthesis identified that adaptation of communication methods facilitated participation in sport for deaf or hard of hearing children (Conclusion 3). Vaccari and Marschark (1997) identified communication adaptations between parents and deaf children and their impact on a child's social-emotional development. Adapting communication strategies enabled deaf children to participate in family life and activity (Vaccari and Marschark, 1997), something also identified in relation to adaptation of family communication (Goldin-Meadow and Saltzman, 2000). By educating the educator and providing deaf awareness training within the sporting context and ensuring adequate communication provision a large number of the internal and external barriers could be removed, or their impact decreased. Sports educators ensuring suitable positioning for lip reading for a deaf or hard of hearing child, and an ability to help the children adapt to the sports environment with their hearing technology could support future participation in this group. Parents in the synthesis reported that coaches willing to adapt and to be encouraging enabled their deaf or hard of hearing child's participation in sport. Children themselves were elated at successful integration within the mainstream sports environment and reported the benefits of socialisation that can be obtained from sports participation (Conclusion 6).

The synthesis identified the provision of additional resource as necessary to enable deaf children to participate in sport. This additional resource can take

many forms but communication support such as sign language, videos, or cue cards, emerged as being critical to enabling participation and this has also been identified in the literature (Luckner and Muir, 2001; Murphy and Carbone, 2008; O'Neill, Arendt and Marschark, 2014). Information from parents within the synthesis highlighted difficulties with identifying suitable sports instructors for their deaf or hard of hearing child. Parents viewed a suitably qualified instructor as one who had been trained in the sport but who had also received deaf awareness training. Communication support was identified by children and adults within the synthesis as important for deaf or hard of hearing children participating in sport. This communication support was reported to be provided by parents of deaf or hard of hearing children. As a result, there was a fear from adults within the synthesis that a deaf or hard of hearing child may have difficulty gaining independence and inclusion within sports. Meadow (2005) suggest that deaf children of deaf parents are likely to gain independence sooner than deaf children of hearing parents and this may also transfer into sport. This study showed that deaf children with deaf parents had greater social functioning and independence compared to deaf children with hearing parents (Meadow, 2005).

Clubs were willing to adapt to help a deaf or hard of hearing child participate but the cost associated with provision of sign language support in some cases was a barrier to participation for these children as the clubs did not have the funds to support this. It is important to have an alternative means available for communication with deaf or hard of hearing children this may be through volunteers acting as interpreters, use of online learning, flash cards, videos or a mobile app to aid inclusion. The PE and primary sport premium for UK primary schools provides funding for sports participation for primary school children to increase their access to sports (Department of Culture Media and Sport, 2015), this funding may be used to train sports educators and raise awareness of barriers these children may face and hence overcome some of the societal barriers associated with the social model of disability. This

premium may help to reduce the barriers to participation in sport for children although it is unclear how this may impact for deaf or hard of hearing children. Some provision could be used to increase inclusion and encourage the uptake of visual communications and demonstrations for deaf or hard of hearing children.

Cost: was reported by children and parents as a barrier to participation (Conclusion 16). Although the types of costs associated with participation in sport for hearing children compared to deaf or hard of hearing children may be different. For example, children from poorer socioeconomic backgrounds may have difficulty accessing sports due to the cost of training sessions and travel associated with participation. This may also be linked to family support (Lin Yang, Telama and Laakso, 1996; Zeijl *et al.*, 2000; Bailey *et al.*, 2010). For deaf or hard of hearing children the higher cost of private lessons for sports such as swimming may prove a barrier to participation, or the cost of an interpreter or training for a club member to learn sign language may be prohibitive. As such provision of online training and resources would help to reduce this barrier to participation.

This synthesis identified education as a theme emerging from the various categories within the process. Sports coaches identified coaching principles as the same for all children (Conclusion 15). However, sports coaches were concerned about making mistakes with deaf children, particularly given the impact they can have on future participation of this group. A lack of deaf awareness from sports educators was identified as a barrier to sports participation for deaf or hard of hearing children (Conclusion 9). Parents and children reported the difficulties deaf or hard of hearing children have regarding communication when interacting with those who are not deaf aware. This links in with conclusion 1 and 7 where children and parents report difficulties understanding instructions in sports sessions which can lead to isolation and a lack of inclusion (Conclusion 18). Deafness is a hidden

experiencing a lack of inclusion because of this. Participating in a mainstream sports environment provides an increased opportunity for interaction with hearing peers for deaf or hard of hearing children but also provides an increased risk of isolation, and potentially further communication challenges (Conclusion 1).

The 'gatekeepers' were identified in this thesis as a key aspect for enabling sports participation for deaf or hard of hearing children. The 'gatekeepers' can in this case be considered as the sports educators, and in some instances parents as they control access to the sporting environment. PE classes play a key role in participation in sports through to adulthood (Kirk, 2005), future research should seek to investigate the impact of PE participation in deaf or hard of hearing children and its long term influence on activity choices. Future policy should focus on inclusivity to allow deaf or hard of hearing children to access the mental and physical health benefits of participation in sports. Especially given the impact sports participation can have on acceptance, confidence, and self-efficacy. There is little training available for the 'gatekeepers' in their initial courses to enable them to effectively include deaf or hard of hearing children in PE or sports. Educators called for access to more training to allow them to engage deaf or hard of hearing children successfully. Future research may consider evaluating the current resources available for the 'gatekeepers' to assess how suitable this is, how accessible it is and how aware this group of people are of the resources. Establishing whether the current resources are effective will help to determine if a new resource is needed or if raising awareness would help to make these resources more readily available. There is evidence in the literature to suggest that informational approaches to interventions to increase sports participation are effective and these may include mass media campaigns, community campaigns and classroom based education (Kahn *et al.*, 2002). Community and mass media campaigns have been shown to be effective in changing attitudes and behaviours towards sports participation and this

method could be used to 'educate the educators' regarding deaf awareness in the sports context either as standalone education or within their initial training (Booth *et al.*, 1992; Bauman *et al.*, 2001, 2006; Huhman *et al.*, 2005; Heath *et al.*, 2012; Casey *et al.*, 2014). Future research may investigate app development for use by the 'gatekeepers' for both education and support with sports participation for deaf or hard of hearing children.

In summary, it is important to recognise that deaf or hard of hearing children need additional resources to enable their participation in sport. As such, those involved with this group and sports should ensure the appropriate steps are taken to facilitate their participation. Education of those delivering sports sessions for both communication strategies and deaf awareness will help facilitate participation of deaf or hard of hearing children in sports. Future research may consider the best way of sourcing this provision or investigating the most effective strategies to increase levels of participation in this group.

6.4 CONCLUSION

In this thesis, I identified difficulty with communication and socialisation, lack of intrinsic motivation, lack of sporting ability, lack of family support, difficulty with hearing technology and communication, cost of participation and difficulty with the sports environment as key factors affecting sports participation in deaf or hard of hearing children. Thus, internal (personal) barriers, external (other person) barriers and resource, education and awareness, were identified as key factors contributing to sports participation (or lack thereof) in deaf or hard of hearing children. Addressing external barriers to participation in deaf or hard of hearing children may be easier to address than internal barriers.

This thesis showed that there is a need for communication support for deaf or hard of hearing children. Parents and sports educators also raised the need for additional training for those teaching or coaching sport with deaf or hard of hearing children to encourage inclusivity. A lack of deaf role models within

sports was identified by deaf or hard of hearing children who feel they have no one to aspire to as all the successful athletes they have for comparison are hearing. There is a need for equality in access to sport for all, identified by parents, sports coaches and deaf or hard of hearing children.

