Does Self-Esteem correlate with Personal Radio Aid use in Hearing-Impaired Teenagers?

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Abstract

There is evidence that radio aids provide hearing-impaired students with the opportunity to access speech more accurately, especially when there is increasing levels of background noise by reducing the signal to noise ratio. Despite this, there seems to be a rising number of secondary school students who are reluctant radio aid users.

Being a teenager can be a turbulent time. There are biological and physiological changes taking place and hormonal changes which affect emotional responses. It is a time where teenagers value peer relationships and where peer pressure and fitting in with the crowd becomes very important.

Do hearing-impaired teenagers experience similar feelings to their peers? It raises the question whether these teenagers feel less confident and have lower self-esteem because they are expected to use a radio aid in class. How does the teenager feel when they have to overtly hand the radio aid to the teacher in every lesson, does the teenager feel different to their peers? There is a presumption from professionals that the reluctance to use the radio aid by hearing-impaired students is due to them having lower self-esteem.

A sample of 20 mainstream secondary school students across Surrey completed a self-esteem questionnaire and a questionnaire recording their use of, and views on, their radio aids. The outcome of the two questionnaires was to establish if there is any correlation between these two. The results show that although the majority of students felt they benefit from the use of their radio aid, less than half actually liked using it and that this was not linked to low self-esteem as nearly all the participants scored a normal or high level of self-esteem. The results highlighted that the main cause for not using the radio aid was not as proposed due to low self-esteem, but actually how the teachers used the equipment. Over half the students reported that teachers did not always position the microphone correctly or did not use the mute facility appropriately thus causing more difficulty with accessing the lessons.

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PSS	Physical & Sensory Support
ToD	Teacher of the Deaf
RSES	Rosenberg Self-Esteem Scale
ICF-CY	International Classification of Functioning, Disability and Health for Children and Young People.

DOES SELF-ESTEEM CORRELATE WITH PERSONAL RADIO AID USE IN HEARING-IMPAIRED TEENAGERS?

1. Introduction

1.1 Background

Hearing-impaired students can still experience difficulties in accessing speech in the classroom even when they are wearing their hearing aids or cochlear implants. Teaching styles now involve more 'partner talk' and 'group discussions' which increases background noise thus causing poor signal to noise ratio. Radio aid systems provide the opportunity for clearer and improved clarity in speech recognition in these noisier situations. The equipment consists of a microphone and transmitter worn by the main speaker such as the teacher and receivers, which are attached to the hearing aids or cochlear implants, worn by the student. The use of the radio aid improves the signal to noise ratio as the effects of distance and therefore the impact of background noise, is reduced (Thibodeau, 2010; NDCS, 2014). Furthermore, using the radio aid can increase academic levels as it allows the student to access all that is being said by the class teacher (Flynn et al, 2005). These systems range from body worn, wired equipment such as the Genie to discrete, small ear level receivers ideally suited for teenagers (Connevans, 2017).

Despite the number of radio aid systems issued through Physical and Sensory Support (PSS) in Surrey there is anecdotally a significant reduction in their use with mainstream secondary school students compared to primary. The Teachers of the Deaf (ToD) in PSS work with the students demonstrating and explaining the benefits that the radio aids will provide; in that it will help reduce background noise and provide clearer access to the teacher's voice. Despite evidence that shows the educational benefit for not only wearing the prescribed hearing aids (Tomblin et al, 2014) but also in using the radio aid system (Wolfe et al, 2013), many of the ToDs have incidentally reported there is an increasing number of teenagers supported by PSS, who reject their radio aid. This seems to occur with both students who are

familiar with radio aids, having been good users in their primary setting, as well as those who have been recently been issued with the equipment. This raises questions about the reason why. Do the hearing-impaired students have lower self-esteem than their hearing peers and thus do not to want to draw attention to themselves in the classroom? Are these students struggling to be part of the crowd and want to be the same as their hearing peers?

Personal radio aid systems come in a variety of styles and modes and are referred to in a range of terms, including loop systems working through the T-Coil programme; Remote Microphone (American Academy of Audiology, 2011; Frequency Modulation (FM) and Digital Modulation (DM) (Success for Kids with Hearing Loss, 2017). The most up-to-date models use digitally processed signals transmitted on 2.4 GHz bandwidth. The FM Working Group (NDCS, 2017) have agreed that the generic term for all types of personal systems will be 'radio aid'. To maintain this consistency the term 'radio aid' will be used throughout this study irrespective of the model being used by the students.

1.2. Outline of Research

Being a teenager can be a very stressful time, with many changes physically and emotionally alongside changes occurring within the brain which can lead to dramatic changes in behaviour and attitude (Crone & Dahl, 2012). In addition, there are environmental changes such as a major transition from primary to secondary school; moving from a small environment to a large setting with new teachers, lessons and new peers (Wolters et al, 2012). This time of change can be even more dramatic for teenagers who have a hearing loss as they may feel conscious about their hearing aids and more so if they are issued with personal radio aid systems. These teenagers may find they are the only student in the class, or year group or maybe in the whole school, who are expected to use these systems.

This study will explore the physical and biological changes taking place with teenagers, during adolescence, discussing how these changes can affect choices in teenager's actions, behaviours and attitudes. It will then discuss the impact of 'peer influence' and whether teenagers display such behaviours so they can be 'like' their

peers or be ‘liked’ by their peers (Auty & Elliott, 2001) and the importance of physical appearance. Linked with this, how social identification impacts teenagers’ levels of self-esteem. It will then examine if hearing-impaired teenagers in mainstream secondary schools demonstrate similar changes as their hearing peers during the adolescent phase. Finally, explore if it is low self-esteem or embarrassment that causes the hearing-impaired teenager to be more reluctant to use their radio aid system within the classroom setting.

The terms ‘adolescents’, ‘teenager’ and ‘student’ will be used interchangeably throughout this study and will refer to the students of Key Stage 3 and 4 at mainstream secondary school (11 – 16 year olds).

2. Literature Review

Being a teenager can be a turbulent phase in a person's life. It is a time of change physically, mentally and emotionally (Dahl, 2003). It is also a time when the teenager is moving away from the dependence of adults, seeking their own independence (Brizio et al, 2015). This section will explore what is occurring during adolescence, the impact of physical changes taking place, the impact of 'peer influence' and what are the impacts for the hearing-impaired teenager.

2.1. The Teenage Brain

Adolescence is a period of great turbulence. It is also a period of change, both physically and emotionally that results in changes in behaviour. These changes in behaviour have been discussed and explored for many years (Galvan, 2014). However, it is only within the last 10-15 years that the biological changes occurring in the brain could be researched through the use magnetic resonance imaging (MRI scanning) providing evidence to further explain the link between brain activity and behaviours (Crone & Dahl, 2012).

Adolescence is often linked with the onset of puberty. There are many physiological changes taking place, with the hormone levels of estrogen and testosterone spiking during this period. Kolb (2009) explores the surge of hormones and the changes in brain activity to determine which is the cause and which is the effect. Irrespective of this, there are clear changes taking place in the brain, with particular emphasis on the pre-frontal cortex; a region of the brain important for self-control and decision making. Images from MRI scans from adolescents show a significant decrease in the volume of grey matter and an increase in the volume of white matter (Davis, 2015; Whitford et al, 2007; Paus, 2005; Sowell et al, 2002). This is the most dramatic change in brain activity to take place after early childhood and appears to be necessary for the transition of childhood to adulthood. Davis (2015) and Galvan (2014) show there is strong activity within the cortex area associated with deeper thinking, cognitive skills, decision making and risk taking.

Coinciding with the changes in brain activity during adolescence, there is a surge of hormones being released through the body that can also affect the behaviour and emotional standing of teenagers. Teenagers respond to these feelings and emotions more quickly and more intensely than children or adults (Dahl, 2003) which could give the suggestion that these reactions and behaviours are impulsive and yet vulnerable simultaneously.

During this period there is a shift towards teenagers becoming more aware of their emotional stimuli. As the teenagers develop wider social groups it is necessary to be able to recognise and understand a range of emotions, especially through body language and facial expressions (Brizio et al, 2015). This may impact on those teenagers with lower self-esteem who experience difficulties in acknowledging these emotions.

As with many changes occurring in the brain, it is the pre-frontal cortex that affects emotional responses. In addition, synaptic re-organisation and atonal myelination is also occurring (Choudhury et al, 2006). All this activity causes weaker or unnecessary synapses to be 'pruned' away within the grey matter and speed of connection within the white matter allowing the connections to topics which the teenagers value to become stronger and embedded within their personality. (Davis, 2005).

2.2. The Social Identity of the Teenager

The transition from childhood to adolescence creates social as well as biological and physiological changes. As a child there is a reliance on immediate family members and a small circle of friends whereas for a teenager, there is a move from the dependence of parents with more focus on peers, social interaction and a wider circle of friends (Sumter et al, 2009). Gaining approval from their peers is much more important and in the effort to seek such approval, the teenager can be more susceptible to being influenced by others. This influence Dahl (2003) argues does not have to be in a negative way, but can be positive, such as through sports role models. However, this influence can be negative, with the teenager becoming

involved in violent gangs, becoming radicalised or developing anxiety and suicidal tendencies. And it is this negative behaviour in teenagers that tends to be more focussed on.

Although there are studies exploring the more extreme elements of this stage of life, Dahl (2003) reminds us that students are individuals and thus there will be varying degrees of intensity and responses to these influences. If every teenager experiences these rapidly changing brain activities with alterations taking place in the pre-frontal cortex, and the release of a variety of hormones due to puberty, why is it that some students are more susceptible to peer influence than others?

Self-esteem, or how the student views themselves, is an important factor in how well the student will transition to adulthood. The changes occurring in the brain affects the student's capacity for planning, memory retention, patience and emotional control (Davis, 2015). During this stage of life, teenagers seek approval more from friends and peers than from their family. Sumter et al, (2009) state teenagers will seek friends who have similar behaviours, views and attitudes and attempt to find their own 'self-image' within these friends. In doing so, Auty & Elliott (2001) conclude that the teenagers create a collective social identity which is validated through social interaction. Social identification, or the feeling of belonging to social groups, claim Benish-Weisman et al, (2015) has a direct impact their level of self-esteem. Students with a positive range of social identities both at home and at school, tend to have a higher level of self-esteem. This can be through simple activities such as attending school clubs or more extreme actives like racing cars on the high street. How teenagers react to certain situations can be very dependent upon who is involved. Decisions need to be made, some of which involves risks, causing a rush of adrenaline. Dahl (2003) and Sowell (2002) claim that it is an assumption that all teenagers are rebellious and defiant in their approach to life. Activities such as smoking, drinking, reckless driving and petty crime tend to be regarded as the focus for this age group. Albert et al, (2013) argues that teenagers in general are not necessarily seeking the rush of committing these activities, but once they are within a group or being observed by other teenagers, the desire and the will to carry out the activities becomes over-whelming. This demonstrates strong evidence for social influence, and the need to feel part of the group.

Although teenagers seek approval from peers, and seek the desire to ‘fit in’ with the crowd, Hay & Ashman (2003) also proposed that positive parental involvement in the teenager’s lives also promote a confident sense of self-esteem. Interestingly, Sumter et al, (2009) showed that although there is strong evidence of peer influence during the early stages of adolescence with impulsive actions and reactions, this actually reduces as the teenager gets older. Professors Winston and Byron (2017) through A Child of Our Time used a range of experiments to demonstrate and support the claims of the physical changes taking place in the brain combined with the social impact created through peer interaction. Recording brain activities during different situations, the show was able to show how areas such as the pre-frontal cortex work differently and more actively than in adults.

2.3. Teenagers, Trademarks and Identity

Being part of the group is more than just following the crowd; it's more about being the *same* as the crowd. Rather than standing out and displaying their own identity, Auty & Elliott (2001) claim teenagers will comply with the group of choice. A strong sense of self-esteem is more about being *like* someone, rather than being *liked* by someone. Being liked by others is again seeking the approval of others, whereas being like someone is demonstrated through the clothes worn, music listened to, type of phones used and even chosen hair styles, showing an allegiance to the group. Being ‘like’ is easier to adopt for teenagers giving them the outlet to ‘blend in’ with the crowd however, they still desire to be ‘liked’ by their peers. By wearing the right clothes; using a specific phone or headphones, or by styling hair in the correct ponytail is a public way of displaying their identity and as such being part of a social group and accepted as one of the ‘team’ (Schembri et al, 2010). Auty & Elliott (2001) conclude that for many teenagers purchasing and displaying the correct branded items to be the same as their peers is not the aim, what is the ideal goal is to be accepted by their peers.

2.4. Social Identify for the Hearing Impaired Teenager

It has been argued that hearing-impaired teenagers are perceived to have a lower self-image because they are different from their peers (Warner-Czyz et al, 2015). There is a higher risk of these students becoming depressed or anxious, being the victim of bullying and even having psychotic problems (Wolters et al, 2014). Not only do these teenagers have issues of moving from a smaller primary school setting to a large mainstream secondary school environment, they also have to use hearing aids and possibly a radio aid system in order for them to access their lessons. These students, just as their hearing peers, are seeking approval and acceptance within social groups.

Even with the emphasis being towards integration, with 87% of hearing-impaired students being taught within mainstream settings (CRIDE Report 2016), many teenagers can find that they are the only student in their class, year group or even in the whole school, who wear hearing aids (or cochlear implants) and possibly use a radio aid (Kent & Smith, 2006). This can cause even more difficulties in their bid to be socially accepted. There are some students who are reluctant to wear their hearing aids whilst at school as they do not want to appear different from their cohort. Many of these students identify themselves in line with their hearing cohort and consider themselves as not having a hearing-impairment. Kent & Smith (2006) conclude these students regularly experience difficulties of hearing accurately conversations within social environments, be it in the school setting or during outside activities. This can consequently have an impact on their social interaction with their peers.

Results from the 'Hearing Aid Effect' (Johnson et al, 2005) show that, despite the improved design and size of hearing aids, there is still a stigma amongst some students in actually wearing them, feeling that their hearing aids can be seen thus making them look different. Clothing and appearance is an approach used by many teenagers to promote a sense of belonging to and social acceptance; Ellington & Lim (2013) explored how teenagers would like hearing aids to be re-designed. Despite hearing aids being smaller, thinner and more discrete, wearing them is still a concern for some teenagers.

It has been discussed that teenagers are finding their own identity and developing new friendships of like-minded peers. This is further enhanced in the transition to secondary school. Wolters et al, (2012) argue that peer relationship is important for hearing-impaired teenagers and will impact on their level of self-esteem. Throughout this period of adolescence, students are also developing their emotional stimuli, or more specifically, 'adolescent egocentrism', Choudhury et al, (2006) claim that these students believe their peers are focussed upon them personally; watching and commenting on their behaviour and appearance. For those hearing-impaired students who feel insecure about themselves, the risk of not being accepted by their peers may well be enough for them to reject their hearing aids. How these students view themselves will also have an impact on whether they are confident to wear their hearing aids. Elkayam & English (2003) suggest that the cosmetic issues of actually wearing hearing aids may cause the student to feel self-conscious and in some cases even feel less intelligent than their peers. To avoid these feelings, the student simply avoids wearing their hearing aids. It is important, however, not to use this as the only reason for the reluctance to wearing hearing aids. Anmyr et al, (2011) found the lack of use also included hearing aids being broken, uncomfortable to wear and Cameron et al, (2008) found a large percentage of users were not satisfied with the sound quality from their aids.

Conversely, Qureishi et al, (2013) argue students do not experience teasing or bullying, nor did they demonstrate low self-esteem from having to wear their hearing aids. Furthermore, Dahl (2003) argues that hearing-impaired students who are simply accepted by their peers for who they are, despite of, or because of, their hearing loss appear to have a more confident level of self-esteem.

It is easy to assume that this is the experience of all hearing-impaired teenagers, but not all students refuse to wear their hearing aids once they join secondary school. There have been many studies that show students who actively embrace their hearing aids and display great maturity and confidence in their awareness and understanding of their hearing loss. These students will ensure they are positioned correctly in the classroom, will use their amplification equipment correctly and will provide their peer groups with supporting strategies for conversations and

discussions (Kent & Smith, 2006; Anmyr et al, 2011; Reddekal, 2014; Warner-Czyz et al, 2015). It can be argued the common factor with these students appears to be their confidence in their own identity, an identity that includes having a hearing loss. In addition, these students also have the support from their family with parents who express a positive attitude to their child's hearing loss. Zugliani et al, (2007) concur that those teenagers whose parents place value on them as a whole, hearing loss included, develop a stronger and more positive sense of self-esteem.

2.5. Hearing Impaired Teenagers and their listening devices

Since the introduction of the national (United Kingdom) new born hearing screening programme in 2006 most children with a hearing loss are now detected early, although there are still incidents and conditions which will result in a late diagnosis and issuing of hearing aids for older students. Data from 'Late Diagnosis of Permanent Childhood Hearing Loss' database at Royal Surrey County Hospital, (2017) show 28% of all new referrals were for children aged 11 years and above. Causation of hearing-impairment in teenagers can be from head traumas, chronic ear infections and exposure to loud noises (Colon et al, 2016; Packer, 2015). Reddekal (2012) supported the view that those students diagnosed later with a hearing loss tend to be reluctant hearing aid users. It is not, however, clear if this is due to the quality of sound from the hearing aids or due to the student's self-esteem.

School is the main source of socialisation for many teenagers; they are making new friendship groups, developing their own identity and independence, finding their own way, and at this age most of this will take place at school (Wolters et al, 2014; Newman Kingery et al, 2011). For this reason, it is really important that students feel comfortable within this setting. Just like their peers, hearing-impaired teenagers want to be able to connect to a range of 'gadgets' such as computer game stations and mobile phones (Athalye et al, 2015). Teachers are expected to understand and be able to support a range of additional needs within the classroom, including ADHD, autism and visual impairments. It is equally important that teachers understand the impacts of hearing loss and use appropriate strategies in which to support these students.

Those students who are confident and have good self-esteem will ensure they use appropriate strategies to engage in the learning such as inform the teacher when they can't hear accurately or if they need to move seats (Anmyr et al, 2011; Kent & Smith, 2006). Unfortunately, those students who do not view themselves as positively because of their hearing loss may not have the confidence to challenge the teacher to be moved to a more appropriate seat or to repeat a comment made by another student. Reddekal (2014) and Wolters et al, (2014) argue it is these less confident students who are more likely to become reluctant hearing aid users.

There are a range of options of assistive listening devices available for the student to use with their existing hearing technology, from personal radio aids, loop systems and soundfield systems, variants of which have been used with hearing-impaired students since 1960s (Watson, 2010). For professionals working with these students, radio aids appear to be the optimal answer to issues around acoustics and background noise (Ross, 2003). Due to advances in technology, radio aids are now available using 2.4 GHz bandwidth signals rather than frequency modulation channels giving increased clarity in the sound received. In addition, the reduced size from body-worn packs to ear-level devices make the systems less obvious to be seen by others. Contrary to Choudhury et al, (2006) 'adolescent egocentrism' and the presumption that some students do not use their radio aid as a result of what their peers may say, the reluctance to use the radio aid actually comes from the class teacher (Kent & Smith, 2006 and Reddekal, 2014). It really does not matter how advanced the equipment is, if the teacher won't engage in the use of the radio aid, or is unable to use it correctly, the student gains no benefit and still continues to run the risk of standing out in the class.

Boothroyd (2004) and Thibodeau (2014) have researched extensively the importance of reducing background noise within the classroom setting. This noise creates increased levels of distraction for the student. By using a radio aid system the student is able to access direct speech with increased clarity, reducing the effect of distance between the speaker and the student and dimming the back ground noise levels, consequently providing optimum listening platform to access their learning. Teaching techniques have changed with a greater emphasis on strategies such as 'partner talk' and group work during lessons. This causes the background

noise level in many classrooms to rise to levels that will make speech difficult to access. Hearing-impaired students are offered the opportunity to use a radio aid system during lessons which will support their access to speech and increase their understanding of the subject being taught. Further supported by Jacob et al, (2014) who conclude there is an increase in accessibility and improvement in lessons by students using radio aids. These systems have advanced from frequency modulated to digital models, Thibodeau, (2014) explored if these new models made any difference for the students. The results show there was a significant improvement in speech recognition even with high level of background noise. Despite these findings, it appear that it is equally important to obtain the student's opinion of this new technology as some students feel this additional equipment has been 'thrust' or 'forced' upon them with little or no discussion. Reddekal, (2014) argues the lack of discussion with the student is something that tends to take place more often that not.

Athalye et al, (2015) carried out a study, for the Ear Foundation, with secondary school aged students, comparing the clarity and sound from the new Roger X radio aid system (provided by Phonak) with the radio aids the students were already using. The students concluded the new systems actually provided greater clarity of sound in a range of activities both inside and outside compared to the previous models they had used. Although this study provided a good level of 'student voice' with regard to the new system, these students did not have the issue of being the only ones in the class with a hearing loss as the study was conducted through a group setting. This suggests that the worry or stress of having to 'fit in' was eliminated allowing the students to concentrate solely on the task of assessing the new technology.

What about those students who are happy to wear their hearing aids but are less inclined to use the radio aid system? Are they less inclined because suddenly it becomes very obvious to the rest of the class that they are different? The student has to hand over the transmitter to the class teacher at the start of each lesson and retrieve it at the end of the lesson. In secondary school this has to be repeated for every lesson, every day. Irrespective of whether the student has been provided with the most advanced equipment, they may find a reason not to use it because they simply do not want to raise any additional attention to themselves in this way in every lesson. Reddekal, (2014) also found that the main issue felt by the students was

that the radio aid equipment was too large and bulky, even though the models have been greatly reduced in size. This is an interesting conclusion as Reddekal's study involved not only the teacher using transmitter microphones but all the students in the class also using this equipment. The practise in some schools, including Surrey, is for only one transmitter microphone to be issued for the class teacher which may have an impact on how the student is able to access responses from other students in the class.

Isaken & Roper (2012) argue how branded items and their value added to them simply by the increased number of teenagers using them is important to developing peer identity. Unlike the latest smartphone or a recent release of a game station, radio aid technology cannot be shared with other peers, it cannot be compared with the latest features and apps, nor can it signal which social group the student is affiliated with, but it can highlight to the class that this student is different. These students want to be part of a social group, want to be accepted and they do not want to stand out as being different even if it jeopardises their ability to access the lessons accurately. Spending time and explaining the benefits of using the radio aid to the students is not always the most appropriate approach in order to get them to use the equipment. Albert et al, (2013) argues peer influence is very powerful and may cause the student to act more recklessly when observed by peers. Hearing-impaired students may understand the need for using the radio aid and recognise how it will allow them more accurate access to their lessons, but peer influence is more powerful, with the result often being the student ignoring or rejecting adult advice. ToDs will use speech discrimination assessments to provide concrete evidence to show the student how the radio aid will provide greater opportunity to accessing speech within the classroom.

Speech discrimination assessments, such as AB Short Word List or Manchester Junior Word List (Soundbyte Solutions, 2001 - 2017), provide the evidence to show students when they are not accessing words, either whole words or specific phonemes. By completing the assessments with background noise (using the automated ParrotPlus system) the evidence is able to replicate the distractions faced by the student when in the classroom. Being able to demonstrate the signal-to-noise ratio (Crandell & Smaldino, 2000) and the difficulties this can cause the student,

particularly when the sound is delivered from a distance (Reddekal, 2014) is important. The results of these assessments show the student the need to use the radio aid in order to access speech more accurately. Some students may acknowledge these results, and even agree that using the radio aid will enhance their learning, however, once in the classroom, they may then report the radio aid is in the cupboard or bag.

Even with the advancement in the radio aid technology, use of the bandwidth signal connection increasing the clarity of sound, and the reduction in size of the receivers, there are a number of teenagers who will still not use the radio aid (Ross, 2003). This research aims to explore the reasons for the unwillingness to use the radio aid in secondary school. During discussions with ToDs working in the Surrey area, assumptions have been made that this reluctance to use the equipment is due to low self-esteem and these hearing-impaired students do not want to stand out from the crowd; these thoughts are supported by Warner-Czyz et al, (2015) who claim hearing-impaired students can display low levels of self-esteem. Obtaining the views from a sample of secondary school students, this research aims to question if there is indeed a correlation between the level of self-esteem and the use of radio aids?