There was a call from parents, sports educators and deaf or hard of hearing children for those teaching sport to be trained to include deaf or hard of hearing children in session. A call to make sport accessible for all. Work is needed to develop the knowledge of sports educators relating to deaf awareness and engaging this group within sport to encourage participation. To address this need sports educators and parents felt that provision of a mobile application in conjunction with a series of coaching videos accessible by online means such as YouTube would help inclusivity of deaf or hard of hearing children. Inclusion of more information on how to coach deaf or hard of hearing children within initial training for delivering sports sessions was identified by coaches as a necessity to improve their awareness of deaf or hard of hearing children. Parents felt that a leaflet of communication strategies would help inclusivity of their children within sports sessions. Communication issues pose difficulty for deaf or hard of hearing children, their hearing peers and sports educators and create challenges for inclusion linked to the social model of disability. Socialisation has been shown to be a motivator for deaf or hard of hearing children to participate in sports and helps to facilitate inclusion in the mainstream environment through sports. Future research needs to focus on informational approaches to education for the 'gatekeepers' which may include leaflet, app, and video development. The impact of this education upon the experience of participation in sport for deaf or hard of hearing children will then also need to be assessed.

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APPENDICES

APPENDIX 1: INVITATION LETTER FOR PRIMARY SCHOOL



Nottingham Hearing
Biomedical Research Unit
Ropewalk House
113 The Ropewalk
Nottingham NG1 5DU

Tel: +44 (0) 115 823 2600
Fax: +44 (0) 115 823 2618
Email: nhbru-enquiries@nottingham.ac.uk
Web: www.hearing.nihr.ac.uk

Dear _____

REQUEST FOR SCHOOL TO TAKE PART IN CHILDREN'S HEARING RESEARCH

"Hearing impairment and its impact on participation in team sport"

We would like to invite your school to participate in a research project. It is organised by the University of Nottingham and funded by the National Institute for Health Research. This project is looking at how hearing impairment affects participation in team sport with a focus on PE in primary and secondary schools.

The first stage of the project involves running 2 focus groups with children aged 10 to 11 and we would like your help with one of those groups. We will need 6 to 8 children without an identified hearing loss. The focus group will gather information on children's feelings about sport such as their likes and dislikes. This will last around 30 minutes and could potentially be carried out at a break or lunch time or at a time that suits your school.

Please see the enclosed example information sheet and consent form that would be sent to parents should your school take part.

Thank you for taking the time to read this letter. If you have any questions we would be very happy to discuss these with you on the telephone or come and talk to you at a convenient time. Please contact us in one of the following ways:

Email: msxsw2@nottingham.ac.uk

Phone: 0115 8232640

Post: Sport Participation project, address as header above.

Kind regards

Sarah Wadsworth (PhD Student)

The National Institute for Health Research Nottingham Hearing Biomedical Research Unit is a partnership between the University of Nottingham, Nottingham University Hospitals NHS Trust and the Medical Research Council (MRC) Institute of Hearing Research

Version 1 24th Sep 13 Y6

APPENDIX 2: INVITATION LETTER FOR SECONDARY SCHOOL



Nottingham Hearing
Biomedical Research Unit
Ropewalk House
113 The Ropewalk
Nottingham NG1 5DU
Tel: +44 (0) 115 823 2600
Fax: +44 (0) 115 823 2618
Email: nhbru-enquiries@nottingham.ac.uk
Web: www.hearing.nihr.ac.uk

Dear _____

REQUEST FOR SCHOOL TO TAKE PART IN CHILDREN'S HEARING RESEARCH

"Hearing impairment and its impact on participation in team sport"

We would like to invite your school to participate in a research project. It is organised by the University of Nottingham and funded by the National Institute for Health Research. This project is looking at how hearing impairment affects participation in team sport with a focus on PE in primary and secondary schools.

The first stage of the project involves running 2 focus groups with children aged 12 to 13 and we would like your help with one of those groups. We will need 6 to 8 children without an identified hearing loss. The focus group will gather information on children's feelings about sport such as their likes and dislikes. This will last around 30 minutes and could potentially be carried out at a break or lunch time or at a time that suits your school.

Please see the enclosed example information sheet and consent form that would be sent to parents should your school take part.

Thank you for taking the time to read this letter. If you have any questions we would be very happy to discuss these with you on the telephone or come and talk to you at a convenient time. Please contact us in one of the following ways:

Email: msxsw2@nottingham.ac.uk

Phone: 0115 8232640

Post: Sport Participation project, address as header above.

Kind regards

Sarah Wadsworth (PhD Student)

The National Institute for Health Research Nottingham Hearing Biomedical Research Unit is a partnership between the University of Nottingham, Nottingham University Hospitals NHS Trust and the Medical Research Council (MRC) Institute of Hearing Research

Version 1 24th Sep 13 Y8

APPENDIX 3: INFORMATION SHEET FOR CHILDREN FOCUS GROUP STUDY

Hello,

My name is Sarah and I am doing a project that I would like you to help me with

What do I want you to help me with?

I want to understand why children take part in team sport. What they like and don't like about it and why. I am asking you and children your age to take part in a group chat about sport.



What would you have to do?

I would like you to come to the group arranged at the Ear Foundation and take part in some activities.

1. First I would like you to meet the other people in your group.
2. I would like you to take part in some activities in the group including a chat and a game. This will involve talking about sport that you do and don't like and sport that you do and don't play.
3. Your answers will be recorded. There are no right or wrong answers.



More Information

The group will last for 30 minutes (half an hour) and you can take a break at any stage. You can leave and return to your parents at any time. You can say yes or no it is up to you whether you take part.

If you do want to take part, you and the adult responsible for you can talk to me about the study and ask as many questions as you like.

I will also ask you to sign a paper on the day to say you are happy to help me.



Sarah

APPENDIX 4: INFORMATION SHEET FOR PARENT FOCUS GROUP STUDY

Participant Information Sheet

What do children think about sport?

We invite your child to take part in research

- Before you decide whether you want your child to take part we want you to understand why this research is being done and what it would involve for your child.
- Please take time to read the following information carefully. Discuss it with friends and family if you wish.
- It is up to you whether your child takes part in this research.
- Ask us if there is anything that is not clear or if you would like more information.

1 Why are we doing this research?

Children who take part in sport have better communication, confidence, language and social skills. Taking part in sport can also reduce the risk of conditions such as obesity and diabetes. We know that some children enjoy taking part in sport and others do not.

This research will look at why children do or don't take part in sport. We would like your child's help to find out what they like and don't like about team sport.

This part of our research will ask children with a hearing loss what they like about sport and team sports and what they don't like.

We are particularly interested in children with hearing loss. These children should have the same opportunities to take part in sport and to gain the benefits from it. We know that some children with a hearing loss have problems communicating and communication is an important part of team sport.

From the whole research project a set of guidelines will be created and teachers and students will be able to use them to help children with hearing loss take part in team sport more easily.

Nottingham Hearing Biomedical Research Unit



Sarah Wadsworth PhD Student
msxsw2@nottingham.ac.uk
0115 8232640

Contents

- 1 Why are we doing this research?
- 2 Why has my child been asked to take part?
- 3 What will my child have to do?
- 4 Does my child have to take part?
- 5 What are the disadvantages or risks of taking part?
- 6 Payments
- 7 Data Protection
- 8 What will happen to the results?
- 9 Organising and funding the research
- 10 What if there is a problem?
- 11 How to contact us

2 Why has my child been asked to take part?

We are contacting a number of parents at local schools and clubs and inviting children to take part. Your child attends one of these. We want to see what children do and do not like about sport.

3 What will my child have to do?

Your child will be invited to take part in a focus group at their school or club at a convenient time for the school or club. The group will include up to 8 children and will be a group chat. The children will be asked some questions about sport and the whole thing will last for approximately 30 minutes.

During the focus group session your child will have the chance to:

- Answer questions about sport and their feelings about it
- Take part in a play activity such as a card game
- Say their answers out loud and have their voice recorded

4 Does my child have to take part?

If you want your child to take part please sign and return the enclosed consent form. Please return this in the envelope provided.

Even after you and your child have chosen to take part you are both free to withdraw at any time and without providing a reason.

5 What are the disadvantages or risks of taking part?

None of the activities in the focus group session are likely to cause discomfort.

6 For Taking Part

As a thank you for taking part your child will receive a small gift of a voucher or stationery set.

7 Data Protection

Any personal data that we may collect for your child (age, hearing loss) will not be accessible or disclosed to other parties. The data collected will be stored, analysed and published in an anonymous way so that they are not in any way traceable to you or your child.