3. Methodology

3.1. Introduction

The records of radio aid use, losses and damages sent to the Audiology Technician in Surrey anecdotally suggest there is a significant number of teenagers who are choosing not to use the radio aid systems issued to them by PSS. As it is PSS who finances the equipment, it is important to establish a clear understanding of why some teenagers are using their radio aids while others are not. The difficulty faced for many ToDs is that they are not able to support these students as regularly as they would like and often rely on the school staff to ensure the equipment is being used. Although it is easy to identify how many students have been issued radio aids, it is harder to establish accurately the extent to which the equipment is being used. It is equally difficult to establish if the students are using their radio aid appropriately at school or how the student feels about using the radio aid. (Ross, 2003).

To start to identify and explore reasons for the non-use of the radio aid, the views of teenagers need to be collected. It is the pre-conceived views from ToDs in PSS that low self-esteem is a major factor for the reluctance in the use of radio aids as based on anecdotal evidence from team discussions. In order to establish if there is any correlation between self-esteem levels of and the use of the radio aid within the educational setting two sets of data need to be collected; one set in which the student identifies their own views of their self-esteem and another where they report on their views of, and how often they use, the radio aid in school.

For this study two different questionnaires will be used to collect the data: the published, well used Rosenberg Self Esteem Scale (RSES) 1965, together with a questionnaire exploring the student's use and view of their radio aid, entitled Use of Radio Aid with Mainstream Secondary Schools, which will be guided by categories from the International Classification of Functioning, Disability and Health for Children and Young People (ICF-CY) 2007 and Ear Foundation study on views of teenagers on wireless hearing technology (Athalye et al, 2015). In terms of sampling, Surrey covers a large and demographically diverse population and so it is necessary for the

student sample to reflect this. To ensure this, a random selection of secondary school aged students issued with a radio aid from the caseload of each ToD was contacted.

It is necessary to choose an appropriate method to collect the data to allow the greatest detail to be obtained. Ideally using the interview technique, be it with structured or open-ended questions, would be the preferred option providing the researcher the opportunity to gain in-depth, detailed responses (Snap Surveys 2014). In order to use this approach successfully, enough time needs to be allocated to carry out the interview as well as the preparation, recording responses and analysing the comments after the event. Detailed responses from open-ended questions are also challenging, as they can be so unique and individual making them difficult to compare. These challenges can be overcome by using a structured interview approach as each interviewee will be given the same questions to respond to, however, similarly there is a risk that the responses will not be reliable as the interviewee may give answers they feel the researcher wants to hear, rather than honest ones. In contrast, using a face-to-face style means there is the potential to create a rapport with the interviewee, with the aim to 'put the interviewee at ease' and thus obtaining more truthful responses. However, the time allocated for each meeting will be short, reducing the time for the researcher to develop a positive rapport with children or teenagers.

An alternative to the interview approach that would still provide relevant data is to use a questionnaire (University of Surrey, 2017). This provides a quick method to collect necessary information and responses and by being structured, everyone will be responding to the same set of questions. How the questions can be answered can vary, using rating scales such as 1-10 or smiley faces; multiple choice questions where there can be two or more answers; or simply fixed questions. These answers can provide quick quantitative data which make it easier to establish comparisons and analyse the answers in a more scientific manner. However, there is the danger that the questions can create 'prestige bias'; in a similar way to the interviews approach, the answers are given to appear 'correct' (Thomas, 2013). A benefit of questionnaires is that many can be sent out either posted or on-line giving the potential of a larger number of responses, but in contrast this can lead to the

possibility of non-responses, or even a difficulty for the student of not fully understand the questions resulting in unreliable results.

To give this research the optimum potential of reliable responses and to reduce any possible ambiguity in understanding the questions in both questionnaires presented to the students, the most appropriate methodology needs to be adopted. Using a questionnaire will ensure that the focus will remain on the set topic, however, as the audience is teenagers, they may be reluctant to complete the forms. For this reason, the questionnaires will be combined with face-to-face interview delivered by the researcher. This will make sure that the aim of the questions are conveyed without any ambiguity, but more important, should the student wish to expand on some ideas or issues, there is the opportunity to record these. The drawback of this is the length of time required to meet each student, but if this can be accommodated the result will be more reliable and responses more focussed (Thomas, 2013).

3.2. Self-Esteem Questionnaire

It is important when establishing the student's own view of their self-esteem, to explore how they view themselves particularly as teenagers, and in addition teenagers who have a hearing impairment (Auty & Elliot, 2001). This can be an emotive topic for adults, but it is particularly difficult with teenagers who are often less wiling to open up about their feelings (Warner-Czyz et al, 2015), thus it is vital that the format of the questionnaire used is one that is reliable and valid. The RSES (Rosenberg et al, 1965) a validated structured questionnaire, has been widely used globally, with the largest study of over 28 different nations carried out by Schmitt & Allik (2005) and with a range of participants from teenagers to adults. This scale was devised with the aim of measuring self worth specifically in teenagers although it has been used with a range of ages from children to older adults. It consists of 10 statements; 5 with a positive slant (questions 1,3,4,7,10) and 5 with a negative one (questions 2,5,6,8,9). All questions use a 4 point Likert Scale (Strongly Agree, Agree, Disagree, Strongly Disagree) which is believed to be uni-dimensional (Fetzer Institute, 2016). There is a scoring scale to measure the results:

- For items 1,2,4,6,7: Strongly Agree=3, Agree=2, Disagree=1, and Strongly Disagree=0.
- For items 3,5,8,9,10: Strongly Agree=0, Agree=1, Disagree=2, and Strongly Disagree=3.
- The scale ranges from 0-30, with 30 indicating the highest score possible. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem.

This scale has been used worldwide since its introduction in the mid 1960s on a range of subjects including pregnant teenagers (Ethier et al, 2006), children of ex-prisoners (Boduszek et al, 2013) as well as older adults (Mullen et al, 2013). Despite it's popularity, it has also been open to questioning regarding its validity and reliability (Alessandri et al, 2015)

The main concern about the scale appears to be the wording, with particular reference to the negatively worded questions, for example:

8. I wish I could have more respect for myself			
Strongly Agree	Agree	Disagree	Strongly Disagree

It was argued that to be able to respond accurately the subjects involved required a high level of grammatical understanding (Marsh, 1996). Further exploration has been carried out into the re-wording of these questions. Marsh (1996) and Greenberger et al, (2003) re-phrased the questions so all 10 had either a positive or a negative slant. Schmitt & Allik (2005) claims the results were less accurate with the re-phrased questions. Huang & Dong (2012) state it is the general consensus that using the original format with a mix of positive and negative questions provided accurate and valid results more consistently. Furthermore, Wang et al, (2015) demonstrates how using this mixture of questioning actually used a wider range of neurological responses, thus supporting the argument that the original version of the scale will be appropriate to use within this study.

3.3. Use of Radio Aid in Mainstream Secondary Schools Questionnaire

Establishing how students feel about and use their radio aid equipment requires meaningful questions. The ICF-CY (2007) was created to record the characteristics of the developing child and the influence of the child's surrounding environment and provide a universal definition and measurement of disabilities using a global, common language. Although it was considered to be a universal tool within a multi-disciplinary team used within the assessment procedures (Sanches-Ferreira et al, 2014), there have been some concerns about the assessment tool. Lundalv et al, (2015) discussed the assessment tool with a selection of disability organisations in Sweden and they found that although considered as universal, these disability organisations had either not heard of the ICF-CY or felt it was not worth using. In addition, those that were familiar with it felt that the criteria used actually made the individuals involved feel uncomfortable and offended. So with this in mind, the ICF-CY categories linked to hearing-impairment were used more as a guideline rather than to be used to measure responses.

The purpose of both questionnaires is to gain the thoughts and comments from the student. It is, therefore, important that it is not too wordy and in language that is understandable. Hearing-impaired students can find the more complex structures of grammar more challenging to acquire (Mayer, 2007; Knoors & Marschark, 2014) so it is important the vocabulary is accessible for all the students involved in the sample. The RSES, being a validated structured questionnaire, can appear old fashion in its language, for example, 'I feel I am a person of worth, at least on an equal plane with others.' This is not the language used by 21st century students. For most students this may not be familiar vocabulary and may result in mis-interpretation and subsequently inappropriate responses. For the radio aid questionnaire, the researcher considered the choice of vocabulary used and sentence formation so that it is not only informative but also interesting for the students. The focus of the topic needs to be maintained and so a range of question formats are used, including rating scales, multiple choice questions but also with the option to extend on 'tick box' answers with comments of their own personal experiences.

3.4. Approach to Questionnaires

The issues of the Rosenberg Self-Esteem Scale requiring a high level of grammatical understanding has been discussed, equally with the concerns about the categories within the ICF-CY having the potential to offend, it is necessary to consider how the questionnaires will be presented to the students within this study. The issues around understanding the complexity of the questions has a greater impact on hearing impaired students who are more likely to experience difficulties in language and literacy skills. Despite the introduction of the newborn hearing screening programme nationally in 2006, early diagnosis and intervention with hearing aids or cochlear implants this continues to affect hearing impaired children (Mayer, 2007). The National Curriculum for English framework (2014), followed by all mainstream secondary schools, is designed so that KS3 and KS4 students work towards obtaining a reasonable grasp of the more complex grammatical structures of literacy. However, Lederberg et al, (2013) argue that even though personal amplification and technology has greatly improved, auditory input is still not as detailed as natural hearing, consequently affecting the literacy development of hearing impaired students. Considering this, to prevent the risk of misinterpretation of any questions, with particular emphasis on RSES and it's negative focussed questions, and to avoid the possible refusal in completing the questionnaires, they will be completed with the researcher present who will be able to explain and clarify any questions that may cause confusion. As discovered through the qualitative study carried out by Athalye et al, (2015) it is vital that the views of the students are recognised and they feel that they are involved in the process. A student within the PSS, caseload contributed to the final format, and piloted the radio aid questionnaire. In addition, having the researcher present at the time of completing the questionnaire, the students will be able to seek clarification of any questions if required. It will also provide a good opportunity to allow the students to elaborate on any comments made in the radio aid questionnaire.

3.5. Sample for the Study

In Surrey, the ToDs will offer students the use of radio aid if it is deemed the system will benefit them within the classroom setting. Using speech perception assessments

such as the AB Short List, particularly in background noise, would provide the necessary evidence needed. There is a high percentage of students supported by PSS who do not require or use radio aids, however, of those who have been provided with a radio aid, and who are currently at secondary school working at KS3 and KS4 a selection of 20 students will be chosen from those who have given permission to take part in the study. It is important the sample reflects the diversity of the Surrey demography which means all secondary school students supported by PSS, who meet the criteria, should be considered. In addition, it is important to have an equal number of male and female participants in the study, as it is often the males who are referred as reckless and rebellious (Dahl, 2003). As the aim is to establish if there is a correlation between level of self-esteem and radio aid use with teenagers in mainstream school, it will not be including students attending special schools, or secondary school with Hearing Impaired Units (HIU) attached. The students involved may receive some support in class from teaching assistants, and some may have additional medical needs, but not to the extent that it impedes their access within the mainstream setting.

In addition to collecting data on how students feel about using their radio aid, it is also important to gain their views about actually being at school. School is the establishment where students spend most of their day. There are challenges for the students moving to a secondary school, together with the challenges of their own personal developmental changes (Newman Kingery et al, 2011). Students who are happy at school are more likely to perform better academically. Ohrt et al, (2014) and Wolters et al, (2012) state a positive experience at school will support positive well-being for the student.

3.6.1. Aim of the questionnaires.

The aim of this study is to identify if there is any correlation between self-esteem levels in secondary school students and their use of their radio aid in school. The data will be exploring the students' reasons and explanations for their use, or lack of. The students will be asked to rate their personal view of using the radio and separately their view of the benefits the radio aid provides. Albert et al, (2013) suggest that despite being aware of the benefits this may not be enough for the

students to actually want to use the radio aid. A comparison between hearing aid wearers and cochlear implant users explored if there is a difference in their use of the radio aid. (Cameron, 2008; Schafter & Thibodeau, 2006). These comparisons do not provide any explanation as to 'why' the students are less inclined to use the radio aid; encouraging the students to be clear as to these issues will potentially present data which can explore if the students feel they are 'forced' to use the equipment (Reddekal, 2014) or if they feel that the school staff are not using the equipment correctly or value the importance of using the equipment correctly (Reddekal, 2013) or if they are actually embarrassed to use the radio aid in the classroom.

Students are at school for a large proportion of their day. It is important to establish if they enjoy being at school, or if they are experiencing some difficulties either academically or socially, as this could affect their self-esteem.

3.6.2. The Participants involved

The participants consisted of 10 male and 10 female. All participants attend mainstream schools; 17 attend school where there is at least one other hearing-impaired student, but may not necessarily know or engage with them. The remaining 3 participants are the only hearing-impaired students in their school.

All the participants involved have a bilateral hearing loss and are consistent hearing aid or cochlear implant users. The hearing loss ranges from mild to profound with 55% having a moderate loss, 40% have a severe, severe/profound or profound loss. Only one participant viewed their hearing as mild. Refer to Table 1.

Table 1: Hearing Demographic of the participants involved

Participant ID	Age	Gender	Hearing Loss	Type of Hearing Aid/Cochlear Implant used	Radio Aid system issued
1	12	F	Severe	Phonak Nathos Micro	Phonak Inspiro with Mlxi
2	13	F	Severe/ Profound	Phonak Nathos UP	Phonak Roger X
3	12	F	Moderate	Phonak Nathos Micro	Returned Phonak Inspiro
4	14	F	Severe	Phonak Nathos Micro	Phonak Roger X
5	12	M	Mild	Oticon Zest & Vigo	Comfort Audio Loop system
6	11	M	Moderate	Phonak Nathos Micro	Phonak Roger X
7	13	M	Moderate	Phonak Nathos Micro	Phonak Roger X
8	13	M	Moderate	Phonak Nathos Micro	Phonak Roger X
9	13	M	Severe	Phonak Nathos UP & SP	Phonak Roger X
10	13	M	Moderate	Phonak Nathos SP	Phonak Roger X
11	13	M	Severe/ Profound	Phonak Nathos SP	Phonak Roger X
12	15	F	Moderate/ Severe	Phonak Sky SP	Phonak Roger X
13	14	F	Profound	Cochlear Nucleus 6	Phonak Roger X
14	15	F	Moderate	Oticon Sensei Pro	Phonak Inspiro with Mlxi
15	15	M	Profound	Cochlear Nucleus 6	Phonak Inspiro with Mlxi
16	11	F	Profound	Cochlear Nucleus 6	Phonak Roger X
17	14	F	Moderate	Phonak Nathos Micro	Phonak Roger X
18	13	F	Moderate	Phonak Nathos Micro	Phonak Roger X
19	13	M	Moderate	Phonak Nathos Micro	Phonak Roger X
20	11	M	Moderate	Phonak Nios	Phonak Roger X

This study will follow the guidelines laid out by the Code of Practise for the Ethical Standards for Research Involving Human Participants (Hertfordshire University, 2016) and all necessary ethics forms (Appendix 1, 2 and 3) have been completed and approved. Once students and parents have given permission, through the ethics forms, the questionnaires (Appendix 4 and Appendix 5) will be conducted and completed at the school setting over a period of six weeks. The researcher will be present with each participant. The information collected will be the views of the

participant, with any additional comments being added to the questionnaire sheet. Participants will be reminded that all information given is done so anonymously and this will remain so throughout the study.

4. Results

4.1. Introduction:

The data collection consisted of two questionnaires; one being the Rosenberg Self Esteem Scale and the second being 'Use of Radio Aid within Mainstream Secondary Schools exploring the usage of and participant's views of their radio aid. A total of 22 secondary school students were invited to take part, two of which declined from participating. The results shown are from the remaining 20 students (see Table 1).

The most frequent type of hearing aid issued to this group of students is the Phonak Nathos (ranging from the micro, SP and UP). Other Phonak hearing aids included the Nios and Sky SP. Three of the participants had cochlear implants (Cochlear Nucleus 6) and two participants had Oticon aids. All the radio aid systems issued were Phonak make; three of which were the Inspiro with MIxi receivers using FM channels, the rest being Roger X which uses 2.4 GHz transmission. One participant was using a Comfort Audio FM system with neckloop and one had recently returned the Inspiro FM, not wanting to use the system any more.

The participants involved include a set of twins, one participant who attended a Hearing Impaired Unit at primary school but now attends a secondary school which does not have a unit, two participants have additional physical needs and one has a recognised behaviour disorder.

The researcher was present when each participant completed the questionnaires to offer support in understanding and clarifying any possible ambiguities with the question format or word meaning.

4.2. Rosenberg Self Esteem Scale

The RSES was used to establish self-esteem levels with the participants. The overall results seen in Figure 1 show the majority of the participants scores fall into

the ‘normal level’ range (scoring between 15-25). This represented 75% of those taking part. Only one participant fell into the ‘low level’ of self-esteem, however, two further scores were on the borderline of 15 and may demonstrate traits of low self-esteem. The remaining participants scored over 25 suggesting they have a high level of self-esteem. Those with a high level score were all male and the only participant to score below 15 was female, however, there were two particpants, both male, who were borderline with a score of 15.

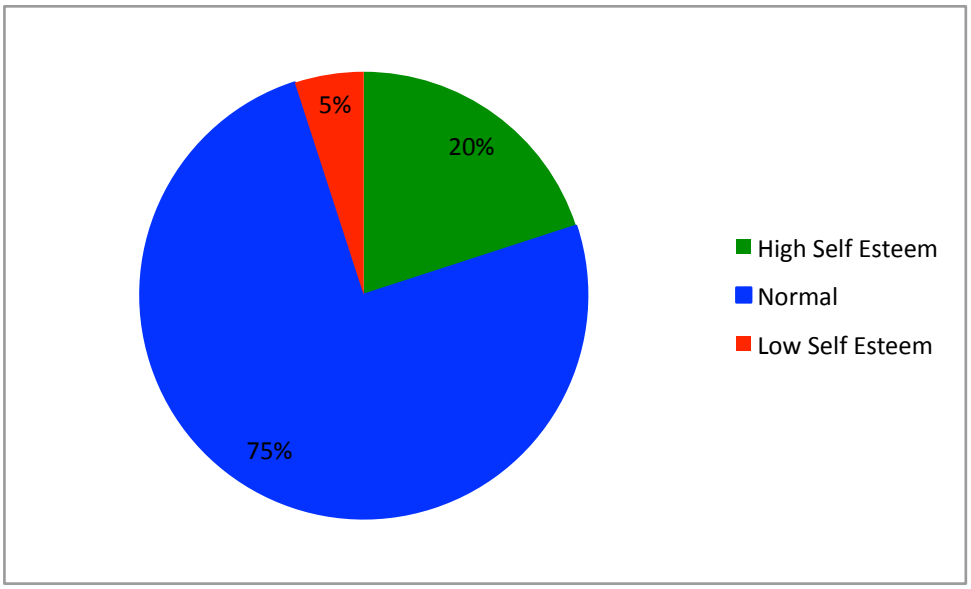

Figure 1: Results of RSES which demonstrate majority of participants have self-esteem within the normal range. Scores between 15-25 suggest a normal level of self-esteem; scores above 25 suggest a high level and scores below 15 suggest a low level.

Table 2: The RSES scores from all the participants. Scores below 15 = low self-esteem level. Scores between 15 – 25 = normal self-esteem level. Scores 26 and above = high self-esteem level.

Participant ID	RSES Score	Self-Esteem Level
1	23	Normal
2	18	Normal
3	24	Normal
4	22	Normal
5	17	Normal
6	21	Normal
7	29	High
8	26	High
9	24	Normal
10	27	High
11	15	Normal
12	13	Low
13	22	Normal
14	21	Normal
15	29	High
16	19	Normal
17	18	Normal
18	18	Normal
19	15	Normal
20	22	Normal

4.3. Hearing Demographic and Radio Aid usage

The participants were asked how they would consider themselves regarding their hearing loss. Half saw themselves as 'hearing impaired' and nearly one third consider themselves as 'Deaf'. Only one participant chose 'other', referring to themself as 'partially deaf'.

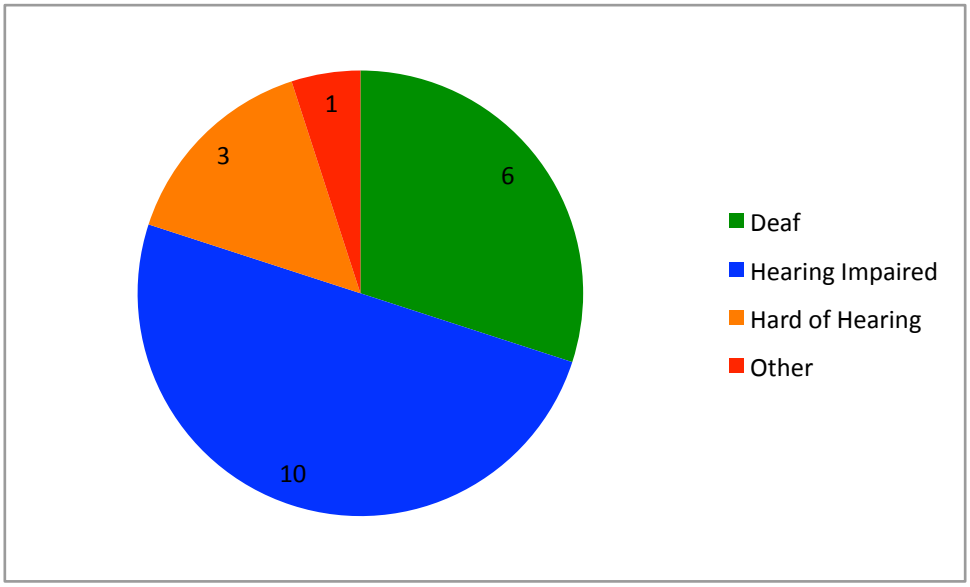

Figure 2: Graph to show how the participants described themselves relating to their hearing loss. The participants were given 3 choices and a further option of other if they wanted.

When asked about their hearings aids, 60% of the participants confidently knew what type of hearing aids they have, recording the make and model without any assistance from the researcher. All the participants have had the use of a radio aid whilst at secondary school. 15 of them used radio aids at primary school; five participants were using radio aids for the first time since starting secondary school. Four participants who used the radio aid at primary school no longer used it at their current school. One participant felt they did not need to use it any more.

> *'I am in top set for maths, science and achieving my targets' without the use of the radio aid.* (P21)

Half the participants actively used the radio aid for all lessons in school, where 30% had made a conscious decision to use it in selected lessons. These decisions were made with another adult including the ToD or parent or made by themselves.

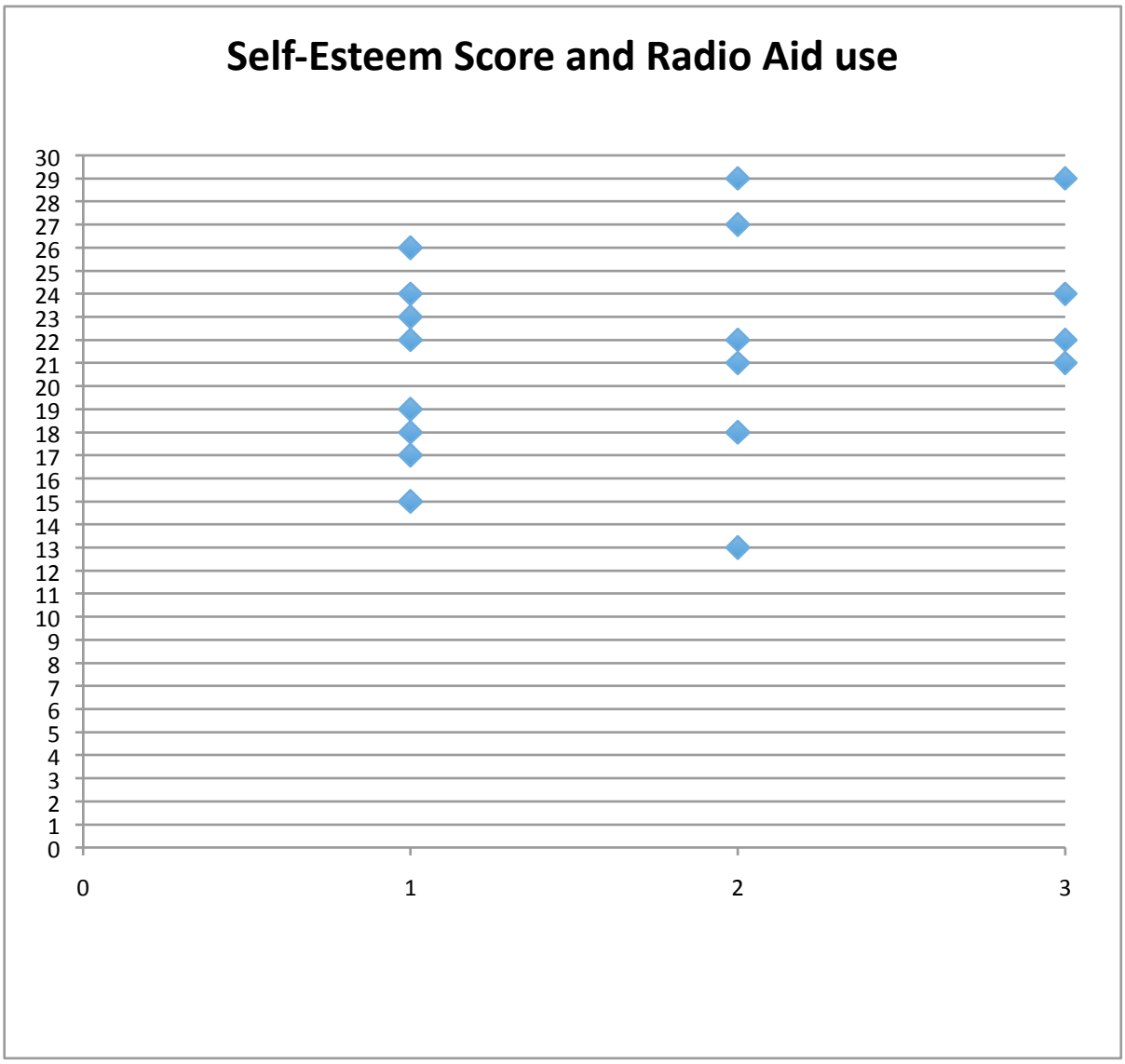

Figure 3: Graph showing the radio aid usage when compared to RSES score. Radio Aid usage: 1 = Always use; 2 = Sometimes use; 3 = Never use.