8 What will happen to the results?

The results from the focus groups will be used to help design a questionnaire for a later part of the research.

The overall results will be presented at national and international scientific meetings. We will also publish the results in science journals. A copy of this can be mailed out to you in the post on request.

9 Organising and funding the research

The research is organised by the Nottingham Hearing Biomedical Research Unit, supported by the National Institute for Health Research. Sarah Wadsworth is a PhD student and is managing this research. She is supervised by Dr Abby McCormack who is a research fellow at the unit and Dr Heather Fortnum a lead researcher at the unit.

10 What if there is a problem?

If you have any questions about any aspect of this research, you should speak to the researchers who will do their best to answer your questions. If this does not achieve a satisfactory outcome then you should contact the Ethics Committee Secretary, Mrs Louise Sabir, Division of Respiratory Medicine, D Floor, South Block, QMC Campus, Nottingham University Hospitals, NG7 2UH, Email: louise.sabir@nottingham.ac.uk, Phone: 0115 8231063.

11 How to contact us

If you would like to discuss the research further please contact Sarah Wadsworth at msxsw2@nottingham.ac.uk or on 0115 8232640 or Dr Abby McCormack at abby.mccormack@nottingham.ac.uk or on 01158232611. Website: www.hearing.nihr.ac.uk

APPENDIX 5: OPT OUT FORM FOR FOCUS GROUPS

Version 1 18th Feb 14



Nottingham Hearing
Biomedical Research Unit

Investigators: Sarah Wadsworth, Dr Heather Fortnum, Dr Abby McCormack, Dr Imran Mulla



Parent / Guardian Name:

Signature:

Name of child:

Name of School:

Researcher:

Signature & Date of Receipt:

Nottingham Hearing Biomedical Research Unit | Ropewalk House, 113 The Ropewalk Nottingham NG1 5DU

Tel: 0115 823 2600 | Fax: 0115 823 2615 | Web: <http://hearing.nihr.ac.uk/>

APPENDIX 6: INITIAL CODE GENERATION

Initial coding

accessing existing resources

accident close to implant site put child off cricket for a long period

acknowledging bias in their opinion - parent

adaptations working to help child participate fully

adapting communication in mainstream for deaf individuals

adores coach as good communicator and engages child in sport

another swimming coach not deaf aware

as child gets older may prefer deaf sport as people better equipped to engage them

avoidance of contact sports due to hearing technology

awareness of available courses for coaching deaf children

bad experience during sports participation

being able to wear implants whilst swimming has helped a child integrate

being active in deaf community and deaf sports has helped build child's confidence and signing ability

being deaf does not stop child participating in sport

being good at sport has helped deaf child to be accepted

being in main stream sport hard for deaf child

being left out of sport affected their desire to participate in future

belonging

benefits of sport for child's confidence

BSL interpreters too expensive to provide for one child so parent supports

buddy system to encourage participation in sport by deaf children

bullying not a regular occurrence

challenge of mixing deaf children with physical disability and learning difficulty sessions

child accepting people are not always deaf aware

child adapted well to use of hearing technology

child adapting to participate by copying other children

child adapting to use a visual cue to identify what is happening

child at mainstream school with support unit

child attended mixed disability sports sessions

child attends deaf support group

child born profoundly deaf

child can become frustrated when trying to communicate with others

child can't gain independence in sport due to communication difficulty

child confident

child confident to tell parent of difficulty

child confident to tell teacher of their needs

child copies others

child could not cope without technology

child deaf since birth

child didn't like football as struggled with spatial awareness

child didn't want to wear technology to play rugby

child discriminated against due to deafness by coach at football

child does an individual sport that you do as a team

child doesn't like to use FM system in sport

child doesn't see hearing loss as disability

child doesn't want people to know they are deaf or hard of hearing

child doesn't want to create a fuss

child enjoys interaction with hearing and deaf

child feels they have friends but parent doesn't think so

child given up on football because not given opportunity

child gravitated towards individual sport

child had difficulty locating sound

child happy with PE at deaf school

child has deaf and hearing friends

child has difficulty with hearing instructions in sport

child has difficulty with sports environment

child has difficulty with understanding why they are deaf

child has learnt BSL to make deaf friends in deaf sport

child has mostly hearing friends

child has previously used FM system with CI in sport to help understanding

child has sign support at swimming from a volunteer

child involved in mainstream and deaf sport

child is clumsy or has coordination problems

child is experiencing bullying

child is starting to adapt to situation

child is treated the same as other children

child is very confident

child not picked by scouts because can't hear or gets looked over

child part of a deaf team

child participates in swimming

child prefers deaf sport for social aspects

child prefers team sport

child really enjoys school PE sessions

child receiving praise from PE teacher for sport

child removed CI to play sport as felt embarrassed

child separates hearing and deaf sport

child sometimes uses sign language

child struggled to learn to play playground games

child struggled with hearing instructions from a distance

child struggled with identity and finding somewhere to belong

child treated differently because they're deaf

child used to play football but no longer does

child uses lip reading

child very confident helped to disguise problems with hearing

child willing to try a sport with a friend

child with cochlear implant experiencing delays in speech development

child worried about communication

child worried what others would think if constantly asking for repetition

child would ask their friends if they missed instructions

children adapt to watch coach or others during sport

children annoyed that their football team is classed as disabled

children are asked to remove technology for water sports

children frustrated by communication issues

children good at adapting

children greeted by a signing member of staff

children have choice to wear or remove technology

children just get on with playing the sport

children more likely to want to participate in sport with their deaf peers

children participating in sport are from a varied ethnic, Caucasian etc. background

children prefer to lip read than use radio aid in sport

children who can't sign are most excluded from deaf sports

children would stop participating if coaches were not deaf aware

children's dislike about sports

child's first language BSL

child's identity

child's motivation for sport must be intrinsic

child's sporting ability can be a barrier

climbing doesn't have team element so removes pressure for deaf child

Climbing supporter female - coach is hearing

clothing or uniform as a barrier to sport participation

coach adapting to help deaf child participate fully

coach aware of use of lip reading

coach believes not asked to coach hearing people due to deafness of coach

coach communicating with deaf child without needing BSL

coach ensuring they know of any needs the group may have

coach feels inclusion important

coach going on to become PE teacher

coach had stated they were deaf aware but this wasn't the case when parents observed

coach learning to adapt to ensure deaf child understands

coach looking for a niche skill in market so learnt BSL

coach makes use of radio aid

coach needs to be willing to adapt

coach needs to know how to include deaf child

coach needs to make sure deaf child understands instructions for sport

coach not aware child is deaf and thought they just didn't understand sport

coach not implementing deaf awareness training or accepting help from child's parent

coach of child deaf aware

coach or teacher motivated personally to adapt

coach providing a central location to improve access to their sport

coach seeing the bigger picture for health

coach telling child off, child could not understand why being told off

coach uses demonstrations

coach wanting to provide best opportunity possible for deaf children to participate

coach willing to learn BSL

coach would like support for large groups containing deaf children

coaches at school with hearing unit

coaches cricket

coaches experience put them off coaching deaf or hard of hearing children

coaches of deaf team but not deaf aware

coaches supportive of deaf child in experiences outside of session

Coaches their sport at a school for the deaf

coaches visually for hearing children as well

coaches worried about making mistakes with deaf children

coaching at mainstream clubs

coaching deaf children more rewarding

coaching experience with deaf or hard of hearing

Coaching principles same for deaf and hearing

coaching within school time

cochlear implant team advise against participation in some sports

communication adaptation when coaching deaf or hoh

communication differences in different sports

communication difficulty when people shout over distance

communication difficulty with team mates

communication done by shouting in footy and rugby

communication is easier in small groups

communication with team mates

concerns about the quality of delivery of PE

concerns as the child grows they may not be given the same opportunity as other children