In addition, only two participants stated that they do not like handing the transmitter to teachers feeling '*others are looking at me'* (P17*)* and that '*pupils are not always aware'* (P13) of what the equipment is for.

4.4. ‘Like’ and ‘Benefit’ of using the Radio Aid.

The questionnaire aims to establish the views of the participants on how much they ‘like’ using the radio aid in lessons. Then separately obtain their views to the ‘benefit’ of using the system in lessons.

By only looking at the ‘yes/no’ responses 65% of the participants ‘like’ the radio aid whereas a higher percentage, 85%, feel they benefit from its use. The score values given by each participant for ‘like’ and ‘benefit’ as shown in Figure 4 show a distinct difference in views between the two options. Scores given for liking the radio aid are equally balanced between ≥5 and <5, however, when this is compared to the value given for the benefit of using the radio aid the scores ≥5 are significantly higher.

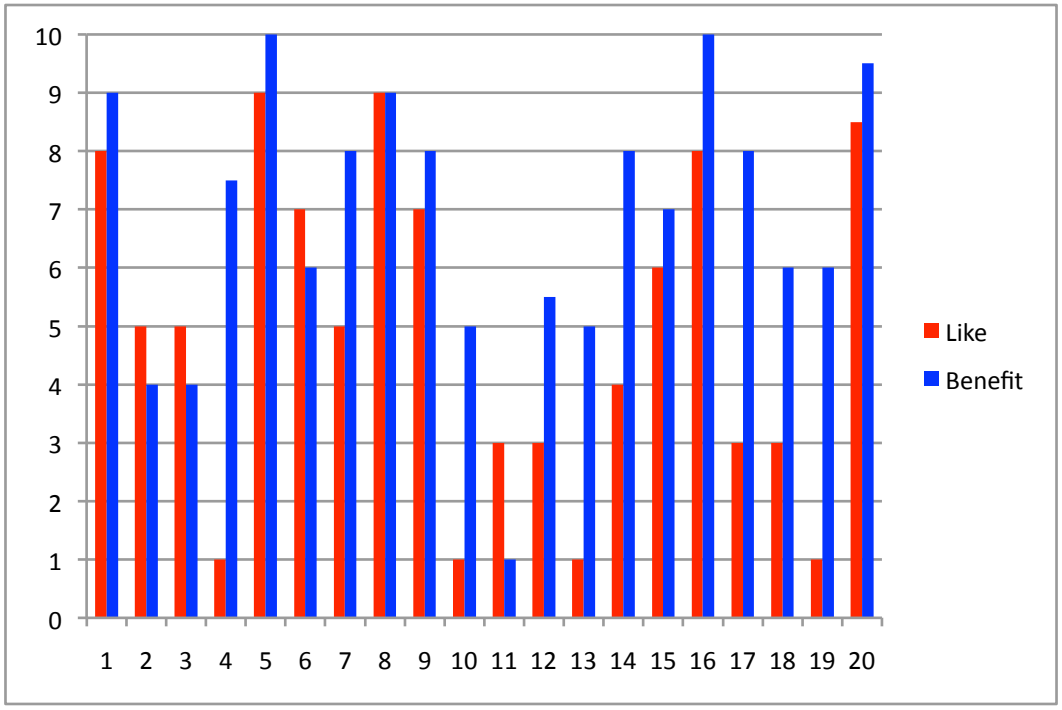

Figure 4: Comparison scores given by the participants on how they ‘like’ and feel they ‘benefit’ from the radio aid. More of the participants felt they benefited from using the radio aid, however, they did not always like using the system.

4.5. General Hearing

The participants were asked about their views on how well they think they can 'hear', without the use of the radio aid, in different situations around school using a 'Yes/No' option. All the participants felt they were able to hear confidently in 1:1 situations. This was reduced to only 60% who confidently felt they could hear well in a group setting and just over half felt they were able to access their friends in a more social setting with two participants adding they need to access lip patterns to support their understanding.

They were then asked to comment on their active and actual participation in a range of settings around school. The participants selected from 'often', 'sometimes', 'rarely' or 'never'. Only 45% felt they actively participate in whole class discussions and 35% reported that they never or rarely participate (Figure 5).

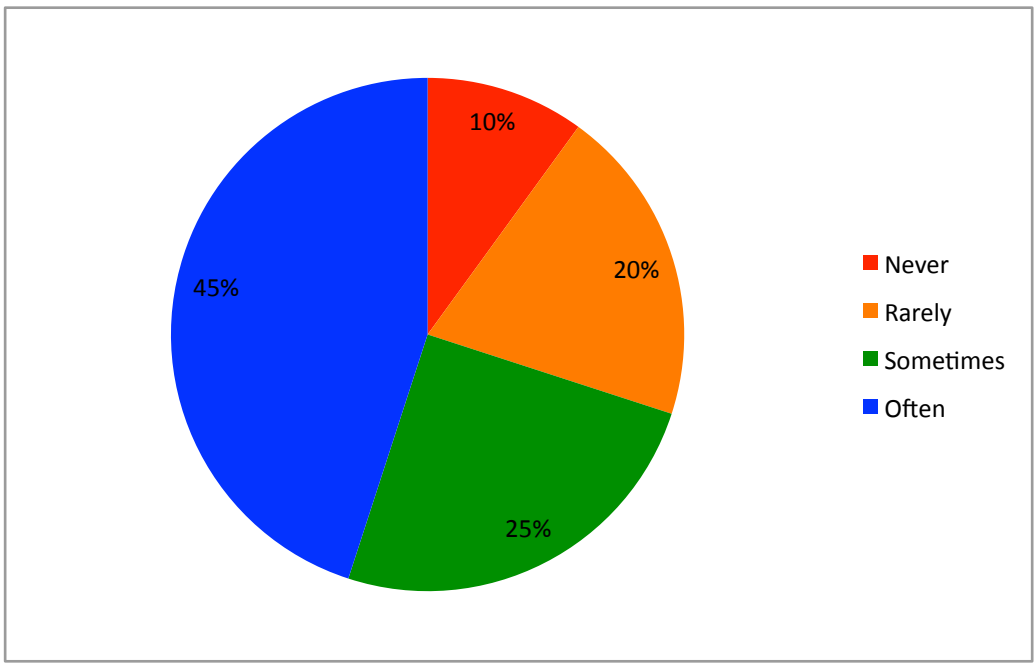

Figure 5: How participants feel they contribute to whole class discussions

Participating in smaller, group discussions the participants felt more confident in their ability to actively take part in these situations (see Figure 6). Only one participant (P11) felt they never got involved in either whole class or group discussions whereas the others felt they would participate either ‘often’ or ‘sometimes’.

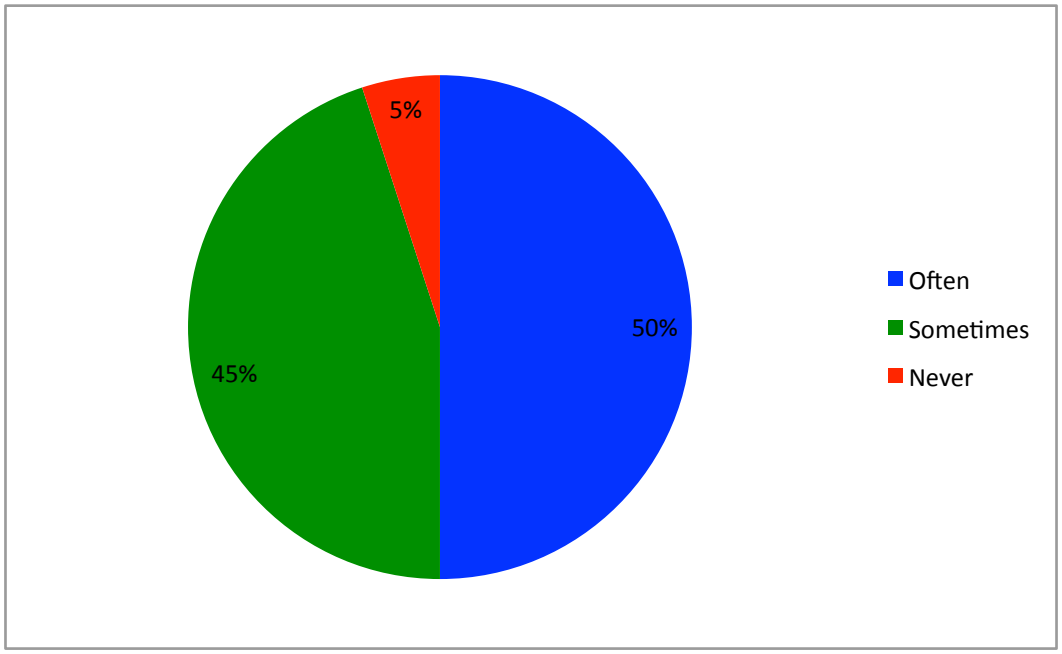

Figure 6: Participants view on how well they contribute and participate smaller group discussions

When the participants were asked how well they participate in conversations within social settings such as chatting in the dining hall, the levels in this setting, as shown in Figure 7, increase with 70% feeling they often engage and participate with friends.

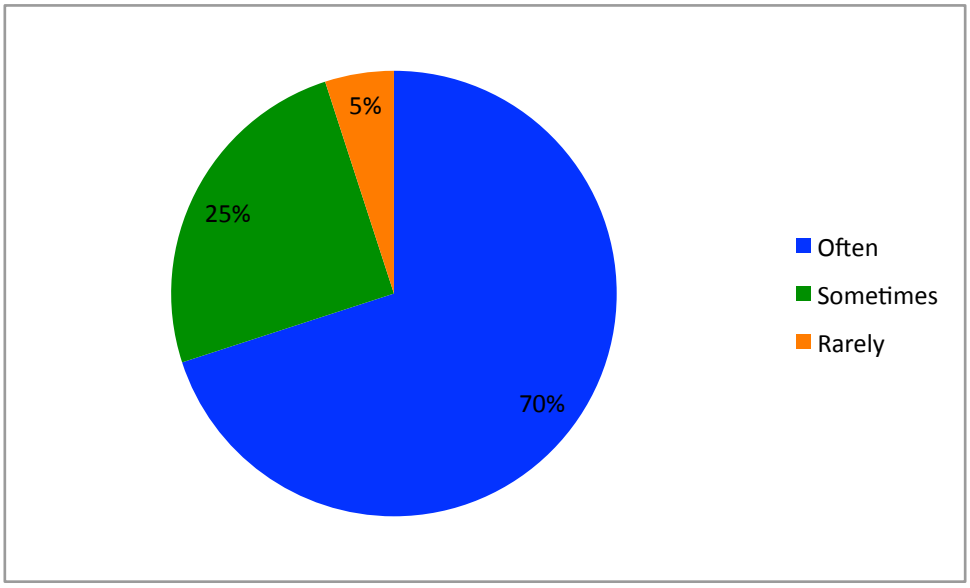

Figure 7: Participants view on how they feel they participate in conversations in social settings.

4.6. Strategies Used

The participants were asked to identify the different strategies that they use within a range of situations and strategies they felt their teachers used within the classroom setting.

4.6.1. Strategies the Participants use

Participants all stated they would ensure they were seated a the front of the class so that they are able to see the teacher clearly, however, only half would ask for comments or information to be repeated if they had not heard it clearly (see Figure 8). Rather than ask the teacher, strategies employed by the participants include asking friends or those on their table for clarification. Teaching Assistant support is available and used by 60% of the participants for some or all of their lessons.

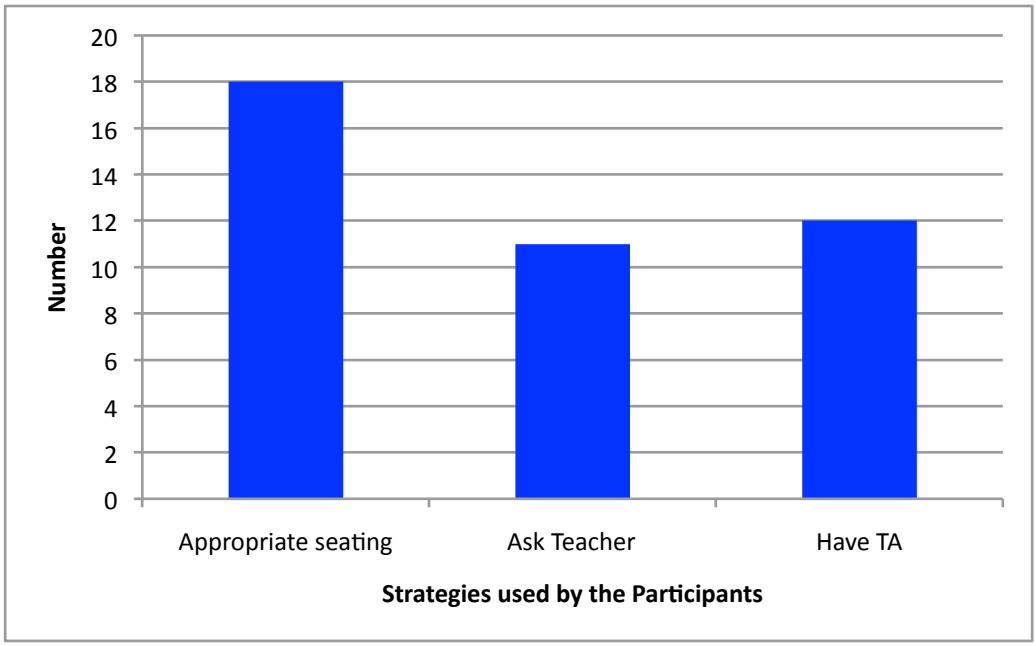

Figure 8: Strategies the participants feel they use within the classroom setting

4.6.2. How well the school staff use the radio aid.

When the participants were asked if they felt teachers understand how to use the radio aid correctly 50% felt that teachers did not. When asked what they think the teacher didn't do correctly, the overwhelming response, (Figure 9) was the use (or lack of) of the mute facility and microphone position, followed by clothing such as scarves obscuring the microphone.

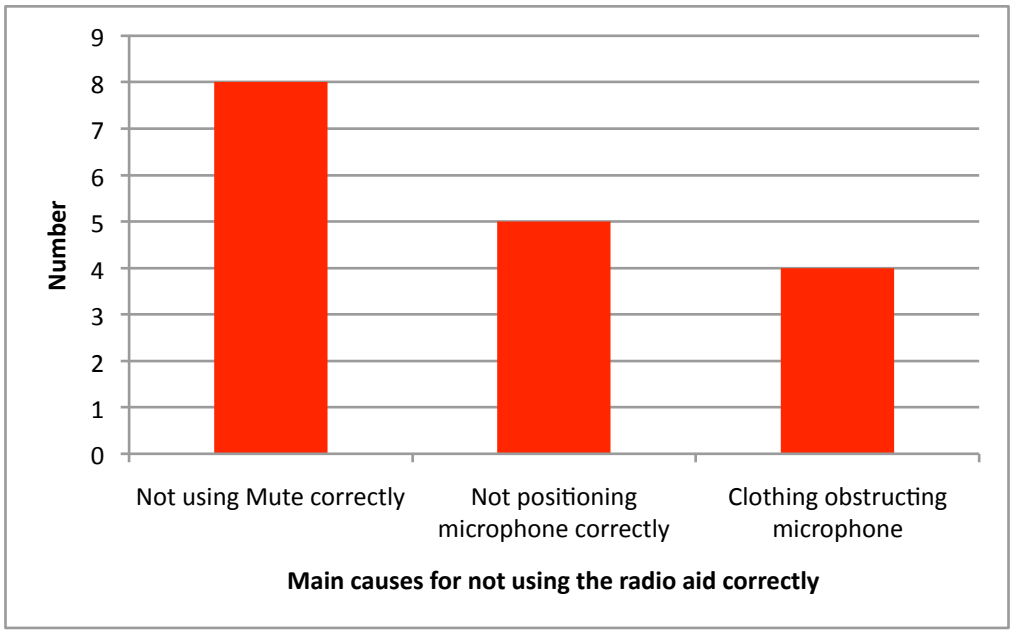

Figure 9: The main causes for school staff not using the radio aid correctly as given by the participants. The most frequent reason given was teachers not using the mute facility correctly.

4.6.3. What would the participants like the teacher to do?

Could teachers do any more to support the participants with the use of the radio aid? The responses were mixed. Some participants felt that it was their fault for the teachers not using the radio aid correctly, *'I don't think the new teachers have been told. Or I have not used it enough with them'* (P18). Others suggested other strategies such as providing the student with a copy of the powerpoint presentation, or long explanations to be written on the board. Some wanted regular strategies re-enforced such as '*not to face the wall when talking'* (P14) or *'not to turn their*

{teachers} back and talk' (P17), these comments, however, were from participants who were not using the radio aid consistently.

4.7. Qualitative Additional Thoughts from the Participants

As the researcher was present while the questionnaires were completed the participants had the opportunity to expand on their thoughts and comments regarding their experiences of using the radio aids.

4.7.1. Ownership of Radio Aid.

All the participants recorded that they wore their hearing aids and cochlear implants consistently whilst at school, for some this extended to their radio aid,

> 'you are more confident if you had them [radio aid] for a long time' (P1)

> '*if they don't know [how to use it] I tell them'*; (P5)

> '*I taught them [the ones who were not using it properly](P16).*

Although this is not reflected by all the participants,

> 'I don't think they've been told – the new teacher' (P18)

> 'FMs are annoying – moving around from class to class giving them to the teacher' (P3)

> 'I don't like wearing them at all'(P13)

4.7.2. General feelings of stigma linked to hearing loss

From the additional responses for some of the participants there appears to be a feeling of stigma against their hearing loss. These personal feelings became more

apparent when one participant stated when starting secondary school they were referred to as

'the deaf kid with hearing aids'.(P15)

Another participant wrote

'*I put my hand up but I feel teachers don't notice me*'. (P19)

4.7.3. Peer Perception

The participants responded to how they feel their peers will react when the radio aid is used in the classroom.

'I don't like to use it in class with people I don't know' (P6)

'*I don't like handing the equipment [to the teacher] because I feel others are looking at me',(P17)*

'students in new teaching groups are not always aware [that I use a FM system]. (P13)

4.7.4. Radio Aid Non Use

Some of the responses regarding the use of the radio aid by the participants reflected their opinions clearly.

'I trust myself that I can hear in class' (P10)

'FM sounds horrible with my cochlear implant. Used it when I had hearing aids but not with my cochlear implant' (P13)

‘I don’t want to wear them’ (P14)

Whereas some felt they could justify not using the radio aid in class

> ‘I haven’t used FM system since year 7 but still in top set Maths, Triple Science and achieving my target grade’ (P14)

4.7.5. Professional Competence

Despite ownership of equipment or personal feelings, the area of concern that had the most comment is that of ‘Professional Competence’ or how well the school staff use the equipment. 50% of the participants felt very strongly that teachers did not use the equipment correctly (Figure 9) with the consensus view reflected in the comment,

> ‘wear wrong clothes hits microphone, turn away, don’t know how to use the mute button’ (P13)

There are further viewpoints which refer specifically to teachers awareness of the participants’ needs,

> *‘new teachers are not even aware that I need to use it [FM system]’*. (P18)

> ‘*Teachers often look at it as if “what do I do with this?”*’.(P17)

> ‘I need to remind her [how to use it]’ (P6)

4.8. The participants' view of being at school.

Finally the participants were asked if they i) like school and ii) why. This question was asked because if they are not happy at school, this could have an impact on their self-esteem. As shown in Figure 10 the majority of the participants (85%) stated that they like school citing being with friends, enjoying different types of lessons and followed up by having good food as their reasons. The responses reflect the results of the self-esteem scores with most of the participants being within the normal to high self-esteem range.

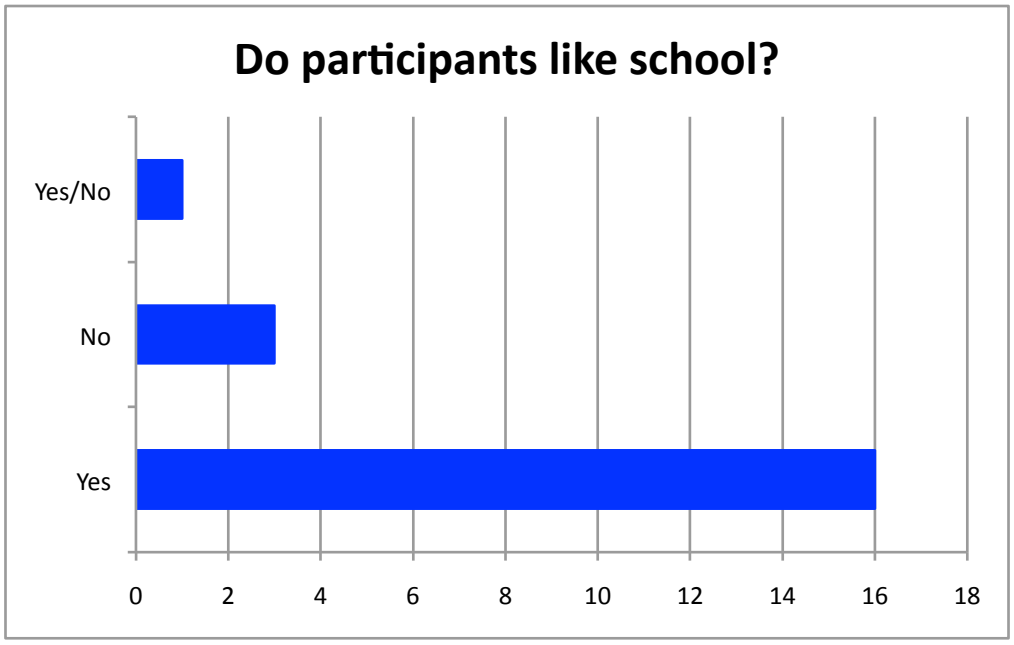

Figure 10: Do the participants like school? Overwhelmingly the responses show the participants do enjoy being at school.

The majority of the participants recorded that they liked being at school and for a range of reasons. Some enjoyed the food, some enjoyed the longer break-times but most popular reason reported was being with friends, closely followed by liking lessons as shown in Figure 11.