confidence can suffer when taking part in sport

contact rugby not covered under cochlear implant insurance

cost a barrier for teachers and coaches to access training

creating sign language BSL signs in sport

culture as a barrier to sport participation

current staff have a choice of whether to attend deaf awareness training

deaf awareness at school for new staff

deaf child at mainstream school

deaf child being able to feel part of a group is important

deaf child does not use sign BSL

deaf child from hearing family

deaf child gets on well with PE teacher

deaf child had great difficulty with swimming lessons

deaf child had problems with cricket helmet and hearing technology

deaf child has deaf friends

deaf child has hearing friends, doesn't really associate with deaf

deaf child isolates themselves from hearing

deaf child may seem like they are naughty

deaf child never played for school team

deaf child not wanting to be involved with hearing school

deaf child participating in rugby

deaf child praised by PE teacher

deaf child struggling to make friends

deaf child taking sport as qualification

deaf child very focused during sports

deaf child very sociable

deaf child wants to be oral in communication

deaf child wary of hearing children

deaf children accessing sport have hearing parents in coach's experience

deaf children have tools to play mainstream but are mainstream open to them

deaf children included

deaf children just as capable as anyone else

deaf children less likely to access hearing sport

deaf children may not get same opportunity as hearing in sport

deaf children not being selected in mainstream teams

deaf children not wanting to participate in disability sessions

deaf children wanting to access more sports

deaf coach BSL user also with oral communication

deaf coach doesn't coach mixed groups of hearing and deaf keeps separate

deaf coach feels able to communicate and coach hearing

deaf coach hosts mixed sessions for hearing and deaf

deaf coach only coach's deaf children or adults

deaf coach played in deaf and main stream sports would encourage participation as a role model

deaf coach, coaching hearing players

deaf culture

deaf or hard of hearing child looked confused during sports

deaf parents feel sign is important

deaf relatives

deaf school steering children towards deaf sport

deaf sport

deaf sport participation under funded

deaf sports lower level of ability

deaf sports role models

deaf world is enclosed

deafness a barrier as hidden disability

deafness doesn't appear to be a barrier to participation for children

desire to provide a deaf team

difference in sport choice for boys and girls

different experiences of coaches in swimming

difficult for teachers to make time to access training

difficulty helping deaf or hard of hearing children in large groups

difficulty of hearing as an invisible disability

difficulty with acoustics with hearing technology

difficulty with communication for deaf child

difficulty with reliance on communication in large groups of children

difficulty with technology and acoustics

directional sound and sport

disability awareness training included in swimming teachers training course

Disability Cricket Coach Male - Coach is hearing

disadvantages or negatives of sport participation

disapproval of use of radio aids in sport

doesn't want their child to have to rely on the parent

doesn't wear a head guard for protection whilst playing sport

don't feel need for deaf swimming lessons

emphasis on inclusive coaching

emphasis on their child being different because they are deaf

encourages deaf participation but wants their child to mix so they're not in isolation

ensuring deaf awareness

expense of interpreters can be a barrier to participation

exposure to sport important

fast communication in footy and rugby

fear of hearing technology being damaged during sport participation

female swimming instructor

few deaf children willing to cross boundary between deaf and hearing sport

footballers as role models for deaf children

funding for deaf awareness training

funding for deaf sport

golf

good communication strategies for or with deaf or hard of hearing children

good practice regardless of disability

good publicity helps coaches and teachers access deaf awareness training

greater success at school for children who are PA

had experience of deaf awareness in previous sport has put parent off trying mainstream

hard if child resents that they can't do sports because of implants

hard to mix deaf and hearing children in sports

having to go to a city for deaf sport

hearing coach doesn't have difficulty with communication with deaf players

hearing coach realising how it feels to be in isolation when coaching a group full of signing and deaf individuals

hearing parents

hearing parents need to be made aware of opportunities for their deaf children

hearing sport has higher level of ability

hope for deaf child to make their own choice about participation in rugby when they are older

how many children coached with hearing loss

identification of deaf talent

impact at site of CI can cause pain

impact of training depends greatly on teacher or coach and their willingness to learn

impact of wearing a helmet on communication for deaf or hard of hearing children

importance of participation in sport

important for child to understand what is happening during coaching session

important not to single out deaf child

in an ideal world everyone would know some form of BSL

inclusion important

individual skill sets independent of team

individual teachers responsible for adaptations

influence of questions on parents

initial swimming coach very good

inner confidence as a barrier

it's all about education, inspiration and fun

it's always a battle, if not there's something wrong

it's as simple as not understanding deaf people

lack of appropriate equipment barrier to participation

lack of coach education can affect participation

lack of confidence for deaf child

lack of deaf awareness

lack of deaf awareness could put child in danger during sport

lack of development of fundamental skills in PE

lack of opportunity to try different sports

lack of parental support

lack of provision for deaf children

lack of suitable coaches or teachers for PE at primary school

learning to swim can put all children on even ground

lessons are not as fun as they were so children drop out

links with school help to provide opportunities for sports sessions which are deaf friendly

lots of opportunities for students to participate in sport

mainstream sport

making sport fun

missing out on a generation of footballers

missing out on deaf talent as headed mainstream due to lack of opportunity in deaf football

missing what the coach has said

more coaches with deaf awareness needed

more coordination needed to ensure coaches receive deaf awareness training

more opportunity for hearing children in sport

motivating children to participate in sport

need deaf awareness training in initial coaching or teaching qualifications

need for clearer routes for progression for deaf athletes

need for greater variety in PE to encourage participation

need for more coaches training in sign or BSL

need for routine when coaching or teaching deaf children

need for sports development officers for deaf sports

need more chances for deaf children in sport

negative side of sport participation for deaf children

never shown how to deal with deaf child in a class environment

no specific deaf awareness training related to sport in school

no specific interventions to help deaf children participate

no sport parents wouldn't want their child to try

no support worker in PE

no support worker too distracting for child

non-contact sport may be better for CI users

not all parents make coaches aware of children having hearing loss

not enough training for referees in deaf sport

not knowing where to point child to for sport participation

number of children coach has coached with hearing loss

number of males and females participating in sport group with hearing loss

open space difficult with deaf children

organisation educating parents on opportunities available for deaf or hard of hearing children

organisation for deaf children providing competitive sport opportunities

organisation providing opportunity to access mainstream sport

other children helping a deaf child

parent became a coach

parent believes in self-motivated success rather than reward based

parent concerned about physicality of sports

parent concerned over child struggling to make friends

parent concerned over contact sports

parent currently involved in sport

parent does outdoor activities with child

parent doesn't feel anything could be done to help child participate in sport

parent doesn't feel deaf awareness training will make a difference

parent doesn't want to over support child

parent encouraging child to try again at sports participation

parent feels child has preference for hearing sport

parent feels coaches of the disability team are excellent with their deaf child

parent feels deaf awareness at school is good

parent feels deaf child treated differently

parent feels positive about PE as child has not complained

parent feels teacher may have had negative impact on child's participation

parent felt mix of deaf awareness at school

parent felt they were not doing enough for their child

parent fighting for updated technology for use in swimming

parent had problems with sports coach

parent happy for participation in PE

parent happy with school PE teacher

parent having to fight for equality act at sports club

parent helps with deaf child's communication

parent not allowing child to do things for fear of damaging implant

parent not aware of resource to help child participate in sport

parent not currently involved in sport

parent over protective of child, trying to help them communicate

parent passionate about child's involvement in sport

parent previously engaged in sport

parent pushing child to try sport

parent supportive of child's needs

parent supports deaf and disability sessions as they want the sessions to continue

parent trying to encourage participation by providing opportunity

parent unaware of deaf sports clubs in their area

parent wary of deaf child participating in rugby due to CI

parent willing to encourage child to try team sports

parent worried about child being able to understand what is happening in sport sessions

parental fear as a barrier to participation

parental influence

parents as barriers to children's participation in sport

parents concerned over risk of banging head

parents encourage their child to be active

parents paying for private lessons to help child improve at sport

parents see more barriers than the child

parents support led to change

parents support child to make their own decisions about sport

participation in sport can help deaf children adjust to the hearing world

participation in sport for child may be easier with a friend

participation leading to impact on CI

PE teacher as role model

personality affecting coaching

physical impact of sport on cochlear implants

positive experience of sport to encourage participation

positive influence of games consoles on PA

positive role model to encourage participation in sport

positive side of sport participation for deaf children

practical changes need to be implemented to encourage participation in sport for deaf kids

preference for sports related to friends

providing sign support costly

provision of resources for children to access sport

psychosocial impact

pupils survey schools and act as representatives for sport

Rugby Coach Male - Coach is deaf

safety of sport with hearing technology

satisfaction for a coach seeing a child progress in their sport

school helps to maintain hearing technology

school PE keen to be inclusive

school provides TA for deaf children

school providing sign language sessions for hearing children

school tries to address issues as a whole

self-awareness

sense of belonging with other deaf individuals

separate coaching sessions for deaf children at deaf school mainstream not involved

should be an equal right in sport for deaf and hearing children

showing children hearing people can be communicated with using sign

showing hearing children what it's like to be deaf or hard of hearing

sibling to interpret during skiing holiday abroad

sign support available but based on priority

Sign support of coaching sessions

signing important as it is visual

simplifying sport for participation

size of the class or session can influence ease of participation

slower communication in cricket

smaller groups better for deaf child

social aspect of sport

social interaction easier in a deaf team

social isolation

some children just don't like sport whether deaf or hearing

some parents wanting child to be oral

some teachers may not wish to participate in sport due to negative experiences for themselves

source of information provision for coaches

specialist firm making equipment to aid rugby participation for CI users

sport rules preventing deaf football team competing

sports children wanted to access were not appropriate

sports opportunities organised without funding

stopped using FM system

swimming body making a change to ensure lessons are fun so children stay in sport

Swimming coach female - coach is hearing

swimming teachers are taught to use visual demos

taking steps to protect hearing technology during participation

teacher encouraging participation in sport

teacher feels emphasis in wrong place when teaching sports

teacher feels sport is undervalued

teacher not sure student benefits from use of radio aid in PE

teacher willing to learn BSL

teachers don't have time to consider extra training

teachers need to be made aware of training

teachers would forget the child was deaf

team game with individual aspects (cricket)

the right adaptations lead to good inclusion

the way sport is presented leaves room for failure

those delivering courses to coaches need to have had practical experience of disability they are discussing

training coach has received for deaf awareness

training teacher has received for deaf awareness

type of school attended by child

types of resource coaches would like for training deaf awareness

understanding why participation in sport is good

use of BSL or sign support

use of FM system in sports

use of hearing technology has helped child participate in sport

use of leaflets for deaf awareness training

use of leaflets to encourage participation

use of leaflets, flyers, posters to raise awareness of sports sessions

use of radio aid in sports

use of scrum cap for protection of technology

use of social media to encourage engagement in sport

use of technology for hearing by children

use of variety of sports in PE

visual communication in cricket

visual communication in sport

visual demos should be used in swimming for hearing and deaf

wanting child to have same opportunities as any other child

wanting to be made aware deaf child in session

wears rugby scrum cap to help with hearing technology

what children like about sports

what sports the deaf children participate in

when coaches are accommodating its fantastic

whole package of kids, parents and coaches important

why coach deaf children

why teacher or coach got into educating children in sport

working with deaf groups to encourage participation in sport

working with parents to encourage the child's participation in sport

working with those with hearing loss just like working with other children

would not want child to play rugby outside of school PE

APPENDIX 7: PARENT INTERVIEW PARTICIPATION INFORMATION SHEET

Participant Information Sheet

Children and taking part in team sport

We invite you to take part in research

- Before you decide whether you want to take part we want you to understand why this research is being done and what it would involve for you.
- Please take time to read the following information carefully. Discuss it with friends and family if you wish.
- It is up to you whether you take part in this research.
- Ask us if there is anything that is not clear or if you would like more information.

1 Why are we doing this research?

This research will look at why children do or don't take part in sport. We would like your help to find out what they like and don't like about sport.

Children who take part in sport have better communication, confidence, language and social skills. Taking part in sport can also reduce the risk of conditions such as obesity and diabetes. We know that some children enjoy taking part in sport and others do not.

We are particularly interested in children with hearing loss. These children should have the same opportunities to take part in sport and to gain the benefits from it. We know that some children with a hearing loss have problems communicating and communication is an important part of team sport.

This part of our research will ask parents of children with a hearing loss what their child does or doesn't like about sport, what sport they are involved in and what could be done to help them.

From the whole research project a set of guidelines will be created and teachers and students will be able to use them to help children with hearing loss take part in team sport more easily.

Nottingham Hearing Biomedical Research Unit



Sarah Wadsworth PhD Student
msxsw2@nottingham.ac.uk
0115 8232640

Contents

- 1 Why are we doing this research?
- 2 Why have I been asked to take part?
- 3 What will I have to do?
- 4 Do I have to take part?
- 5 What are the disadvantages or risks of taking part?
- 6 Payments
- 7 Data Protection
- 8 What will happen to the results?
- 9 Organising and funding the research
- 10 What if there is a problem?
- 11 How to contact us

2 Why have I been asked to take part?

We have been contacting a number of clubs, charities and organisations for sport and hearing loss. You are involved in one of these and we would like to know what your child with hearing loss does or doesn't like about sport.

3 What will I have to do?

We would like you to take part in an interview at a time and place convenient to you. The interview will involve the researcher (Sarah) and yourself. The interview will be recorded for later analysis. You will be asked some questions about your child and their involvement with sport and this will last approximately 60 minutes. The interview can be face to face, over skype or via telephone. British sign language support is available.

If you agree to taking part in the research please sign the consent form and return it to us using the freepost envelope enclosed or return via email. If you have any questions about the research contact Sarah and she will be more than happy to answer your queries.

4 Do I have to take part?

If you want to take part please sign and return the enclosed consent form. Please return this in the envelope provided or to msxsw2@nottingham.ac.uk.

Even after you have chosen to take part you are free to withdraw at any time and without providing a reason.

5 What are the disadvantages or risks of taking part?

Nothing in the interview is likely to cause discomfort

6 Payments

We are unable to offer payment for taking part in this interview but will reimburse reasonable travel costs.

7 Data Protection

Any personal data that we may collect for your child (age, hearing loss) will not be accessible or disclosed to other parties. The data collected will be stored, analysed and published in an anonymous way so that they are not in any way traceable to you or your child.

8 What will happen to the results?

The results from the interviews will be used to help design a questionnaire for the later part of the research.

The overall results will be presented at national and international scientific meetings. We will also publish the results in science journals. A copy of this can be mailed out to you in the post on request.

9 Organising and funding the research

The research is organised by the Nottingham Hearing Biomedical Research Unit, supported by the National Institute for Health Research. Sarah Wadsworth is a PhD student and is managing this research. She is supervised by Dr Abby McCormack who is a research fellow at the unit and Dr Heather Fortnum a lead researcher at the unit.

10 What if there is a problem?

If you have any questions about any aspect of this research, you should speak to the researchers who will do their best to answer your questions. If this does not achieve a satisfactory outcome then you should contact FMHS Research Ethics Committee Administrator, c/o The University of Nottingham, School of Medicine Education Centre, B Floor, Medical School, QMC Campus, Nottingham University Hospitals, Nottingham, NG7 2UH. Email: louise.sabir@nottingham.ac.uk Phone: 0115 8231063

11 How to contact us

If you would like to discuss the research further please contact Sarah Wadsworth at msxsw2@nottingham.ac.uk or on 0115 8232640 or Dr Heather Fortnum at heather.fortnum@nottingham.ac.uk. Website: www.hearing.nihr.ac.uk

APPENDIX 8: PE TEACHER INTERVIEW PARTICIPATION INFORMATION SHEET

Participant Information Sheet

Children and taking part in team sport

We invite you to take part in research

- Before you decide whether you want to take part we want you to understand why this research is being done and what it would involve for you.
- Please take time to read the following information carefully. Discuss it with friends and family if you wish.
- It is up to you whether you take part in this research.
- Ask us if there is anything that is not clear or if you would like more information.

1 Why are we doing this research?

This research will look at why children do or don't take part in sport. We would like your help to find out what they like and don't like about sport.

Children who take part in sport have better communication, confidence, language and social skills. Taking part in sport can also reduce the risk of conditions such as obesity and diabetes. We know that some children enjoy taking part in sport and others do not.

We are particularly interested in children with hearing loss. These children should have the same opportunities to take part in sport and to gain the benefits from it. We know that some children with a hearing loss have problems communicating and communication is an important part of team sport.

This part of our research will ask Physical Education (PE) teachers of children with a hearing loss about the children they teach and what they do or don't like about sport and participation in classes.

From the whole research project a set of guidelines will be created and teachers and students will be able to use them to help children with hearing loss take part in team sport more easily.

Nottingham Hearing Biomedical Research Unit



Sarah Wadsworth PhD Student
msxsw2@nottingham.ac.uk
0115 8232640

Contents

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- 3 What will I have to do?
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- 5 What are the disadvantages or risks of taking part?
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- 10 What if there is a problem?
- 11 How to contact us

2 Why have I been asked to take part?

We have been contacting a number of clubs, charities and organisations for sport and hearing loss. You are involved in one of these and we would like to know about your teaching experience of children with hearing loss and what they do and don't like about sport.

3 What will I have to do?

We would like you to take part in an interview at a time and place convenient to you. The interview will involve the researcher (Sarah) and yourself. The interview will be recorded for later analysis. You will be asked some questions about the children you teach and their involvement with sport and this will last approximately 60 minutes. The interview can be face to face, over skype or via telephone. British sign language support is available.

If you agree to taking part in the research please sign the consent form and return it to us using the freepost envelope enclosed or return via email. If you have any questions about the research contact Sarah and she will be more than happy to answer your queries.

4 Do I have to take part?

If you want to take part please sign and return the enclosed consent form. Please return this in the envelope provided or to msxsw2@nottingham.ac.uk.

Even after you have chosen to take part you are free to withdraw at any time and without providing a reason.

5 What are the disadvantages or risks of taking part?

Nothing in the interview is likely to cause discomfort.

6 Payments

We are unable to offer payment for taking part in this interview but will reimburse reasonable travel costs.

7 Data Protection

Any personal data that we may collect about you will not be accessible or disclosed to other parties. The data collected will be stored, analysed and published in an anonymous way so that they are not in any way traceable to you or your child.

8 What will happen to the results?

The results from the interviews will be used to help design a questionnaire for the later part of the research.

The overall results will be presented at national and international scientific meetings. We will also publish the results in science journals. A copy of this can be mailed out to you in the post on request.

9 Organising and funding the research

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11 How to contact us

If you would like to discuss the research further please contact Sarah Wadsworth at msxsw2@nottingham.ac.uk or on 0115 8232640 or Dr Heather Fortnum at heather.fortnum@nottingham.ac.uk. Website: www.hearing.nihr.ac.uk

APPENDIX 9: SPORTS COACH INTERVIEW PARTICIPATION INFORMATION SHEET

Participant Information Sheet

Children and taking part in team sport

We invite you to take part in research

- Before you decide whether you want to take part we want you to understand why this research is being done and what it would involve for you.
- Please take time to read the following information carefully. Discuss it with friends and family if you wish.
- It is up to you whether you take part in this research.
- Ask us if there is anything that is not clear or if you would like more information.

1 Why are we doing this research?

This research will look at why children do or don't take part in sport. We would like your help to find out what they like and don't like about sport.

Children who take part in sport have better communication, confidence, language and social skills. Taking part in sport can also reduce the risk of conditions such as obesity and diabetes. We know that some children enjoy taking part in sport and others do not.

We are particularly interested in children with hearing loss. These children should have the same opportunities to take part in sport and to gain the benefits from it. We know that some children with a hearing loss have problems communicating and communication is an important part of team sport.

This part of our research will ask Physical Education (PE) teachers of children with a hearing loss about the children they teach and what they do or don't like about sport and participation in classes.

From the whole research project a set of guidelines will be created and teachers and students will be able to use them to help children with hearing loss take part in team sport more easily.

Nottingham Hearing Biomedical Research Unit



Sarah Wadsworth PhD Student
msxsw2@nottingham.ac.uk
0115 8232640

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2 Why have I been asked to take part?

We have been contacting a number of clubs, charities and organisations for sport and hearing loss. You are involved in one of these and we would like to know about your coaching experience of children with hearing loss and what they do and don't like about sport.

3 What will I have to do?

We would like you to take part in an interview at a time and place convenient to you. The interview will involve the researcher (Sarah) and yourself. The interview will be recorded for later analysis. You will be asked some questions about the children you coach and their involvement with sport and this will last approximately 60 minutes. The interview can be face to face, over skype or via telephone. British sign language support is available.

If you agree to taking part in the research please sign the consent form and return it to us using the freepost envelope enclosed or return via email. If you have any questions about the research contact Sarah and she will be more than happy to answer your queries.

4 Do I have to take part?

If you want to take part please sign and return the enclosed consent form. Please return this in the envelope provided or to msxsw2@nottingham.ac.uk.

Even after you have chosen to take part you are free to withdraw at any time and without providing a reason.

5 What are the disadvantages or risks of taking part?

Nothing in the interview is likely to cause discomfort.

6 Payments

We are unable to offer payment for taking part in this interview but will reimburse reasonable travel costs.

7 Data Protection

Any personal data that we may collect about you will not be accessible or disclosed to other parties. The data collected will be stored, analysed and published in an anonymous way so that they are not in any way traceable to you or your child.

8 What will happen to the results?

The results from the interviews will be used to help design a questionnaire for the later part of the research.

The overall results will be presented at national and international scientific meetings. We will also publish the results in science journals. A copy of this can be mailed out to you in the post on request.

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If you would like to discuss the research further please contact Sarah Wadsworth at msxsw2@nottingham.ac.uk or on 0115 8232640 or Dr Heather Fortnum at heather.fortnum@nottingham.ac.uk. Website: www.hearing.nihr.ac.uk

APPENDIX 10: INTERVIEWS CONSENT FORM

Version 1 1st Sep 14



Nottingham Hearing
Biomedical Research Unit

Children and taking part in team sport Consent form

Investigators: Sarah Wadsworth, Dr Heather Fortnum, Dr Abby McCormack, Dr Imran Mulla

Please initial each box

1. I confirm that I have read and understood the information sheet for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I can withdraw at any time. I do not have to give a reason for withdrawal.
3. I understand that I can ask for further instructions or information about the research at any time.
4. I consent to the storage of information about me for the purposes of this research. I understand that any information that could identify myself will be kept strictly confidential. No personal information will be included in the research report or other publication. Data will be kept for 7 years after publication in a secure location at the Nottingham Hearing Biomedical Research Unit and will then be securely destroyed,
5. I understand that the interview will be recorded using an audio digital recorder and that anonymous direct quotes may be used in the final report.
6. I agree to take part in the research

Name:

Signature:

Date:

Researcher Name:

Signature:

Date:

Nottingham Hearing Biomedical Research Unit | Ropewalk House, 113 The Ropewalk Nottingham NG1 5DU

Tel: 0115 823 2600 | Fax: 0115 823 2615 | Web: <http://hearing.nihr.ac.uk/>

APPENDIX 11: ETHICS APPROVALS



Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

14th October 2013

Sarah Wadsworth
PhD Student
Nottingham Hearing Biomedical Research Unit
School of Medicine – Clinical Neurosciences
Ropewalk House
113 The Ropewalk
Nottingham
NG1 5DU

Faculty of Medicine and Health Sciences

Research Ethics Committee
Division of Respiratory Medicine
D Floor, South Block
Queen's Medical Centre
Nottingham University Hospitals
Nottingham
NG7 2UH

Dear Sarah

Ethics Reference No: C10102013 SoM CN – please always quote.

Study Title: Hearing impairment in children and its impact on the uptake of team sport.

Academic Supervisor in Charge: Heather Fortnum, Associate Professor and Reader, Research Lead, NHBRU, Division of Neurosciences, School of Medicine.

Co Investigators: Sarah Wadsworth, PhD Student, Abby McCormack, Research Fellow, NHBRU, Division of Neurosciences, School of Medicine, Imran Mulla, Research Co-ordinator, Ear Foundation.

Duration of Study: 10/13-05/16 2.5 yrs **No of Subjects:** 32

Thank you for your recent application which was considered by the Committee at its meeting on 10th October 2013 and the following documents were received:

Children and taking part in Sport:

1. UoN FMHS Med Sch Research Ethics Application form dated 23/7/2013.
2. Study Protocol, version 1.0, dated 23/7/2013.
3. Initial School Approach Letter Primary School Year 6 version 1, 24th Sep 13
4. Initial School Approach Letter Secondary School Year 8 version 1, 24th Sep 13
5. Participant Information for parents version 1.1 26 Sep 13 Hearing
6. Participant Information sheet for parents v1.1 26th Sep 13 Hearing impaired
7. Participant Information sheet for hearing children version 3.1 – 26th Sep 13
8. Parents Participant Information Sheet - hearing impaired children version 1.1- 26th Sep 13.
9. Focus Group Topics, version 1.0, 23/7/2013
10. Hearing Consent form, Final Version 1.0: date 24/09/2013
11. Hearing Impaired Consent Form version 1.0 date 24/09/2013

These have been reviewed and are satisfactory and the study is approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

2. You must notify the Chair of any serious or unexpected event.
3. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.
4. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely



Dr Caroline Chapman
Chair, Nottingham University Medical School Research Ethics Committee

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

**Faculty of Medicine and
Health Sciences**

Research Ethics Committee
Division of Respiratory Medicine
D Floor, South Block
Queen's Medical Centre
Nottingham University Hospitals
Nottingham
NG7 2UH

19th May 2014

Sarah Wadsworth
PhD Student
Nottingham Hearing Biomedical Research Unit
School of Medicine – Clinical Neurosciences
Ropewalk House
113 The Ropewalk
Nottingham
NG1 5DU

Dear Sarah

Ethics Reference No: C10102013 SoM CN – please always quote.

Study Title: Hearing impairment in children and its impact on the uptake of team sport.

Academic Supervisor in Charge: Heather Fortnum, Associate Professor and Reader, Research Lead, NHBRU, Division of Neurosciences, School of Medicine.

Co Investigators: Sarah Wadsworth, PhD Student, Abby McCormack, Research Fellow, NHBRU, Division of Neurosciences, School of Medicine, Imran Mulla, Research Co-ordinator, Ear Foundation.

Duration of Study: 10/13-05/16 2.5 yrs **No of Subjects:** 32

Thank you for your letter dated 3rd April 2014 notifying the Committee of amendment no 1 04.03.2014 as follows:

1. Recruitment information for the year 8 children at secondary school has been changed for greater ease of understanding.
2. Advice from the participating Schools suggest that for this type of activity in school consent would not normally be sought from parents but advise that an opt out approach will give the parents a chance to say if they do not wish their child to take part.
3. The participant information sheet for hearing impaired has been revised to improve ease of understanding.
4. The recruitment location for hearing impaired has been changed to included Schools and clubs for hearing impaired in order to recruit the number of children of the right age group required for this study.

The following revised documents were received:

Children and taking part in Team Sport:

- Initial School Approach Letter Secondary School Year 8 18.02.14.
- Participant Information sheet for parents version 4, 18.02.14.
- 28th Feb reply slip version 1.
- Hearing Impaired Consent form version 2, 18th Feb 14.
- Participant information sheet for parents version 2 28th Feb 14 Hearing Impaired.

These have been reviewed and are satisfactory and the study amendment no 1:
04.03.2014 is approved.

Approval is given on the understanding that the Conditions of Approval set out below
are followed.

1. You must follow the protocol agreed and inform the Committee of any changes
using a notification of amendment form (please request a form).
2. You must notify the Chair of any serious or unexpected event.
3. This study is approved for the period of active recruitment requested. The
Committee also provides a further 5 year approval for any necessary work to be
performed on the study which may arise in the process of publication and peer
review.
4. An End of Project Progress Report is completed and returned when the study has
finished (Please request a form).

Yours sincerely



Dr Caroline Chapman
Acting Chair, Nottingham University Medical School Research Ethics
Committee

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

**Faculty of Medicine and
Health Sciences**

Research Ethics Committee
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham
NG7 2UH

1st October 2014

Sarah Wadsworth
PhD Student
Nottingham Hearing Biomedical Research Unit
School of Medicine – Clinical Neurosciences
Ropewalk House
113 The Ropewalk
Nottingham
NG1 5DU

Dear Sarah

Ethics Reference No: C10102013 SoM CN – please always quote.

Study Title: Hearing impairment in children and its impact on the uptake of team sport.

Academic Supervisor in Charge: Heather Fortnum, Associate Professor and Reader, Research Lead, NHBRU, Division of Neurosciences, School of Medicine.

Co Investigators: Sarah Wadsworth, PhD Student, Abby McCormack, Research Fellow, NHBRU, Division of Neurosciences, School of Medicine, Imran Mulla, Research Co-ordinator, Ear Foundation.

Duration of Study: 10/13-05/16 2.5 yrs **No of Subjects:** 32

Thank you for your letter dated 9th September 2014 notifying the Committee of amendment no 2 01.09.2014 as follows:

- Changes to Recruitment: As stated in the original protocol one to one interviews will be carried out with Parents, PE teachers and coaches of children with a hearing impairment to inform later questionnaire design in the project. The interviews will be audio recorded, last approximately an hour and will take place at a time and location convenient to the participant. Payment will not be offered.

The following documents were received:

Children and taking part in sport:

- Participant Information Sheet for parent interviews version 1- 1st September 2014
- Participant Information Sheet for sports coach interviews version 1- 1st September 2014
- Participant Information Sheet for PE teacher interviews version 1 – 1st September 2014
- Consent Form version 1 – 1st September 2014
- Interview Schedule version 1, 30th September 2014.

These have been reviewed and are satisfactory and the study amendment no 2 is approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).
2. You must notify the Chair of any serious or unexpected event.
3. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.
4. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely



Dr Clodagh Dugdale
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

APPENDIX 12: TABLE OF STATEMENTS FROM SYNTHESIS

Statement	Parents report communication difficulties act as a barrier to their deaf or hard of hearing child's participation in swimming
Categorisation	participation
Data	• Parents report communication difficulties as a barrier to participation in swimming • Parents report their child losing interest in swimming due to communication struggles • Parents report their child falling behind in swimming class due to communication trouble
Statement	Additional resource is needed to enable deaf children to participate in sport, although some parents do not report any difficulties in accessing sports for their child and report clubs being willing to adapt.
Categorisation	resource
Data	• Parents report the need for additional communication support in swimming for their children • Parents expressed a desire for communication support for their deaf child other than a family member to encourage participation • Educators reported a difficulty in making time for training to improve their deaf awareness • Parents report difficulty in finding suitable instructors for their children and a difficulty in accessing appropriate support for their child • Parents report a refusal by some organisations to allow their children to participate in swimming as they are unwilling to accommodate • Some sports clubs refuse to allow children to participate due to having no previous experience of working with deaf children • Some sports clubs report they are concerned re communication issues and being unable to sign • Family providing transport to sports activities helps facilitate participation for deaf children • Coaches of deaf or hard of hearing children reported the cost to their club of sign language support and in some clubs this is unachievable • Parents and educators reported that there is a significant cost associated with sign language support • Children report a lack of choice of sports as a barrier to participation • Educators reported a lack of training for officials within sports for involving deaf children • *Some parents do not report any difficulties in accessing classes for their children • *Some sports clubs are positive and willing to adapt to meet the needs of deaf children *Parents report lack of suitable equipment and facility is a barrier to participation in sport

Statement	Adaptation of communication methods helps to facilitate participation in sport for deaf children
Categorisation	adaptations
Data	- Deaf children adapt communication methods using observation of people and copying others within sessions to help their participation - Parents / educators reported the deaf child's adaptations to communication by lip reading - Parents / educators reported the deaf child's adaptations to communication by observation of others - Parents / educators reported the deaf child's adaptations to communication by copying others - Educators adapting using visual cues encourages inclusion in sports - Educators adapting using demonstrations encourages inclusion in sports - Parents of deaf children felt helping their child communicating in sport impacted their independence - Parents reported helping deaf children with communication at their sports club to encourage their participation. - Deaf children with coaches willing to adapt their communication methods are able to participate more fully - Parents report a willingness by instructors to adapt helps engage their children - Parents reported when the coach is accommodating it is fantastic for their deaf children - Some sports clubs report they are concerned re communication issues and being unable to sign - Parents and educators expressed the need for equal rights for deaf children and stressed the importance of inclusion - Deaf children reported elation attached to sports participation and successful inclusion - PE teacher and coach interactions can impact participation in sport for deaf children - Some sports clubs report a willingness to learn sign language to support participation
Statement	Supportive families encourage participation in sport for deaf children but unsupportive parents act as a barrier to participation in sport
Categorisation	Family support

Data	- Parents report support from themselves for their children during sessions helped them to participate more fully in the swimming lessons - Some sports clubs show a willingness to work with parents to support participation of deaf children - Deaf children with sporty parents were enabled to participate in sport due to a good support network - Doing activities with siblings encouraged deaf children to participate *Educators reported a lack of parental support as a barrier to participation
Statement	Parents report safety concerns as a barrier to them allowing their deaf child to participate in sport and deaf children reported fear of injury and of damaging their hearing technology
Categorisation	safety
Data	- Parents have concerns with compromised safety due to communication trouble - Parents of deaf children acted as a barrier to participation with some fearing for their child's safety due to communication issues. - Parents reported safety concerns over their deaf child's participation in sports - Deaf children fear injury through sports participation - Deaf children fear damaging their hearing technology - Parents reported a fear of their children getting hurt during sports as a potential barrier to participation
Statement	Deaf children participate in sport to interact with their peers and their friend's activity choices and a desire for acceptance by hearing peers influences their participation choices
Categorisation	With peers
Data	- Communication and interaction with team mates could act as both a barrier and facilitator to participation in deaf children - Parents reported their deaf child's frustration with team mate's due to communication difficulty - Deaf children participate in sport to interact with other children - Deaf children whose friends participate in sports are more likely to participate themselves
Statement	Parents and children report missing instructions being interpreted as misbehaviour due to misunderstanding for deaf children
Categorisation	misunderstanding / miscommunication

Data	• Inability to hear instruction misinterpreted as misbehaviour is a barrier to participation in sport • Parents report behavioural issues with their children stemming from frustration due to communication difficulties • Parents report children missing instructions
Statement	The sports environment creates difficulties for deaf children due to long distance or extreme echo, however deaf children report exposure to the hearing environment as a reason for participation in sport.
Categorisation	Sports environment
Data	• Communication in sports halls can create echo's difficult for deaf children using hearing technology • Communication can be difficult in the sports environment • Parents reported their deaf child's frustration at their sports environment • Communication outside over fields over long distances can be a challenge for deaf children using hearing technology • Parents report the swimming pool environment causes communication difficulties • Deaf children report exposure to hearing children's environment as a barrier to participation • Children are left of sport due to struggling to understand others in the hearing environment • Parents report the politics of sport, who sits on committee as a barrier to participation in sport • Parents report the politics of sport, who sits on committee as a barrier to participation in sport • Parents of deaf children reported negative experiences with officials causing children to be discouraged from participating in sport • Parents of deaf children reported negative experiences with officials causing children to be discouraged from participating in sport • *Parents report lack of suitable equipment and facility is a barrier to participation in sport
Statement	Lack of deaf awareness from sports educators and lack of training for deaf awareness in the sporting context acts as a barrier to participation for deaf children
Categorisation	Deaf awareness
Data	• Parents report lack of deaf awareness from others makes communication harder for children • Educators and parents reported that the impact of deaf awareness training depends on the individual educator • Educators reported no specific deaf awareness training relating to sport in the school setting. • Coaches / educators who are deaf aware help to encourage participation

Statement	Children report a lack of time as a barrier to participation in sport
Categorisation	time
Data	- Children report time is a barrier to participation in sports - Parents report time is a barrier to participation in sports
Statement	Adults and children report a lack of intrinsic motivation to participate in sport and a lack of enjoyment as a barrier to participation
Categorisation	Motivation
Data	- Children report a lack of enjoyment as a barrier to participation in sports - Adults report a lack of interest as a barrier to sports participation - Sport being too competitive is a barrier
Statement	Children who are good at sport and have the appropriate skills are more likely to participate whilst deaf children may lack confidence in their own ability and fear embarrassment
Categorisation	Ability
Data	- Children report not being good at sport is a barrier to participation - Adults report a lack of motor skills (the ability to perform basic sporting movements) as a barrier to participation in sports - Children report a fear of being judged / embarrassed is a barrier to participation in sport - Parents reported some deaf children showed a lack of confidence in the sporting context - Educators reported some deaf children showed a lack of confidence in the sporting context - Sport being too competitive is a barrier - Parents worried about their child gaining independence in sports due to communication trouble - Deaf children like participating in sport because of the challenge and skill development - Parents report children not wishing to participate further due to embarrassment
Statement	Deaf children reported socialisation as a facilitator to participation in sport but negative experiences discouraged participation, with some deaf children preferring individual sports
Categorisation	socialisation
Data	- Making friends was a reason for deaf children to participate in sports - Some deaf children reported a preference for team sports and interaction with peers

	• Positive experiences when using technology or communicating in the sports environment helped encourage participation • *Negative experiences when using technology or communicating in the sports environment discouraged participation of deaf children • *Some deaf children reported a preference for individual sport where not as much communication is required
Statement	Children in general report a lack of choice as a barrier to participation whilst deaf children and their parents report practical barriers related to their hearing loss.
Categorisation	practical barriers
Data	• Removal of hearing technology during a sports session acted to discourage deaf children from participation due to communication difficulty. • Parents report health problems as a reason for their child not participating in swimming sessions • Parents report cochlear implants are a barrier to participation in swimming • Parents report grommets are a barrier to participation in swimming • Children report a lack of choice of sports as a barrier to participation
Statement	Sports educators identified that coaching principles are the same for all children but they were worried about making mistakes with deaf children e.g. forgetting to look at children
Categorisation	education
Data	• Parents report instructors not remembering to look at children when communicating • Educators reported a lack of knowledge of where to access deaf awareness training or training specific to inclusion for this group in sports • Educators shared that the coaching principles in sport are the same for deaf children and hearing children • Educators discussed the importance of education, inspiration and fun when coaching all children • Some sports clubs report a willingness to learn sign language to support participation • *Educators reported that they were worried about making mistakes with deaf or hard of hearing children which may put them off participating in sports
Statement	Children and parents report cost of participation in sport as a barrier to participation and parents of deaf children report the increased cost of private sessions as a barrier to participation
Categorisation	cost

Data	- Parents complain of expense of lessons due to having to pay for private rather than group lessons - Children report cost is a barrier to sports participation - Parents report cost is a barrier to participation in sports
Statement	Children in general report conforming to stereotypes including gender stereotypes and boy's domination of space as barriers to participation in sport
Categorisation	stereotype
Data	- Children report conforming to gender stereotypes is a barrier to participation in sport with females feeling the need to conform to being a 'girly girl' - Conformity to body images and social norms is a barrier to sports participation - Boys dominating the sporting space is a barrier to participation in sport
Statement	Preconceived ideas affect deaf children due to a hidden disability resulting in a lack of inclusion
Categorisation	Preconceived ideas
Data	- Children report bullying as a barrier - Adults report bullying as a barrier - Parents reported deaf child experiencing isolation in the sports context - Deaf children reported devastation and unsuccessful inclusion. - Parents reported their child being treated differently when participating in sport because they are deaf - Parents listed deafness as a barrier to participation in sports as it is a hidden disability
Statement	Children report a lack of voice as a reason for non-participation
Categorisation	voice
Data	Children report a lack of voice as a reason for non-participation