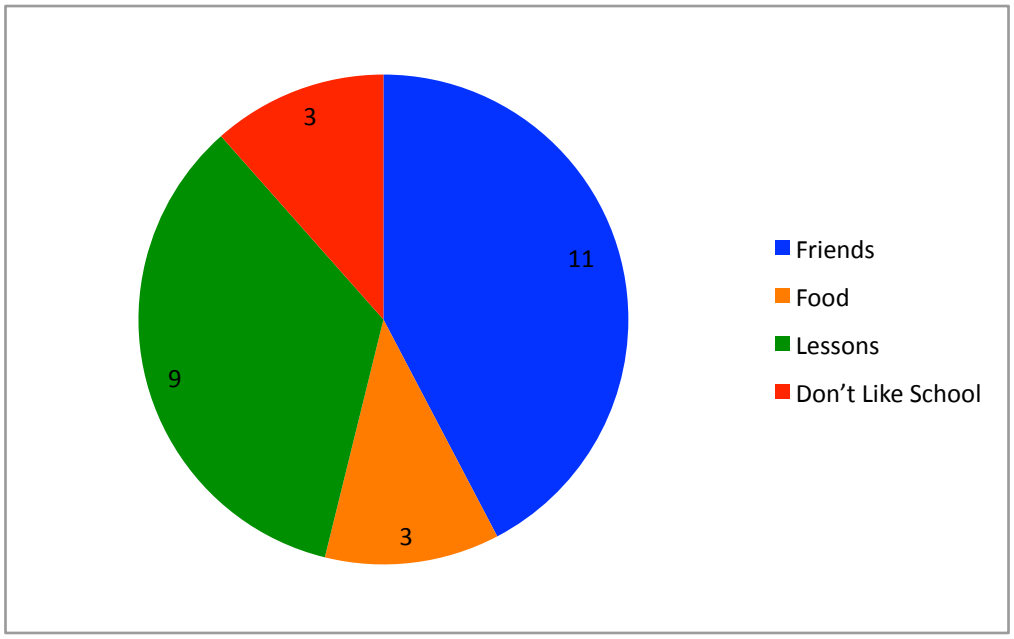

Figure 11: What do the participants like about school. Friends and lessons are a very important factor for them.

Those who did not like school stated reasons such as *'its noisy and disruptive'* (P9), *'homework pressures'(P170, 'difficulties with friendships'(P12)* and '*being bullied'(P19)*.

5. Discussion

This study aims to establish if there is any correlation between self-esteem and the use of radio aids with secondary school students. From the results obtained three main themes can be identified: self-esteem in adolescents with hearing impairment, their use of the radio aid and professional competence.

5.1. Self-Esteem in Adolescents with Hearing Impairment

Transition from primary school to secondary school coincides with the emotional and physical changes occurring with the onset of adolescence (Davis, 2015; Brizio et al, 2015; Sowell, 2002; Dahl, 2003; Auty & Elliott, 2001). Low self-esteem leads to further avoidance, whereas high self-esteem leads to the ability to cope with the changes taking place through adolescence. Leary (1999) argues students with positive self-esteem feel valued and accepted by others. It is lowered through failure, criticism and rejection. Low self-esteem in adolescence can lead to anxiety and depression (Gent et al, 2011) which is further increased in students with hearing-impairments. Warner-Czyz et al, (2015) discuss at length how self-esteem levels decrease as hearing-impaired students move through the school system and Theunissen et al, (2014) suggest that low self-esteem becomes more apparent in school settings. Contrary to these findings suggesting hearing-impaired students are more likely to have lower self-esteem and consequently more prone to risk-taking behaviours, the results from this study agrees with Elkayam & English (2003) that simply being hearing-impaired does not increase the risk of having low self-esteem. In fact, Anita et al, (in Marschark & Spencer, 2010) found that hearing-impaired students did not 'lack in social competence', and thus do not have any increased reason for suggesting these students to have low self-esteem. This is further reflected in this study as only one participant from the twenty scored a level from the RSES that would imply low self-esteem (see Table 2).

Furthermore, it has also been considered that boys are more likely to have higher self-esteem levels whereas girls will have lower levels (Harper & Marshall, 1991).

Adolescent girls rely more on peer acceptance and popularity (Wolters et al, 2012) and may experience lower self-esteem if they do not feel accepted. From the RSES questionnaire, the four participants obtaining a score over 25, and thus considered to have high self-esteem, were all males, and the only participant to score below 15 (low self-esteem) was female (Score <15 = low self-esteem; score 15 – 25 = normal self-esteem; score >25 = high self-esteem). These findings could concur with the consensus, however, there were two scores of 15 which could be seen as borderline, both of which were obtained by males. It, therefore, cannot be conclusive that gender is a determining factor when predicting low self-esteem within this sample.

As raised in A Child of Our Time, (2017) the level of self-esteem is determined by how the adolescents perceive themselves, and how they feel others perceive them. This study explores if this impacts students with a hearing-impairment more than their hearing peers. All the participants reported wearing their hearing aids or cochlear implants regularly and consistently at school and nearly all wore them at home as well. Even though eight of the 20 participants did not know what type of hearing aids they had, which could suggest they are not familiar with the maintenance of their aids (Most, 2002), they all valued their aids enough to wear them. Contrary to the outcomes of the Hearing Aid Effect (Johnson et al, 2005) and follow-up studies by Ellington & Lim, (2013) none of the participants demonstrated any concerns or anxiety in wearing their hearing aids. Kemmery & Compton, (2014) explored how hearing-impaired students identified themselves. And in this study there were no real discrepancies with how the participants considered themselves, from the options within the questionnaire, all selecting ‘deaf’, ‘hearing impaired’ or ‘hard of hearing’, with only one selecting the ‘other’ option and describing themselves as ‘partially deaf’. This differs from the assumption that the students will want to take the identity of their hearing peers in order to ‘fit in’ (Kent & Smith, 2006).

This idea of wanting to ‘fit in’ and be accepted is widely explored. Elkayam & English, (2003) raise the issue of having a hearing loss and being different from others can lead to feelings of loneliness and isolation. Having a good friendship group can impact academic achievement as well as self-esteem levels, Newman Kingery et al, (2011) conclude that a solid ‘peer acceptance’ allows adolescents to develop social and emotional resources that will prepare them for adult life, Wolters et al, (2012)

state that peer acceptance in the transition from primary to secondary mainstream school is necessary for well-being. Benish-Weisman et al, (2015) refer to the different social groups adolescents associate and identify with increases their level of self-esteem. Supporting these claims, there is overwhelming evidence that the participants had 'peer acceptance' and 'social identification' as being with their friends was the highest response to why they liked school. Even with the awareness that they are the only hearing-impaired student in the class, the participants have not been hindered in developing and maintaining friendships. Hung & Paul, (2006) found that 75% of hearing peers interviewed demonstrated a positive attitude towards their hearing-impaired peers. Further supported by Shirin et al, (2011) and Anita et al, (2011) who claim hearing-impaired students do not appear to have 'difficulties socially greater than one might find in the general population'.

Positive 'peer acceptance' can also have a positive affect on academic achievement, Ohrt et al, (2014) state those who have pride in themselves and those who have good self-esteem are more likely to achieve in school. This is demonstrated in this study by how well the participants felt they could access school. Those with normal or high self-esteem felt confident in their ability to access and partake in all situations including whole class discussions and group work. In contrast, those with lower levels of self-esteem expressed difficulties in hearing well in small groups and social settings. They also stated that they 'rarely' or 'never' participated in whole class discussions.

5.2. Self-Esteem in Hearing-Impaired Adolescents and their Radio Aids

If low self-esteem is a contributing factor for why secondary school students do not use the radio aid there should be a higher number of participants with a low RSES score. Warner-Czyz et al, (2015) conclude hearing-impaired students actually have self-esteem levels as their hearing peers and similar results were found in this study. Figure 2 shows that 19 out of the 20 participants scored levels which suggest normal or high levels of self-esteem. Despite this, 25% of the participants were not using their issued radio aid. Boothroyd, (2004), Thibodeau, (2010) and Ross, (2003) all express the benefits gained for students to access speech in environments with

increased background noise when using the radio aid. All the participants are supported with regular visits by their ToD who use speech discrimination assessments including the AB Short Word list or Manchester Junior Word List (Soundbyte Solutions, 2017) to provide the evidence that a radio aid will provide greater access to their teacher and thus to their learning, and yet, some of the students still choose not to use the radio aid. This reinforces the claim that adolescent students are more likely to want to be like their peers than risk appearing to be different (Albert, 2013 and Wolters et al, 2012), despite the knowledge that the radio aid will benefit them in the classroom. Choudhury et al, (2006) and Franks, (2008) argue that it is more likely that the students are embarrassed about handing the radio aid equipment to their teachers. Two participants recorded that they did not want to use their equipment in a class with unfamiliar peers, which could be interpreted as being embarrassed, however it does not support the argument that this is a 'likely' behaviour. There were other reasons given by the participants that does not suggest peer influence or peer acceptance is causing them not to use their radio aid, for example, one reported that it was

'*annoying having to take the equipment from class to class*' (P3)

A further two participants who use cochlear implants reported that they did not like the sound quality from the radio aid, stating that it was a 'horrible' sound.

Technology and design of the radio aid has changed over the past 50 years (Ross, 2003; Phonak, 2016; Cochlear, 2017). In 1960s students were expected to wear big, cumbersome body-worn radio aids which were heavy and not aesthetically pleasing. The systems now have become much smaller and most secondary school students will be issued with equipment that is discrete and wireless. McCracken (2012) claims these systems, including Roger X which most of the participants have been issued with, are more inclusive and thus will be used more willingly. An attitude not reflected as 95% of the participants had ear level Roger X radio aids and still some were reluctant to use them.

Studies have explored the possible links between radio aid use and gender, Reddekal, (2014) found boys were more likely to be satisfied with and consequently

more likely to use their radio aid. Although there was a tentative link as from the sample of 20, the two participants who did not like giving the equipment to staff were girls; two of those who expressed they did not like their peers to know about the equipment were female and of those who were no longer using their radio aid, four were female. Despite the only participant with a RSES score suggesting low self-esteem happened to be female, the results from this study cannot determine if gender is a factor for not using the radio aid.

5.3. Adolescent Self-Esteem or Professional Competence?

The results for 'like' using the radio aid and recognising the 'benefit' of using it showed a distinct difference; 15 participants scored 'benefit' higher with 9 of those scoring significantly higher when comparing to 'like'. The question raised then is, if self-esteem is not impacting on these participants and they realise the benefit of using the radio aid, why is it that there are still participants who are not using or are reluctant to use it? One reason could be that unlike their hearing aids and cochlear implant, the participants have to rely on others to be able to use the radio aid correctly for it to be purposeful. The overwhelming response from the study suggests the cause is actually teachers not using the equipment correctly, reflected in the Athalye et al, (2015) study exploring the views of technology by teenagers.

Unlike Eriks-Brophy & Whittingham, (2013) who propose teachers feel competent in using the radio aid, half the participants reported that the main problem with the radio aid was, in fact, how their teachers used it. The biggest issue being linked to the mute facility. Some students feel that although the radio aid provides an advantage to access the teacher's voice, they also feel this impacts their ability to access their peers (Thibodeau, 2010). This is further exacerbated when the teacher fails to use the mute facility causing the students to hear the teacher consistently throughout the whole lesson. McCracken et al, (2012) found more than half of the radio aid use in classrooms was incorrect with the mute facility not being using properly.

The positioning of the microphone on the transmitter is equally important. An extensive study by Limbert, (2015) revealed the position the teacher places the microphone can have a dramatic impact on the clarity of the speech heard by the

student. This view was supported by some of the participants from this current study, who reported that the microphone is placed either too high or too low, it is placed under blazers or clipped the wrong way. Linked to this, allowing the microphone to be covered or obscured by clothing such as scarves caused the sound being transmitted to be muffled and so difficult for the students to hear.

The move to secondary school can be a daunting experience and even more so for some hearing-impaired students. A positive peer-teacher relationship is conducive to a smoother transition (Wolters et al, 2012) and so it is necessary that teachers have an awareness and understanding of hearing loss and the equipment available to allow the students access to the lessons. By not recognising their needs, teachers presume hearing-impaired students are able to achieve at a similar level to that of their hearing peers. Too often teachers report hearing-impaired students are accessing well in lessons (Reddekal, 2016) and do not recognise the difficulties these student can experience in developing a high level of language structure (Knoors & Marshark, 2014). And consequently, teachers do not acknowledge the importance, therefore, of using equipment correctly.

6. Conclusion and Implications

This study aimed to identify a correlation between self-esteem and radio aid use with secondary school students who are hearing-impaired. The results would suggest that as there are a higher number of students who are not using their radio aid compared to the number of students with a low self-esteem score, there is not a clear correlation between low self-esteem, as measured by the RSES, and a reluctance to use the radio aid. The more probable reason for not using the radio aid is to be the 'deficiency that lies within the context' (Kent & Smith, 2006) or put more simply, how the radio aid is being used by class teachers and teaching assistances.

Secondary mainstream schools have a tendency to experience a high level of staff turn-over, making it challenging to ensure all staff working with hearing-impaired students receive detailed training on the use of radio aids. Johnson, (2015) argues regular support and training for teachers is absolutely vital to ensure they are able to use and check the equipment confidently and correctly so hearing-impaired students are able to gain the benefit of its use.

This study did not explore the reasons why a high number of participants used their radio aid more regularly at primary school but became more reluctant once at secondary school. However, if not wearing the radio aid is due to teacher use it is easier in the primary setting as there tends to be one main teacher responsible for its use and thus becoming more familiar and competent with it. In secondary school, the number of times the student has to hand over the radio aid is dramatically increased and this increases the likelihood that it will not be used correctly. To suggest these students have low self-esteem simply because of their reluctance to use the radio aid is not appropriate. Professionals, especially ToDs, should engage in dialogue with the student to establish exactly what the cause is. It may well be due to embarrassment or a lack of confidence in a new school, but equally it could be due to the fact that the teachers are not using the equipment properly, or it could be because the equipment is not working correctly. It is, therefore, important to talk

to the student and listen to their opinions. This is an approach supported by Stinson, (2013).

The results from this study suggest that the reluctance to use the radio aid for some students is not related to their self-esteem level, however, there are areas for future research. Firstly, although this study provided comprehensive data, a larger sample size would be able to provide more evidence that would be able to concur or dispute the findings. Secondly, parenting may be an important factor in the student's life, although this study did not explore the impact of parental involvement, Hay & Ashman, (2003) conclude positive parental involvement creates positive self-esteem in hearing-impaired students. Thirdly, carrying out a longitudinal study with these students as they transition into 6th Form or College settings where the environment and learning approaches change would be useful in order to determine if these students become more pro-active in ensuring the radio aids are used correctly. Finally, what the evidence from this study has shown is the need for support not only for hearing-impaired students but also the teaching staff working with them and the specialist visiting both students and staff, ToDs, would be best placed to deliver this.

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8. Appendices

Appendix 1

UNIVERSITY OF HERTFORDSHIRE
ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS
('ETHICS COMMITTEE')

FORM EC3
CONSENT FORM FOR STUDIES INVOLVING HUMAN PARTICIPANTS

I, the undersigned *[please give your name here*, *in BLOCK CAPITALS]*

……..
of *[please give contact details here, sufficient to enable the investigator to get in touch with you, such as a postal or email address]*

…..……
hereby freely agree to take part in the study entitled

Does self-esteem correlate with radio aid use in hearing impaired teenagers

UH Protocol number EDU/PGT/CP/02713
Social Sciences, Arts & Humanities ECDA

1 I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aim(s), methods and design, the names and contact details of key people and, as appropriate, the risks and potential benefits, how the information collected will be stored and for how long, and any plans for follow-up studies that might involve further approaches to participants. I have also been informed of how my personal information on this form will be stored and for how long. I have been given details of my involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent to participate in it.

2 I have been assured that I may withdraw from the study at any time without disadvantage or having to give a reason.

3 I have been told how information relating to me (data obtained in the course of the study, and data provided by me about myself) will be handled: how it will be kept secure, who will have access to it, and how it will or may be used.

4 I understand that my participation in this study may reveal findings that could indicate that I might require medical advice. In that event, I will be informed and advised to consult my GP. If, during the study, evidence comes to light that I may have a pre-existing medical condition that may put others at risk, I understand that the University will refer me to the appropriate authorities and that I will not be allowed to take any further part in the study.

5 I understand that if there is any revelation of unlawful activity or any indication of non-medical circumstances that would or has put others at risk, the University may refer the matter to the appropriate authorities.

6 I have been told that I may at some time in the future be contacted again in connection with this or another study.

Signature of participant……..…Date……

Signature of (principal)
investigator……Date……

Name of (principal) investigator *[in BLOCK CAPITALS please]*

ANGELA MORRIS

Appendix 2

UNIVERSITY OF HERTFORDSHIRE
ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS ('ETHICS COMMITTEE')

FORM EC4
CONSENT FORM FOR STUDIES INVOLVING HUMAN PARTICIPANTS
FOR USE WHERE THE PROPOSED PARTICIPANTS ARE MINORS, OR ARE OTHERWISE UNABLE TO GIVE INFORMED CONSENT ON THEIR OWN BEHALF

I, the undersigned *[please give your name here, in BLOCK CAPITALS]*

……
of *[please give contact details here, sufficient to enable the investigator to get in touch with you, such as a postal or email address]*

……
hereby freely give approval for *[please give name of participant here, in BLOCK CAPITALS]*

.....
to take part in the study entitled

Does self-esteem correlate with radio aid use in hearing impaired teenagers

UH Protocol number EDU/PGT/CP/02713
Social Sciences, Arts & Humanities ECDA

1 I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aim(s), methods and design, the names and contact details of key people and, as appropriate, the risks and potential benefits, how the information collected will be stored and for how long, and any plans for follow-up studies that might involve further approaches to participants. I have also been informed of how my personal information on this form will be stored and for how long. I have been given details of his/her involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent for him/her to participate in it.

2 I have been assured that he/she may withdraw from the study, and that I may withdraw my permission for him/her to continue to be involved in the study, at any time without disadvantage to him/her or to myself, or having to give a reason.

3 I have been told how information relating to him/her (data obtained in the course of the study, and data provided by me, or by him/her, about him/herself) will be handled: how it will be kept secure, who will have access to it, and how it will or may be used.

4 I understand that if there is any revelation of unlawful activity or any indication of non-medical circumstances that would or has put others at risk, the University may refer the matter to the appropriate authorities.

5 I have been told that I may at some time in the future be contacted again in connection with this or another study.

6 I declare that I am an appropriate person to give consent on his/her behalf, and that I am aware of my responsibility for protecting his/her interests.

Signature of person giving consent
……Date……

Relationship to participant

.....

Signature of (principal) investigator

.....Date…….

Name of (principal) investigator *[in BLOCK CAPITALS please]*

ANGELA MORRIS .....

Appendix 3

UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS ('ETHICS COMMITTEE')

FORM EC6: PARTICIPANT INFORMATION SHEET

1 **Title of study**

Does self-esteem correlate with radio aid use in hearing impaired teenagers

MSc Educational Studies (Educational Audiology)
Module: Research Methods and Dissertation – Mary Hare 7FHE 1024-0905

2 **Introduction**

You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the research that is being done and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part. The University's regulations governing the conduct of studies involving human participants can be accessed via this link:

http://sitem.herts.ac.uk/secreg/upr/RE01.htm

Thank you for reading this.

3 **What is the purpose of this study?**

Studies suggest that having access to personal FM systems supports learning at school. The transition to secondary school is a big move for many students. This study aims to explore the use of personal FM systems for students at secondary school. This will initially be carried out through a questionnaire that will be sent to each student via school. From the responses returned a number of students will be selected randomly to take part in a short face-to-face interview. At no point throughout the study will individuals be named; all responses will be recorded anonymously.

4 **Do I have to take part?**

It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You are free to withdraw at any stage without giving a reason. A decision to withdraw at any time, or a decision not to take part at all, will not affect the support you receive from Physical & Sensory Support.

5 **How long will my part in the study take?**

If you decide to take part in this study, your involvement would be to complete a questionnaire. You may be invited to be involved in one follow-up face-to-face

interview. This should all be completed by January 2017. After that, there will be no further involvement linked to this study.

6 **What will happen to me if I take part?**

The first thing to happen will be a questionnaire for you to complete and you may be asked to take part in one face-to-face interview

7 **What are the possible disadvantages, risks or side effects of taking part?**

There are no disadvantages, risks or side effects of taking part in this study.

8 **What are the possible benefits of taking part?**

The study aims to identify any difficulties students find in using the personal FM systems within the educational setting. The benefits of taking part will be allowing student voice to support other students within PSS in Surrey.

9 **How will my taking part in this study be kept confidential?**

All data collected will be anonymised before being used in the final research.

10 **What will happen to the data collected within this study?**

All questionnaires and face-to-face data will be anonymised and stored in accordance with the data protection procedures of PSS at Surrey County Council. All materials will be kept on a computer with a secure password.

11 **Will the data be required for use in further studies?**

The results of this research may be used to create a teaching package for other students and school staff to support the use of personal FM systems.

12 **Who has reviewed this study?**

This study has been reviewed by:

The University of Hertfordshire Social Sciences, Arts and Humanities Ethics Committee with Delegated Authority

The UH protocol number is <*enter*>

13 **Factors that might put others at risk**

Please note that if, during the study, any medical conditions or non-medical circumstances such as unlawful activity become apparent that might or had put others at risk, the University may refer the matter to the appropriate authorities.

14 **Who can I contact if I have any questions?**

If you would like further information or would like to discuss any details personally, please get in touch with me, in writing, by phone or by email: Angela Morris, Advisory Teacher for Hearing Impairment. Angela.morris@surreycc.gov.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar.

Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix 4

SURREY COUNTY COUNCIL

PHYSICAL & SENSORY SUPPORT

"specialist support for living and learning"

ROSENBERG SELF ESTEEM SCALE

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement. Circle the comment you feel best fits.

1. On the whole, I am satisfied with myself.
Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.
Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.
Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.
Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.
Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.
Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.
Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.
Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.
Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.
Strongly Agree Agree Disagree Strongly Disagree

Reference:

Rosenberg M. Society and the adolescent self-image. (1965) Princeton, NJ. Princeton University Press.

Response Number: 

Appendix 5

SURREY COUNTY COUNCIL

PHYSICAL & SENSORY SUPPORT

"specialist support for living and learning"

USE OF RADIO AID WITHIN MAINSTREAM SECONDARY SCHOOLS

This questionnaire is to explore the actual use of radio aids in secondary schools. These responses are anonymous but will be used to improve the support students receive in using this equipment at school, so please answer the questions honestly.

Gender: M ☐ F ☐ Age: _____

Hearing loss: Mild ☐, Moderate ☐, Severe ☐, Profound ☐

Do you consider yourself to be:
Hearing Impaired ☐, Hard of Hearing ☐, Deaf ☐, Other ☐

Hearing equipment prescribed: Aids ☐, Cochlear Implant ☐
Model & Make: _____

1. .When did you first start using a radio aid in school?
Primary school ☐ Secondary school ☐

2. i) Do you still use the radio aid in school? Yes ☐ No ☐
ii) Do you like wearing it? Yes ☐ No ☐

iii) On a scale of 1 -10 with 1 being not at all and 10 being a lot.
How much do you like wearing the radio aid? _____

3. i) Do you wear your hearing aids at home? Yes ☐ No ☐
ii) Do you use your radio aid at home? Yes ☐ No ☐

4. i) Do you feel you benefit from using the radio aid in class?
Yes ☐ No ☐ N/A ☐

ii) On a scale of 1 -10 with 1 being not at all and 10 being a lot.
How much do you feel you benefit from using the radio aid in class? _____

iii) If yes: For all lessons ☐
For only selected lessons ☐
Who made that decision? _____

5. In general, without your radio aid, do you feel that you can hear your friends well when talking in:

i) 1:1 situations Yes ☐ No ☐
ii) Group work in the classroom Yes ☐ No ☐
iii) In social settings (eg dining room) Yes ☐ No ☐

6. In general, without your radio aid, how often do you actively participate in:

i) whole class discussions: Often ☐ Sometimes ☐ Rarely ☐ Never ☐
ii) group discussions: Often ☐ Sometimes ☐ Rarely ☐ Never ☐
iii) social settings with friends: Often ☐ Sometimes ☐ Rarely ☐ Never ☐

7. Do you use the radio aid outside of the classroom or in social situations?
Often ☐ Sometimes ☐ Rarely ☐ Never ☐

8. Do you use any strategies in the classroom to ensure you can hear the class teacher and/or your class peers?

Tick all the strategies you use:
☐ to sit in a position to ensure you can see your class teacher
☐ ask the class teacher to repeat comments or instructions when necessary
☐ have a TA to support you in class
☐ other: Please explain
_____

9. Do you feel the school staff understand how to use the radio aid correctly in class?
Yes ☐ No ☐
Comment: _____
_____

10. Are there any strategies you would like the class teacher to use?
Explain these strategies:

_____

_____

11. Do you enjoy your school? Yes ☐ No ☐
Explain why:

_____

_____

Your responses are important, so thank you for taking the time to complete this questionnaire.

Response Number: