# POSITIVE BEHAVIOUR SUPPORT FOR CHILDREN WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES IN THE UNITED KINGDOM

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## Abstract

There is a large body of research indicating that when positive behaviour support is implemented within schools, there are decreases in school discipline referrals and challenging behaviour. There are only two studies that have used schoolwide positive behaviour support in a school where the majority of students have been diagnosed with intellectual disabilities. While these studies have shown the effectiveness of PBS, neither study has used validated measures or direct observations of student behaviour to determine if changes reported by teachers were seen in the students. This study attempted to find out the prevalence of students with intellectual and developmental; disabilities (IDD) and challenging behaviour in the southeast of England. Additionally, positive behaviour support was implemented schoolwide for a special school in England. Validated measures and direct observations were conducted for both school staff and students. Results indicated increases in positive feedback to students were achievable after five hours of training in positive behaviour support. Additionally, student incidents were lower for five of the six students observed in this study. While these changes were measured, due to the number of limitations, no generalizations can be made in regards to the effectiveness of the intervention. The study had a number of challenges however, not least being the drop out of children from the study and the difficulties of obtaining information on standardised questionnaires from parents and teachers.

## Dedication

Dedicated to Ken Crist

Your passion and pragmatic style left a mark on the way I not only work, but live.

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# Chapter 1 – Intellectual Disabilities and Challenging Behaviour

Making a change at a systems level takes time and resources. Small changes can be accomplished and can lead to improved outcomes for individuals. This thesis will explore how a small change can have an impact on individuals within their school environment. To understand this impact, a picture of the population targeted needs to be explored. Children with intellectual disabilities who also exhibit challenging behaviours were the population targeted for this thesis. Therefore, this chapter will give incidence and prevalence of children with intellectual disabilities as well as define intellectual disabilities. Challenging behaviour will then be defined and the prevalence within the population of children with intellectual disabilities will be presented. Finally, an overview of services specifically related to schooling individuals with an intellectual disability and challenging behaviour in England will be reviewed.

## 1.1 Intellectual Disabilities – Definition and Prevalence

According to the World Health Organization (1992), the definition of an intellectual disability is:

> *A significantly reduced ability to understand new or complex information and to learn and apply new skills (impaired intelligence). This results in a reduced ability to cope independently (impaired social functions), and begins before adulthood, a lasting effect on development.*

This essentially says, for a person to be diagnosed with an intellectual disability, they must be diagnosed before age 18 and score less than 70 on an intelligence test (formulating an intelligence quotient, or IQ.) In addition, the individual must have

impaired adaptive skills, which hinder their independence (Emerson & Einfeld, 2011). Intellectual disabilities range from mild which encompasses intelligence quotient (IQ) scores from 50 – 69, moderate 35 – 49, severe 20 – 34, and profound below 20 (World Health Organization (WHO), 1992).

Intellectual disabilities can be caused by biological, environmental, and social factors or a combination of these factors. Genetic disorders such as Fragile X, the most common genetic cause of an intellectual disability; Turner Syndrome; Down syndrome; or Lesch Nyhan Syndrome (Royal College of Psychiatrists, 2012) are associated with an intellectual disability. An intellectual disability can also be caused by an infection (including meningitis), an injury during childhood (traumatic brain injury), or an endocrine dysfunction such as congenital hypothyroidism (Emerson, Hatton, Felce, & Murphy, 2001; Poplawski, 2003). Infections of the mother including rubella, cytomegalovirus, and listeria can also lead to an intellectual disability (National Center on Birth Defects and Developmental Disabilities & Centers for Disease Control and Prevention, 2015; Poplawski, 2003). Additional causes of an intellectual disability during pregnancy include intake of alcohol or drugs by the mother or exposure to radiation (DSM-5 American Psychiatric Association, 2013). During birth, causes of an intellectual disability can include asphyxia or interventricular haemorrhage (Nelson & Ellenberg, 1981; NHS Choices, 2015) . Environmental factors, including extreme social deprivation can also contribute to an intellectual disability (Emerson, Kiernan, Alborz, Reeves, Mason, Swarbrick, Mason, & Hatton, 2001). As shown in the literature intellectual disabilities are caused by a number of environmental and genetic factors or a combination of these factors.

The social model of disability was conceptualized in the document called the Fundamental Principles of Disability published by the Union of the Physically Impaired Against Segregation in 1976 (UPIAS, 1976). The document stated,

> *"In our view it is society which disables physically impaired people. Disability is something imposed on top our impairments by the way we are unnecessarily isolated and excluded from full participation in society* (UPIAS, 1976, p. 3)."

The idea behind the social model was to look at disability equality. This encompasses examining at the environment and ensuring the environment is barrier free, so all can access it (Barnes, 2012). This model considers the environment as disabling, not the person as disabled (Oliver, 1999). Rather the person has an impairment, but is disabled by the environment. By changing the environment and changing how individuals access the environment, a disability is imposed by society and the environment, it is not something a person possesses.

The social model of disability stands in contrast to the medical model in looking not at a limitation of the person, but rather an environment, which creates a barrier, which creates the handicap (Anastausiou & Kauffman, 2013). The medical model sees the individual as the one with the limitation and sees it as something to be cured or treated, rather than a problem with society or the environment that can be changed, to not only facilitate the individual but allow all members of society better access to the environment (Barnes, 2012).

The social model of disability has been adopted by the Disabled People's Movement within the United Kingdom and abroad, and is not limited to just physical impairments (Anastasiou & Kaufmann, 2013). This includes sensory and intellectual

impairments as well. As can be seen from the description above, the social model of disability is a social construction, as the social environment plays a role and the disability is not considered inherent within the person (Anastasiou & Kaufmann, 2013). Disabilities can be compounded by the fact that families who have a member with an intellectual disability tend to be located on the lower end of the socio-economic scale (Emerson, 2004, 2007).

To understand the prevalence of this population in England, a brief review of the Department of Health publication "People with Learning Disabilities in England 2011" is given (Emerson et al., 2012). The purpose of this report is to provide a summary of persons with intellectual disabilities in England within a single publication. Different governmental departments collect multiple sources of information, and this report joins up the information to provide an overall picture. First and foremost, there is no definitive record of the number of people in England who have an intellectual disability. This report provides an educated estimate by using research, census, and population predictions. It was estimated in 2011; 1.9 million people had an intellectual disability (Emerson et al., 2012). These numbers were gathered from persons known by or using a learning disabilities service, the number of persons with learning disabilities registered in a general practitioner service, and the estimation of those persons within the population. This included 286,000 children (Emerson et al., 2012). As children are the focus of this thesis, a review of this data is shown below.

The Department of Education collects information on the special education needs of all children in maintained and non-maintained schools. There is still a group of children who are educated in independent schools and 'for profit' special schools, as well

as those children who are educated at home that are not represented within this data. To represent the 286,000 children considered to have an intellectual disability, children with moderate, severe, and profound multiple learning difficulties were included in this broader label of intellectual disabilities (Emerson et al., 2012). The estimates provided were consistent with the results of epidemiological studies looking at the prevalence of learning disabilities in children (Emerson et al., 2012).

Whether moderate or profound, being diagnosed with an intellectual disability has an effect on learning and independence. The cause can be genetic in nature or due to an environmental factor. Without a definitive number available for persons within England diagnosed with an intellectual disability, an educated estimate is useful to understand the prevalence. A proportion of those persons diagnosed with an intellectual disability also display challenging behaviour. In the sections below the definition of challenging behaviour, prevalence within the learning disabilities population, and risks associated with challenging behaviour will be briefly reviewed.

### 1.2 Challenging Behaviour

> Challenging behaviour, is defined as:
> *Culturally abnormal behaviour(s) of such an intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit use of, or result in the person being denied access to, ordinary community facilities* (Emerson & Einfeld, 2011, p. 7) .

In short, this definition defines challenging behaviour as causing harm to the person themselves or others around them, or impacting on their quality of life directly or the quality of life of others. Terms used to describe challenging behaviour in the past have included, aberrant, abnormal, maladaptive, dysfunctional, and disruptive, but these terms are no longer used as they imply an inappropriate connotation of something being wrong with the individual (Rauf, 2012). The term "challenging behaviour" was intended to shift the focus from being a problem the person possesses to an environmental understanding of behaviour (Blunden & Allen, 1987). The capacity of a service to prevent, detect, support, and manage the challenging behaviour, is also a factor that defines the behaviour to be challenging (Emerson, McGill, & Mansell, 1994).

It is important to remember challenging behaviour is a social construction. This is due to the fact that challenging behaviour is defined by what is considered appropriate behaviour in a given setting. The ability of the person to explain their behaviour, the beliefs that others within the setting have about persons who exhibit challenging behaviour, and the capacity of the setting to manage social disruptions caused by the challenging behaviour are all factors that contribute to classifying the behaviour as challenging (Emerson & Einfeld, 2011). This is the converse of believing a particular type (topography) of behaviour, such as screaming, is always challenging. For example, screaming in a supermarket and jumping up and down is considered inappropriate, but the same behaviour within the context of a football match would be considered extremely appropriate. This makes screaming and jumping in a supermarket challenging, but this same behaviour displayed within a football stadium becomes acceptable (Emerson et al., 1994). This makes challenging behaviour a social

construction, just as the social model of disability describes disabilities above, as a social construction (Anatasiou & Kaufmann, 2013). The environment impacts the definition of what a disability is and what challenging behaviour is.

Challenging behaviour can take many forms using the definition above. These forms include aggression, property destruction, self-injurious behaviour, stereotypy, eating of inedible objects, non-compliance, screaming, sexually inappropriate behaviour, or even over-activity. A study conducted by Harris in 1993 looked at the topography of aggressive behaviour in 168 people with intellectual disabilities who had displayed aggressive behaviour in the previous month. Punching, slapping, pushing or pulling was shown by 51% of the population studied (Harris, 1993). Kicking, pinching, and scratching were also seen in over 20% of the population with less than 10% of the population studied engaging in head butting, choking, or using weapons(Harris, 1993). Emerson and colleagues conducted a similar study in 2001. This study of 153 people with intellectual disabilities found 75% were hitting others with their hands while 41% were engaged in verbal aggression (Emerson et al., 2001). These studies show the variety of topographies displayed by individuals who display challenging behaviour fall under the same heading of aggression. These studies did consider aggression to be a vague category and they attempted to pick it apart and apply very operational definitions to different forms of aggression, giving weight to the various topographies encompassed in the category of aggression. While these studies show various forms of aggression, their sample size was limited and aggression was divided into sub-categories, making generalizations to the population who displays challenging

behaviour difficult. Aggression is the challenging behaviour most often referred for specialist behaviour support (Maguire & Piersel, 1992).

Self-injurious behaviour also takes on many forms. In a study of 596 people with intellectual disabilities and self-injurious behaviour in the southeast of England, over 35% of the group studied engaged in skin picking, self-biting, and head slapping (Oliver, Murphy, & Corbett, 1987) . Less than 10% of the population studied engaged in hair removal, body hitting, eye poking, skin pinching, or nail removal (Oliver et al., 1987). The most common forms of self-injury shown by persons diagnosed with a disability include self biting, punching or slapping, head hitting against objects, self scratching or skin picking, hitting parts of the body, and placing inedible objects inside the mouth (Emerson et al., 2001). These various forms of challenging behaviour enhance the difficulty of defining and supporting a challenging behaviour. The study had a large sample size and concurred with other studies giving weight to its findings. This study also took place in one region of England, which could limit generalisation for the rest of England's population. Behaviour such as those described above has obvious physical implications for individuals, which can have damaging permanent effects.

In addition to the physical implications, challenging behaviour has implications on quality of life. Hastings and Remington (1994) have found that staff can have feelings of sadness, disgust, and despair when caring for an individual who displays challenging behaviour. This can lead to poor services for the person who displays the challenging behaviour (Hastings & Remington, 1994). Parents and carers have reported an increase in stress associated with caring for someone with a developmental disability, which is further enhanced by caring for someone who also engages in challenging

behaviour (Hastings, 2002). Challenging behaviour makes it more difficult for the person who displays the challenging behaviour to be included in an activity, and is also a predictor of parents seeking placements outside their homes, possibly due to the increased stress (Emerson, 1992; Tausig, 1985). Persons who display challenging behaviour are more likely to be medicated and have protective devises or equipment used with them, to limit their movement (Taylor, Oliver, & Murphy, 2011).

Whether a physical impact like the damage caused by aggression or self-injury, or a quality of life impact, challenging behaviour is significant for those persons who display it. This impact also extends to the family causing additional caring burdens or causing them to seek placement outside of their home further impacting the relationship a person who displays challenging behaviour has with their family member or carers. Challenging behaviour, while not affecting the majority of the population, has significant impacts for that portion of the population that display behaviours considered challenging. Below the prevalence of this population, those individuals who display challenging behaviour, will be briefly reviewed.

### 1.3 Prevalence of Challenging Behaviour

The prevalence of challenging behaviour is hard to determine due to the wide variety of definitions and socially constructed nature of challenging behaviour (Sigafoos, Arthur, & O'Reilly, 2003). The prevalence of challenging behaviour is further complicated due to the varied populations studied and different methods employed. Several studies have looked at prevalence of challenging behaviour but have often limited the population investigated or narrowed the topography of challenging behaviour to a particular group

or subgroup of challenging behaviour. These include the Oliver, Murphy, and Corbett (1987) study, which looked at the topography of self-injury showing, 12% of the population studied engaged in self-injurious behaviour and the Harris (1993) study which reported 17.6% of the population studied engaged in aggressive behaviour. Below are studies, which look to provide an overall prevalence of challenging behaviour, but even within these studies populations are limited.

### 1.3.1 Overall Prevalence Studies of Challenging Behaviour

Kiernan and Qureshi (1993) conducted a survey in seven administrative areas in the northwest of England. Of the total population of 1.54 million people, 4,200 people with intellectual disabilities were screened (Kiernan & Qureshi, 1993). They defined challenging behaviour as:

1) Behaviour which causes minor injury to themselves or others, behaviour which destroys their immediate living or working environment;
2) Behaviours which are present at least weekly and require more than one member of staff to intervene, or behaviours that are dangerous or cause damage that is unable to be rectified by staff, or behaviours that cause more than one hour of disruption; or
3) Behaviours that happen daily, which caused more than a few minutes of disruption.

Using this definition, it was found 7% of people with intellectual disabilities displayed severe challenging behaviour (Kiernan & Qureshi, 1993). This study had a large sample over a region in England. This sample size and similar findings to Emerson and colleagues 2001 study give this study validity in its estimates. This was similar to the

percentage of challenging behaviour found by Emerson and Bromley in their 1995 study.

Borthwick Duffy (1994) looked for the prevalence of challenging behaviour with 91,164 people in California. Challenging behaviour was defined as: aggressive behaviour with one or more violent episode causing physical injury to others within the last year; frequent and severe self-injurious behaviour requiring the immediate attention of a physician on a monthly basis or weekly first aid; or severe property destruction within the last year or minor property destruction on six or more occasions within the past year (Borthwick Duffy, 1994). This study found 14% of people with a learning disability displayed challenging behaviour (Borthwick Duffy, 1994). As can be seen the definitions of challenging behaviour in these two studies, the scope of the population studied, and geographical differences produced different prevalence rates due to these methodological differences. Both of these studies did have a large number of participants giving weight to their findings.

Emerson and colleagues (2001) looked to add to the prevalence research by repeating the methods and definition employed by Kiernan and Qureshi in the previous 1993 study, giving the results more value due to replicating a previous study's definition and methodology. Emerson and colleagues (2001) investigated two of the areas of the original seven in England, for the population diagnosed with 'mental retardation'. People were invited to participate from all settings including schools, day services, respite, and residential services. This was extended to those outside the local area that were funded by the two local authorities (Emerson et al., 2001). Information was gathered on basic demographics, the form of challenging behaviour (aggression,

destruction, self-injury); and the staff's opinion of management difficulty and frequency of the challenging behaviour (Emerson et al., 2001). To help further define challenging behaviour participants were asked if physical features of the setting were designed to prevent or reduce damage to individuals or equipment; if anyone injured themselves in the last month, or if they were at risk; or if individuals had reduced the quality of life for other service users (Emerson et al., 2001). Measures were taken from the Individual Schedule (Alborz, Bromley, Emerson, Kiernan, & Qureshi, 1994), which includes three sections, demographic information, topography of the challenging behaviour; and the perceived level of demands placed on the staff. Multiple forms of challenging behaviour were reported more frequently than one specific topography of challenging behaviour (Emerson et al., 2001). More males than females were reported to display challenging behaviour, and challenging behaviour showed an increase until age 50 when a decline was noticeable in the prevalence of challenging behaviour displayed (Emerson et al., 2001). Persons with more ability were more likely to show aggression, whereas self-injury was likely to be seen by those persons with a more severe level of impairment (Emerson et al., 2001). This study showed 10% to 15% of the population were reported to display challenging behaviour (Emerson et al., 2001).

Another prevalence survey was conducted by Lowe and colleagues (2007) with primary carers, to find the prevalence, topography and effect on placement of challenging behaviour. Lowe and colleagues (2007) screened a total population 1.2 million people with intellectual disabilities across seven unitary authorities in South Wales. The measures used included the Individual Schedule (Alborz et al., 1994). Non-compliance was found to be the most frequently reported challenging behaviour, with

aggression being the second and self-injury being reported third (Lowe et al., 2007). Aggression, destructiveness, non-compliance, and temper tantrums were associated with the children, while self-injury was associated with those who showed the triad of impairments (impairment in communication, social skills, and restricted interests) (Lowe et al., 2007). Their results indicated 10% of the population with learning disabilities displayed a challenging behaviour, comparable to Emerson's findings above (Lowe et al., 2007). This study had the most participants, which confirms findings from previous studies even though it took pace in Wales and not England. The body of research here is showing that even with various participants and geographic locations, and even various definitions of challenging behaviour, there seems to be a reasonably common prevalence estimate.

As can be seen from the prevalence studies presented above, there is a range due to the varied populations studies, varied definitions and varied methodology (Rauf, 2012). As both Emerson et al. (2001) and Lowe et al. (2007) have found, it appears the prevalence of challenging behaviour for persons with learning disabilities ranges between 10% and 15%, which is also consist with research conducted by Holden & Gitlesen (2006), and Qureshi & Alborz, (1992). Thus estimating the prevalence of individuals diagnosed with an intellectual disability and a challenging behaviour to be between 10% and 15% is accepted.

### 1.3.2 Prevalence of Challenging Behaviour in Children

Far fewer studies have looked at the prevalence of challenging behaviour specifically in children with intellectual disabilities. Kiernan and Kiernan (1994) conducted a postal survey on the prevalence of challenging behaviour in day schools for

students with severe learning difficulties. This study was conducted in one in six schools covering the whole of England and Wales. There was a range of 20 students to 87 students per school (Kiernan & Kiernan, 1994). On average, there were more male students than female students who ranged in age from four years old to 20 years old (Kiernan & Kiernan, 1994).

Challenging behaviour in this survey included aggression, disruptive behaviour, stereotyped behaviours and non-compliance, as non-compliant behaviours could interfere with the education in the school setting (Kiernan & Kiernan, 1994). Aggressive behaviour was defined as causing injury to the pupil, other pupils, or staff, or other aggressive behaviour such as verbal abuse and spitting (Kiernan & Kiernan, 1994). Destructive or socially disruptive behaviours were defined as significantly lowering the pupil's own quality of life, the quality of life of others, or behaviour that interfered with their education, or the education of others (Kiernan & Kiernan, 1994). The behaviours had to be displayed by the pupil within the last four months to be considered for inclusion, unless there was a serious incident in which injury occurred within the last year (Kiernan & Kiernan, 1994). Kiernan and Kiernan (1994) reported 10% of the population studied engaged in challenging behaviour according to the definitions above. This is consistent with the estimates presented in the adult populations above. Only 57.3% of the schools had been given specific training on challenging behaviour, remarkably low since challenging behaviour was recognized in all the schools surveyed (Kiernan & Kiernan, 1994). Kiernan and Kiernan (2004) suggested that more extensive school based in-service training would be essential to inform school staff and allow staff to acquire skills necessary to manage students who exhibit challenging behaviour.

Emerson and Einfeld (2010) conducted a secondary analysis of the UK's Millennium Cohort Study and the first two waves of the Longitudinal Study of Australian Children. The aim of this study was to see if higher rates of emotional and behavioural difficulties were seen amongst two and three year old children diagnosed with developmental delays when compared with their age matched peers (Emerson & Einfeld, 2010). Both of these studies contained a nationally representative cohort of children born over a one to two year time span (Emerson & Einfeld, 2010) . An in home interview was conducted with mother and partner, along with questionnaires completed by the mother and partner, and cognitive testing of the child (Emerson & Einfeld, 2010). These cognitive tests consisted of intelligence tests for preschool age children and communication tests. The behavioural difficulties were measured by questionnaires aimed at a toddler ages. The results showed two to three year old children with developmental delays show significantly higher rates of emotional and behavioural difficulties than their age matched peers without developmental delays, but to a less extent in the Australian cohort (Emerson & Einfeld, 2010). This study is consistent with previous studies showing higher rates of emotional and behavioural difficulties among children diagnosed with an intellectual disability (Dekker, Koot, Ende, & Verhulst, 2002).

To accompany a briefing paper "Early Intervention for Children with Learning Disabilities whose Behaviours Challenge" (Cooper et al., 2014), an estimate was surmised of children in England in 2014 who have a learning disability and display a challenging behaviour (Emerson, Hastings, McGill, Pinney, & Shurlock, 2014). Three stages were undertaken to arrive at this estimate. First, an estimate of children aged zero to 18 was needed. This was taken from the 2012 population projections from the

United Kingdom's Office for National Statistics (Emerson et al., 2014). An estimate was then established for the number of children with a learning disability by looking at children who had a School Action Plus or Statement of Special Educational Need. This number was based on an estimate of Special Education Needs Census data that was published from the 2012/2013 school year (Emerson et al., 2014). Since there is no national information collected on the prevalence of children who display challenging behaviour, an estimate was taken from United Kingdom's Millennium Cohort Survey. (This study has followed a cohort of 18,000 children from nine months to 11 years old.) The Strengths and Difficulties Questionnaire given to this cohort determined challenging behaviour (Emerson et al., 2014). This led to estimating in 2014, 40,000 children in England were likely to have an intellectual disability and also display challenging behaviour(s) (Emerson et al., 2014).

With a population of 40,000 children likely to have an intellectual disability and display challenging behaviour, further intervention is needed to lessen this number. These studies were all large scale in nature, but with no two using the same methodology, so links between them are limited. Regardless, these studies reviewed above, while varied in their populations and methodology, again show the need for intervention with the intellectual disabilities population as they exhibit higher rates of challenging behaviour than typically developing children. In the next section the persistence of challenging behaviour will be presented. This will show the further implications for these 40,000 children thought to currently reside in England.

### 1.4 Chronicity of Challenging Behaviour

Challenging behaviour develops often early in life in children with intellectual disabilities, and severe challenging behaviours tend to persist once developed (Kiernan & Kiernan, 1994). The same is true for those adults who have an intellectual disability and also display challenging behaviour (Totsika, Toogood, Hastings, & Lewis, 2008). Longitudinal studies have found that persons identified as self-injuring, being aggressive, or damaging property were still engaging in those behaviours seven to ten years later (Emerson et al., 2001; Kiernan & Alborz, 1996; Kiernan et al., 1997; Windahl, 1988). Kiernan and Alborz (1996) conducted a study of 24 people who caused physical injury. Follow up six years later, showed 83% still caused physical injury, a high persistence rate. Several studies have looked at persistence of specific behaviours. These include serotyped behaviours 60% - 62.5% (Chadwick, Kusel, Cuddy, & Taylor, 2005; Thompson & Reid, 2002); self-injurious behaviours 57% - 75% (Emerson et al., 2001; Kiernan & Alborz, 1996); and physical attacks 83% - 87% (Kiernan & Alborz, 1996; Nottestad & Linaker, 2002). As shown in the above studies persistence rates for challenging behaviour are between 57% and 87%.

Emerson and colleagues (2001) conducted a study with 95 people diagnosed with an intellectual disability, who had been identified in the previous seven years as showing severe self-injurious behaviour. At the seven year follow up, 71% of the individuals were still showing self-injurious behaviour that was considered a management problem for care staff (Emerson et al., 2001). Specific topographies of self-injury were to be found stable and persistent, specifically head directed self-injury (Emerson et al., 2001). Of the topographies of self-injurious behaviour 95% of the

people who were head banging in the original 1988 study, were still head banging at the seven year follow up; 79% of the people who showed self biting in 1988 were still self-biting seven years later; and lastly 69% of the people who were engaging in self scratching or skin picking were still engaging in these behaviours seven years later (Emerson et al., 2001). Another correlation found was between restricted expressive communication and self-injury. Individuals with limited expressive communication were twice as likely to show severe self-injury during the seven year follow up (Emerson et al., 2001). Self-injurious behaviour that was reported as stable in the original 1988 study, was a predictor of maintenance at the seven year follow up (Emerson et al., 2001), again showing the persistence of self-injurious behaviour. While this study is small, the chronicity is still impactful for those individuals who continue to display challenging behaviour, continually impacting on their safety.

Taylor, Oliver, and Murphy (2011), conducted a study to examine chronicity of self-injury and quality of life changes for 49 individuals who were part of a previous total population study. The previous study was funded by the United Kingdom Department of Health to survey how many children and adults with intellectual disabilities were engaging in self-injurious behaviour that had caused tissue damage within the last four months (Oliver et al., 1987). This original study took place in 1983 in the South East Thames Regional Health Authority in England (Oliver et al., 1987). Taylor, Oliver and Murphy conducted the 2011 study 18 years later with only a portion of the original area, due to resource constraints. The same definition was used for self-injurious behaviour, occurring within the last four months and causing tissue damage (Oliver et al., 1987) . During the second study 49 participants agreed to take part (Taylor et al., 2011). The

most common forms of self-injury at both time points included head punching/slapping, skin picking, head to object banging, and self biting (Taylor et al., 2011). There was no significant change in the number, topography or severity of self-injury between time points one and two, despite them being 18 years apart (Taylor et al., 2011). Psychological input had risen form 4% to 51% between time points one and two (Taylor et al., 2011). In total 84% of the sample continued to self-injure 18 years later with no significant change in the number of topographies or severity of the self-injury (Taylor et al., 2011). While more people were receiving psychological input, more were also receiving medication (Taylor et al., 2011).

Totsika and colleagues (2008) conducted a study on the chronicity of challenging behaviour in adults with intellectual disabilities over an eleven-year period. Fifty-eight adults with intellectual disabilities living in a long-term residential facility were interviewed (Totsika et al., 2008). The assessments took place in 1992 and 2003 and the majority of the participants had severe intellectual disabilities (Totsika et al., 2008). Challenging behaviour was measured using the Individual Schedule of the Challenging Behaviour Survey (Alborz et al., 1994). Of the sample that displayed challenging behaviour in 1992, 79% of these still presented with challenging behaviour when reassessed in 2003 (Totsika et al., 2008). For both physical attacks and self-injury, factors associated with the persistence were being younger, whereas stereotyped behaviour was associated with lower daily skills at time point one, 1992 (Totsika et al., 2008). Those adults with intellectual disabilities that engaged in serious physical attacks, self-injury, and frequent stereotypy were most likely to have persistent challenging behaviour (Totsika et al., 2008). Again, this study, while small in scale, is

showing persistence of challenging behaviour over the 50% threshold, showing the long-term impacts for those individuals who display challenging behaviour.

Cooper and colleagues identified adults (over the age of 16) with an intellectual disability living in the Greater Glasgow Health Board of Scotland (Cooper et al., 2009). Data was collected at two different time points; the second time point being two years later. The C21st Health Check (Glasgow UCEDD, 2001) was used as a screening tool for problem behaviour and autism. Those persons who were found to have problem behaviours or autism were further assessed in face to face psychiatric assessments. Self-injurious behaviour was defined by the DC-LD (Royal College of Psychiatrists, 2001). At time point one, 4.9% of the participants were found to engage in self-injurious behaviour, and at time point two 61.8% of those participating were still found to display challenging behaviour (Cooper et al., 2009), showing the chronicity of challenging behaviour as in previous studies. These studies varied in size, geographic location, and methodology, but all showed once challenging behaviour begins, it is often persistent. This is something that is impactful to the individual's safety, making the results of these studies compelling to treat challenging behaviour.

Several studies have looked at persistence rates within the childhood populations. Below, a few of those findings will be presented to show even in childhood persistence is a problem for those who exhibit challenging behaviour. Kiernan and colleagues (1997) found that being younger and less able were factors associated with the persistence of challenging behaviour. Murphy and colleagues (2005) conducted a 12-year follow up on a previous total population cohort study. The study consisted of children with autism and intellectual disabilities taken from the former London Borough of Camberwell.

Those participants who were rated as showing 'abnormal behaviour' at the first time point, were showing the most 'abnormal behaviour' at the second time point, demonstrating the persistence of challenging behaviour (Murphy et al., 2005).

Green and colleagues (2005) conducted a study to examine the persistence of early emerging challenging behaviour in 13 preschool children with developmental disabilities. Each participant was diagnosed with a developmental delay or disability and had severe communication impairment, testing at a level of 24 months of age or less (Green, O'Reilly, Itchon, & Sigafoos, 2005). The Aberrant Behaviour Checklist (Aman & Singh, 1986; Aman & Singh, 1994) was used, showing challenging behaviour in all children at the beginning of the study, with nine of the 13 children showing high levels of challenging behaviour (Green et al., 2005). Little change was seen over the three years, leading the authors to recommend home-based intervention prior to the age of four (Green et al., 2005).

It also has been reported that 80% of children continue to self-injure over a 20-year period (Handley, Adams, Simkiss, & Oliver, 2013). What is shown regarding the prevalence of challenging behaviour is once it is considered behaviour that challenges, it is highly persistent. As seen in the literature above, all studies have shown greater than a 50% chance the behaviour will persist. This challenging behaviour affects the individual's quality of life in terms education, work, socialization, and even relationships with family and carers. In the next section risk factors that contribute to the development of challenging behaviour will be explored.

## 1.5 Risk Factors that Contribute to Challenging Behaviour

Challenging behaviour can develop from one influence or a combination of influences. These include physical health, sensory impairments, as well as communication difficulties. Challenging behaviour is more common in persons diagnosed with an autistim spectrum disorder, those who display high levels of hyperactivity, impulsive behaviour, repetitive behaviour, restricted or ritualistic behaviours, and also persons with certain genetic syndromes (Handley et al., 2013). McClintock and colleagues (2003) conducted a meta-analysis of prevalence studies to determine the risk factors for challenging behaviour. McClintock and colleagues (2003) findings suggested aggression was associated with being male, stereotypy was related to the severity of the intellectual disability, and self-injury was associated with communication deficits. Risk factors for challenging behaviour include: being male; having a greater severity of intellectual disability; being in adolescence or young adulthood; having certain syndromes, including autism; and having restricted communication (Emerson et al., 2001; Holden & Gitlesen, 2006). Tyrer and colleagues (2006) confirmed all the same risk factors, except for the association with autism.

Felce and Kerr (2013) conducted a study to look at risk factors for challenging behaviour in adults with intellectual disabilities. Data was combined from four studies on staffed group homes and 44 primary health services providers. This included 818 adults with intellectual disabilities with all but 143 participants lived in staffed group homes (Felce & Kerr, 2013). Of the population studied, 34.5% were assessed as having the triad of impairments linked with autism spectrum disorder (Felce & Kerr, 2013) . Challenging behaviour was assessed using the Aberrant Behaviour Checklist (Aman &

Singh, 1994). This study also identified autism as risk factor for challenging behaviour (Felce & Kerr, 2013).

Intervention efforts aimed at addressing risk factors for challenging behaviour could reduce the number of those individuals displaying challenging behaviour, reduce the financial costs associated challenging behaviour, and even prevent challenging behaviour (Chadwick, Kusel, & Cuddy, 2008). Reduction and prevention of challenging behaviour would impact the quality of life for the individual and hopefully lead to lower persistence rates. To understand these risk factors in further detail, each of the individual risk factors will be explored further below.

### 1.5.1 Communication and Sensory Impairments

Sensory impairments are associated with the development of challenging behaviour, including self-injury (McClintock, Hall, & Oliver, 2003). People who have communication difficulties are more likely to exhibit challenging behaviour (Male, 2003; Paijamans, 2007; Sigafoos, 2000). This includes pupils who have additional visual or hearing impairments. Male (2003) found pupils with communication difficulties more likely to display challenging behaviour. Lack of communication plays a vital role in challenging behaviour. Having a communication impairment can affect an individual's ability to learn through incidental teaching and learn from others in a social setting. In general, needs are met by communication with others and without the ability to communicate, challenging behaviour can develop. Increased levels of challenging behaviour can increase communication difficulties making the process a cyclical (Schlesinger & Meadow, 1972). For example, an individual may be unable to speak or sign. This individual may hit their head to escape the presence of carer when a carer is

asking them to complete a task. This inability to communicate has resulted in the individual engaging in challenging behaviour, head hitting, which is reinforced by the caregiver stopping their request. Thus, instead of learning another way to indicate stop, the individual engages in the head hitting with other carers.

There is a higher prevalence of hearing loss in the intellectual disability population than in the general population (Timehin & Timehin, 2004). Hearing impairment is associated with some conditions that cause learning disabilities, including Down syndrome. By being unable to communicate as others would with the world around them, persons with hearing difficulties can suffer from isolation (Timehin & Timehin, 2004). Additionally, children who are deaf are three to six times more likely than their hearing peers to displaying challenging behaviour (Austen, 2010; Hindley, 2000; Meadow, 1981). This is a significant impact, as there are approximately 50,000 to 70,000 British sign language users in the United Kingdom (Austen, 2010). Challenging behaviour in people, who are deaf, is often left untreated and attributed to their deafness (Austen, Gray, & Carney, 2007; Kentish, 2007; Woolfson, 2004).

Timehin and Timehin (2004) conducted a study using a semi-structured interview with persons diagnosed with learning disabilities who wore hearing aids to investigate the type of problem behaviour displayed including aggression, destructiveness, disruptive/antisocial behaviour, and dangerous/nuisance behaviour. Questions were also asked to evaluate the use of speech, sign language, and the understanding of speech (Timehin & Timehin, 2004). The challenging behaviours, listed above, were scored according to frequency of once within the last week and some but not every day last week (Timehin & Timehin, 2004). Timehin and Timehin (2004) found

62% of the population identified as having a hearing loss also exhibited challenging behaviour. Timehin and Timehin (2004) do note this estimate varied from other's estimates of challenging behaviour, including Emerson's (Emerson et al., 2001), referenced in the challenging behaviour section. Timehin and Timehin (2004) did find an association between displaying challenging behaviour, and not wearing the hearing aid regularly. This again supports the hypothesis, lack of communication (being unable to hear) leads to an increase in challenging behaviour.

**Autism**

Challenging behaviour can be seen in persons with an autism spectrum disorder characterized by the triad of impairments (impairments in communication, social interaction, and restricted interests or repetitive stereotyped behaviours). Murphy, Healy and Leader (2009) conducted a study in Ireland for 157 children diagnosed with an autism spectrum disorder. The study was conducted in applied behaviour analysis schools and classrooms for children with an autism spectrum disorder which was attached to the mainstream primary school. Challenging behaviour was rated on the Behaviour Problems Inventory (Rojahn, Matson, Lott, Esbensen, & Smalls, 2001) which includes 52 items for self-injurious, stereotypic, and aggressive/destructive behaviour. Each item was scored on two scales, a five-point frequency scale from never to hourly and a four-point severity scale from no problem to severe problem (Rojahn et al., 2001). Of the participants, 82% displayed challenging behaviour (Murphy, Healy, & Leader, 2009) . This shows a high level of challenging behaviour in those diagnosed with an autism spectrum disorder.

Richards and colleagues (2012) conducted a study to identify in individuals diagnosed with an autism spectrum disorder, the prevalence and topography of self-injurious behaviours. The study used three groups, individuals diagnosed with an autism spectrum disorder, individuals diagnosed with Fragile X, and individuals diagnosed with Down syndrome (Richards, Oliver, Nelson, & Moss, 2012). The Challenging Behaviour Questionnaire (Hyman, Oliver, & Hall, 2002) was used to look at specific topographies of challenging behaviour and self-injury. The group with an autism spectrum disorder was 4.79 times more likely to hit their body than the Down syndrome group (Richards, Oliver, Nelson, & Moss, 2012).

Those diagnosed with an autism spectrum disorder displayed self-injurious behaviour in 50% of the population studied, similar to the 54.4% found in the fragile X group, but significantly higher than the 18.4% found in the Down syndrome group (Richards et al., 2012). Those displaying self-injury had higher scores on the measures of autistic behaviour (Richards et al., 2012), suggesting an autism spectrum disorder is a risk marker for being associated with self-injury. In previous studies individuals with an autism spectrum disorder have been found to engage in self-injurious behaviour in 33% - 71% of the population studied (Baghdadli, Pascal, Grisi, & Aussilloux, 2003; Cohen et al., 2010; Dominick, Davis, Lainhart, Tager-Flusberg, & Folstein, 2007; Murphy et al., 2009; Shattuck et al., 2007). This is much higher than the prevalence of self-injurious behaviour in the population with intellectual disabilities, which is between 4% and 12% (Cooper et al., 2009; Oliver et al., 1987). These previous studies have attributed the higher degree of self-injury to both the presence and severity of the autistim spectrum disorder.

### 1.5.2 Severity of the Intellectual Disability

There is an increased rate of challenging behaviour for those with the greatest intellectual impairments and those with additional difficulties (Porter & Lacey, 1999) . This means those diagnosed with severe or profound intellectual disabilities are at a greater risk for displaying challenging behaviour, than those with a borderline or mild range of intellectual disability (Borthwick Duffy, 1994). Oliver and colleagues (1987) suggest that 90% of people who self-injure have a profound learning disability.

Matson and colleagues (2008) studied 101 participants who had a severe or profound intellectual disability and all displayed challenging behaviour. These individuals were matched to a control group by gender, age, and level of intellectual disability (Matson, Cooper, Malone, & Moskow, 2008). A carer who had known the individual for at least six months used the Aberrant Behaviour Checklist (Aman & Singh, 1994). There was significant association between self-injurious behaviour and other maladaptive behaviours on the Aberrant Behaviour Checklist (Matson et al., 2008). Persons who already displayed self-injurious behaviour were more likely to exhibit other forms of challenging behaviour than their matched controls (Matson et al., 2008). Estimates of self-injurious behaviour were highest with individuals who had a severe or profound level of an intellectual disability (Matson et al., 2008). This reaffirms Oliver and colleagues findings above, that those individuals who have a severe or profound intellectual disability are more likely to display a challenging behaviour. Knowing this helps to target prevention within this population.

### 1.5.3 Age and Sex

Links between age and sex have also been found for those individuals who display challenging behaviour. Males are more likely to be identified as displaying challenging behaviour than females, especially for aggression (Emerson et al., 2001; Eyman & Call, 1977; Kiernan & Kiernan, 1994). Topographically, boys display different challenging behaviour to girls. This more often includes aggression and property destruction displayed by boys (Borthwick Duffy, 1994; Rojahn & Esbensen, 2002). Emerson and colleagues (2001) found that 68% of males were displaying challenging behaviour in their prevalence study. Sigafoos, Elkins, Kerr, and Attwood (1994) found of 261 persons identified as having aggressive behaviour and a learning disability, 64% were male. Lowe and colleagues (2007) found a similar result in the South Wales study where 63% of those persons identified as having a learning disability and challenging behaviour were male. In the 2013 Special Education Needs Census, 87.5% of the pupils with special education need statements due to behaviour, emotional or social difficulties, were boys (Pinney, 2014). Boys who were diagnosed on the autism spectrum disorder were also disproportionally representing at 85.2% (Pinney, 2014). Of those diagnosed with a learning disability 63% were male (Pinney, 2014).

Age related prevalence of challenging behaviour is not as clear cut as the gender findings represented above. Oliver et al. (1987) and Borthwick Duffy (1994) reported the highest prevalence of self-injurious behaviour in the teenage years, while Rojahn and Esbensen (2002) reported the highest incidence for persons in their mind 20s. Prevalence of challenging behaviour reaches a peak, between ages 15 – 34 (Porter & Lacey, 1999) . This was again found in the Lowe et al. study (2007) where 40% of those

persons with learning disabilities and challenging behaviour were young adults aged 16 – 39 years. Joyce, Ditchfield, and Harris (2001) report 63% of their population (adults with learning disabilities) were between the ages of 19 - 34. Griffin et al. (1987) compared a group of four year olds to 14 year olds to a group of 14 year olds to 22 year olds, and found the higher prevalence in the younger group. Borthwick Duffy (1994) also looked at aggression and reported a slight increase after the age of 20. In the Special Education Needs Census for 2013 the number of children diagnosed as having moderate learning difficulty increased sevenfold between the ages of five and 15 years (Pinney, 2014). There is in an increase in severe learning difficulties as well, but nowhere near as drastic (Pinney, 2014). These studies all had slightly different populations, causing some of the disagreement between ages related to challenging behaviour.

Davies and Oliver (2013) conducted a review of studies to look at age related prevalence of aggression and self-injury in persons with intellectual disabilities. The studies had to show the prevalence of aggression and self-injury by age, and include the number of participants (Davies & Oliver, 2013). This would allow for comparisons across methodology and sample size of previous studies. Peer reviewed published articles, were included that looked at self-injurious behaviour or physical aggression by age or age band. These articles spanned from 1967 – April 2009 and were searched through PsycINFO (Davies & Oliver, 2013). Additionally, all participants had to be diagnosed with an intellectual disability. Twelve studies were included; nine looked at both self-injury and physical aggression (Davies & Oliver, 2013). Methodologies of the studies included interviews, questionnaires, and a combination of these methods. All study data was merged into five-year age bands to look at relative risk of the age band

(Davies & Oliver, 2013). In all of the studies, the age band showing the highest relative risk of self-injury or aggression was for those between the teenage years until mid adulthood (30s) (Davies & Oliver, 2013). The conclusions drawn from the authors is that prevalence of aggression increases from childhood into adulthood, and seems not to increase after 45 years of age (Davies & Oliver, 2013) (while a decrease is seen, it is with less confidence due to fewer studies on aggression in this later age). Other authors also report a decline in challenging behaviour is often seen at middle age (Emerson et al., 2001). Lowe and colleagues (2007) report only 9% of persons with intellectual disabilities display challenging behaviour over the age of 60. Joyce et al. (2001) report a similar finding of only 6% of persons with intellectual disabilities displaying challenging behaviour over the age of 54.

One impact of this peak is an increase and potential peak during school age, when students need to focus on learning and not missing the curriculum due to challenging behaviour. By not being able to participate in education, this can further isolate students who display challenging behaviour from their peers (Porter & Lacey, 1999) . Knowing that there is a rise and a peak during the school ages for persons who display challenging behaviour, can help to again target intervention and potentially prevent the increase in challenging behaviour. This again leads the researcher to the conclusion school based training and intervention is essential.

### 1.5.4 Genetic Factors

There are genetic causes of an intellectual disability that lead to particular patterns of behaviour; this is also known as a behavioural phenotype. One such disorder is Fragile X syndrome, mentioned above. Fragile X syndrome is caused by the expansion

of trinucleotide sequence in the DNA in part of the X chromosome (Hagerman & Hagerman, 2002). The sequence is repeated 30 times in genetically normal individuals, but in individuals diagnosed with Fragile X, it is repeated 200 – 600 times (Hagerman & Hagerman, 2002). Fragile X syndrome is the most common inherited cause of an intellectually disability, and these individuals have a number of characteristic behaviours (Hagerman & Hagerman, 2002). Self-injurious behaviour, particularly biting the back of the hand, and shyness or gaze avoidness is frequently seen within this population (Rogers, Wehner, & Hagerman, 2001).

Prader-Willi syndrome is caused by the deletion of part of the long arm of chromosome 15 occurs in about one in 20,000 live births (Holm et al., 1993). These individuals have an excessive appetite, are short in stature, and have small hands and feet (Holm et al., 1993). There are behaviours significantly associated with Prader-Willi syndrome; they include temper tantrums, which include slamming doors, getting obsessed with an idea, picking skin, and eating non-food items (Dykens & Kasari, 1997). This is usually accompanied by gorging food (Dykens & Kasari, 1997).

William syndrome is caused by the deletion of part of chromosome seven (Emerson & Einfeld, 2001). Persons diagnosed with Williams syndrome also presents with short stature, as in Prader-Willi syndrome, wavy hair, blue eyes, and congenital heart disease (Udwin & Yule, 1991). These individuals are usually hyper-social, although they do suffer from high levels of anxiety (Udwin & Yule, 1991). Sleep disturbance and hyeracusis is also common among individuals diagnosed with Williams syndrome (Udwin & Yule, 1991).

These three specific syndromes are examples of syndromes that have specific behaviours associated with the diagnosis of the syndrome, making those individuals at a greater risk for displaying challenging behaviour. Again challenging behaviour is a social construction. Even behaviours that are more typical within a certain genetic syndrome do not guarantee the presence of challenging behaviour. This is just an additional risk factor.

### 1.5.5 Physical Health Complications

Challenging behaviour may be further influenced by, illness, pain, fatigue, hormonal changes, drug effects, caffeine intake, diet and food deprivation (Emerson & Einfeld, 2011) . The presence of physical problems, chronic or recurrent pain, and sleep disorders can also influence challenging behaviour (Poppes, van der Putten, & Vlaskamp, 2010) . One of these physical conditions, allergies, with symptoms including swollen, red, or irritated eyes; and a runny nose can be correlated with increased rates of challenging behaviour (Bailey & Pyles, 1989; Gourash, 1986; Kennedy, 2002; Kennedy & Meyer, 1996).

A systematic review was conducted by de Winter, Jansen and Evenhuis (2011) that contained 45 studies looking at challenging behaviour and associated physical conditions. Papers were looked at between January 1980 and July 2008 (de Winter, Jansen, & Evenhuis, 2011). Challenging behaviour was defined using the diagnostic criteria for psychiatric disorders for use with adults with learning disabilities (DC-LD) which includes verbally aggressive behaviour, physically aggressive behaviour, destructive behaviour, self-injurious behaviour, sexually inappropriate behaviour, oppositional behaviour, demanding behaviour, wandering behaviour, or other

behaviour not captured by the above mentioned categories (Royal College of Psychiatrists, 2001). The physical conditions included general medical conditions, motor impairment, epilepsy, sensory impairment, gastrointestinal disease, sleep disorders, dementia, and other such impairments (de Winter et al., 2011). Findings showed there were significant associations between challenging behaviour and urinary incontinence, pain related to cerebral palsy, chronic sleep problems, and a link between self-injurious behaviour and visual impairment (de Winter et al., 2011). Urinary incontinence was found to be significantly associated with aggressive behaviour, and visual impairment was associated with self-injurious behaviour (de Winter et al., 2011). This can also be seen in the findings by Hubert (1994), which showed a high level of eye poking was noted in children with visual impairment.

Otitis media has been linked to self-injury, including head banging in several studies (Bailey & Pyles, 1989; deLissovoy, 1962; Gardner & Sovner, 1994). Otitis media is abnormal accumulation of fluid in the ear, and can cause mild hearing loss (Masters & Marsh II, 1978). If these infections go undetected, they can impact language development. This delay in language development is enough to produce language problems that may affect academic progress (Holm & Kunze, 1969). A study was conducted by Masters and Marsh (1978) and findings concluded a larger number of children with intellectual disabilities suffer from middle ear pathology than their same aged typically developing peers. In this study, 179 students from general education along with 108 students with learning disabilities in grades one through four participated (Masters & Marsh II, 1978).

Another issue can be a chronic medical condition such as epilepsy. Epilepsy is a seizure disorder that 20% - 30% of persons diagnosed with an intellectual disability also have (Matthews, Weston, Baxter, Felce, & Kerr, 2008). Seizures can range in severity from a brief impairment in cognitive ability to seizures accompanied by aggressive behaviour. Self-injury has been linked to frontal lobe epilepsy (Geyde, 1989). Additionally seizures can precede or be followed by increased agitation in the form of aggression or destruction (Matthews et al., 2008). This is important to know, as this can be seen as challenging behaviour.

There is an increase in the number of individuals with intellectual disabilities associated with gastro-oesophageal reflux, which causes pain (Peebles & Price, 2012). In a study conducted by Gossler and colleagues (2007) children who suffered from gastro-oesophageal reflux showed significantly more agitation and self-injurious behaviour as reported by parents, and often persisted with recurrent reflux post treatment (Gössler, Schalamon, Huber-Zeyringer, & Höllwarth M.E., 2007). This was also concluded by Bohmer and colleagues in their 1997 study (Böhmer, Klinkenberg-Knol, Boer, Meuwissen, & Meuwissen, 1997).

Persons diagnosed with Cornelia de Lange syndrome have shown to have more health problems throughout their life, including gastrointestinal disorders, heart defects, eye disorders, and hearing loss (Hall, Arron, Sloneem, & Oliver, 2008). Hall and colleagues conducted a study on families who were recruited by the Cornelia de Lange syndrome Foundation (Hall et al., 2008). Fifty-four participants were chosen on diagnostic information, age, and distance to the research base (Hall et al., 2008). A matched comparison group was also recruited, and 46 participants were able to take

part. Statistical analysis showed no significant difference between groups for age, gender, ability, or mobility (Hall et al., 2008). There were significantly more individuals with Cornelia de Lange syndrome that experienced gastrointestinal problems during their life span (Hall et al., 2008). In the previous month's comparisons gastrointestinal problems were reported for 44% of the population studied, leading the authors to an estimate that 71% of individuals with Cornelia de Lange syndrome will experience gastro-intestinal problems during their life (Hall et al., 2008). Self-injurious behaviour has also been shown to be associated with Cornelia de Lange syndrome, which is showing pain from gastro-oesophageal reflux as a factor in the development and maintenance of this form of challenging behaviour (Tunnicliffe & Oliver, 2011) . The majority of previous research has associated Cornelia de Lange with a higher rate of self-injurious behaviour, upwards of 50% (Beck, 1987; Berney, Ireland, & Burn, 1999; Hawley, Jackson, Kurnit, Opitz, & Reynolds, 1985; Hyman et al., 2002; Johnson, Ekman, Friesen, Nyhan, & Shear, 1976). This could explain that the mere presence of health problems are associated with an increased likelihood of specific forms of self-injury (Hall et al., 2008).

Challenging behaviour can be seen in something as mild as allergies, or something as major as a chronic condition, such as epilepsy. These health conditions can affect the person, giving them a lower set point to exhibit challenging behaviour. When a person does not feel well or is in pain, they are often more irritable. This increased irritability can lead to an increase in challenging behaviour if the person who is affected by the health condition has no way to express their feelings of irritation, pain, or fatigue.

### 1.5.6 Mental Health

A diagnosed or undiagnosed mental illness can be a risk factor for developing or maintaining challenging behaviour (Austen, 2010). Depression and psychosis can manifest in challenging behaviour. Separating challenging behaviour from symptoms of mental health is not straightforward. For instance, an individual diagnosed with schizophrenia, may hear voices and therefore be non-compliant with carers as a result of the confusion (Einfeld, 1992). Additionally, persons with intellectual disabilities can also experience anxiety disorders (Emerson, 2003). This can cause the person to engage in rituals that will impede other tasks, and can be perceived as challenging behaviour.

Prevalence rates have indicated that 40% of children with intellectual disabilities have a diagnosed psychiatric disorder (Emerson, 2003; Stromme & Diseth, 2000; Tonge & Einfeld, 2003). The World Health Organization (1992) also reports mental health problems are three to four times greater in the persons who have a learning disability, than the general population. Jacobson (1982) conducted a survey on 30,000 people receiving services for developmental disabilities. Findings indicated behaviour problems were more common in persons with a dual diagnosis of a mental health disorder than those without (Jacobson, 1982).

Chadwick and colleagues (2005) conducted a study looking at psychiatric diagnoses in behaviour problems from childhood to early adolescence. One hundred and eleven children with severe intellectual disabilities were identified from six special schools aged four to 11 years in London boroughs (Chadwick et al., 2005). Five years later, 82 were available for re-assessment (Chadwick et al., 2005). The methods employed included parental interviews, teacher questionnaires, and health records of

psychiatric diagnoses (Chadwick et al., 2005). Of the 82 participants, 32.9% were found to have a diagnosed psychiatric disorder (Chadwick et al., 2005). This study found a persistence rate of 90% from psychiatric diagnoses in childhood to adolescence, showing that those that were diagnosed in the first study still had a diagnosis at the five-year follow up. While there was a slight increase in the diagnoses, all but one new diagnosis was reported on the interviews, checklists, and questionnaires at the first time point, but not formally diagnosed, therefore not meeting the criteria for psychiatric diagnosis in this study (Chadwick et al., 2005). There was no significant difference in the overall behaviour problem scores or in rates of individual behaviour problems between the two time points (Chadwick et al., 2005). This is consistent with previous studies conducted on populations of children with intellectual disabilities where no statistical significance was found in the reduction rates of 'behaviour disturbance' (Richardson & Koller, 1996; Tonge & Einfeld, 2003).

While sensory impairments, communication, age, and health are risk factors contributing to the development of challenging behaviour, none of these risk factors guarantee challenging behaviour. Additionally as each risk factor is coupled with another, there is a greater likelihood that an individual will display a challenging behaviour. In addition to these risk factors, there are also psychosocial factors that contribute to how challenging behaviour develops. These psychosocial factors are presented within the next section as they play a part in the development of challenging. The next section will also present a behaviour-based model of how challenging behaviour develops.

## 1.6 How Challenging Behaviour Develops

Understanding how challenging behaviour develops can help to target interventions for those individuals who display challenging behaviour. Hastings and colleagues have written a conceptual framework of the development of challenging behaviour (Hastings et al., 2013). They present five psychosocial factors that play a part in the development of challenging behaviour. These include a negative life event, lack of communication skills, impoverished social networks, lack of meaningful activities, or psychiatric/mood problems (Hastings et al., 2013). Communication skills and psychiatric problems have been previously discussed as risk factors to challenging behaviour. The other factors will be considered within this section as vulnerabilities that contribute to the development of challenging behaviour. Having fewer friends, and therefore reduced social networks is unfortunately a common experience for people with intellectual disabilities, which can in turn lead to limited leisure opportunities (Lunsky & Benson, 1999). Persons with intellectual disabilities are three to four times less likely to be employed (Verdonschot, De Witte, Reichrath, Buntinx, & Curfs, 2009). These factors are all linked as well. It is important to understand that factors such as lack of communication can lead to less opportunities for making friends or engaging in meaningful activities, such as employment, which can in turn lead to depression (Hastings et al., 2013). The nature of this cyclical relationship only enhances the likelihood of the person displaying challenging behaviour as the factors themselves build on each other.

To fully understand challenging behaviour one must understand not only what factors or experiences led to the challenging behaviour, but how that behaviour is

maintained over time. First and foremost, a challenging behaviour must be useful for the person displaying it. From a behavioural perspective, the challenging behaviour is serving some function for the individual. These behaviours gain the social consequences (attention, access to objects, escape or self-stimulation) and the behaviour becomes part of the person's repertoire (Guess & Carr, 1991; Kennedy, 2002; Richman & Lindauer, 2005). Pain reduction has recently been introduced as another possible function of behaviour (Matson, Tureck, & Rieske, 2012). The last piece of the challenging behaviour puzzle is carer behaviour. The carer is the one offering or removing the attention, allowing escape, or allowing access to items. Examples of attention and escape from a demand are given below to help clarify this explanation.

A challenging behaviour can begin for example, by a baby crying for food, and over time, the baby learns when it cries, it receives attention from the parent. Typically developing children will learn to smile, coo, and even begin to talk to request attention. If the child is delayed and/or has an intellectual disability, these other methods of communication may not develop. The baby will then grow older and cry louder for other desires, because crying results in attention, and since the child has limited communication, crying becomes the only functional way to get attention. As the child grows older, crying becomes less acceptable because the child's typically developing peers have now begun to smile, coo, and speak to receive attention. The crying may also be louder and persist longer, making it more difficult for the parent to manage, turning crying, a previously typical developmental behaviour into a challenging behaviour.

Behaviours usually begin, as in the example above of the baby crying, from a typically developing process. In the example above, attention was the social

consequence. This can happen for a variety of behaviours aside from crying. It is thought the development of the challenging behaviour in toddlers is due to their prelinguistic language of actions, facial expressions, guiding, and vocalizations. What is initially a guide (taking a carer by the hand to show them something) could become a more aggressive grab if the toddler is not understood. If this pays off for the toddler, this could be shaped up as a form of challenging behaviour (Green et al., 2005).

Some children with intellectual disabilities show additional early signs of challenging behaviour related to genetic conditions. Uncommitted behaviours are those behaviours that are hard wired and displayed by an individual during infancy. Certain genetic conditions are associated with uncommitted behaviour less often seen in typically developing children (intense rocking or jerking) (Langthorne & McGill, 2008). For example, a baby who is quiet and emits intense rocking may be left alone to engage in this behaviour. When the mother is asking the baby to wave bye bye, a demand, the baby may then exhibit the intense rocking. The mother may then terminate the request, shaping the intense rocking to escape from the demand of waving for the baby. These behaviours may be even more likely to fall under environmental contingencies discussed above, and described in the study below.

Self-injurious behaviour shows an increase in prevalence and severity between the ages of five and 25 (Oliver et al., 1987). Oliver, Hall, and Murphy (2005) conducted a study using detailed information from the Murphy, Hall, Oliver, & Kissi-Debra (1999) and Hall, Oliver, & Murphy (2001) studies. Sixteen children were followed over a two-year period at three-month intervals. All children were observed in their school classroom between four and eight occasions coding self-injury, demands, and attention

with both frequency and duration. Each child was observed for three to four hours (Oliver, Hall, & Murphy, 2005). In the original study by Murphy et al. (1999), four of the 16 children had an increase in self-injury over the two-year study. Hall et al. (2001) relooked at the cohort of 16 and found an increase in self-injury was linked with periods of low social contact. There was an increase in social contact following a period of engagement in self-injurious behaviour by the child (Hall, Oliver, & Murphy, 2001). In the 2005 study by Oliver and colleagues the cohort was re-observed. Child responses recorded including head and body banging, head and body hitting, hand biting, scratching and rubbing, eye pressing and poking, and hair pulling (Oliver et al., 2005). Teacher behaviours were also observed for demand and attention. Social contacts between periods of self-injury and during periods of no self-injury were recorded (Oliver et al., 2005). A positive correlation between the increase in early self-injurious behaviour and social positive reinforcement for self-injury was shown by an increase in nine of 16 children's self-injurious behaviour (Oliver et al., 2005).

Lowe and colleagues (2007) point out that those who display lesser levels of challenging behaviour can progress to more severe levels of challenging behaviour without intervention. These findings show the need for an understanding of challenging behaviour and for equipping carers, including school staff, with the ability to manage challenging behaviour in their students (Lowe et al., 2007). For example, by understanding challenging behaviour following periods of low social contact in the Hall study mentioned above, a schedule could be created to intersperse social contact on a more frequent basis. This could help to prevent the individuals from displaying these levels of challenging behaviour.

## 1.7 Impacts of Challenging Behaviour

Challenging behaviour that starts in childhood can be persistent for years, having an impact on the quality of life or health for the person themselves or those individuals who care for them. This can also extend to the close community (Male, 2003). These impacts will be briefly explored below along with how they affect both the individual and the family or carer. An understanding of this impact is essential for the importance of work carried out within the field of challenging behaviour.

### 1.7.1 Impacts for the Individual

Persons who display challenging behaviour are at a higher risk of injury, taking antipsychotic medication, restrictive treatment including seclusion, restraint, and sedation (Hawkins, Allen, & Jenkins, 2005). With lack of training in the best way to respond, the carer response can be one of control including the use of mechanical, chemical, or physical restraints. These responses can be due to inappropriate reactions from the carers, unintentionally causing a deprivation of liberty or harm, including limiting opportunities to make choices (Robertson et al., 2001). There can also be limitations in social development, such as reduced opportunities to participate in community-based activities (Anderson, Lakin, Hill, & Chen, 1992).

In the Special Educational Needs Census 236 children aged 18 or younger were inpatients in an assessment and treatment unit in September 2013 (Pinney, 2014). In the four weeks preceding the Census, nearly two thirds were given anti-psychotic medication (Pinney, 2014). The use of anti-psychotic medication is the most prevalent treatment for people who display challenging behaviour (Robertson, Emerson, Pinkney

et al., 2005), even though these medications can have a range of side effects from cardiovascular to nervous system implications, including pseudo–Parkinson's symptoms (Baumeister et al., 1998). Antipsychotic medications have also been shown to be ineffective in treating challenging behaviour (Brylewski & Wiggs, 1999). Individuals diagnosed with an intellectual disability are being prescribed antipsychotic medications at the rate of 20% - 40% depending on the setting, with the higher prescription rates being in the hospital settings (Tyrer et al., 2008).

Deb and colleagues (2007) conducted a systematic review of the effectiveness of antipsychotic medication for adults with an intellectual disability. Articles were reviewed from 1990 to 2005. Individuals had to be 18 years of age or older with an intellectual disability, have a full scale intelligence quotient below 70 and be exhibiting a challenging behaviour (Deb, Sohanpal, Soni, Lentre, & Unwin, 2007). The studies had to have 10 or more participants. This systematic review included all types of antipsychotic medication. There were nine studies in all that met the criteria. This review showed only one randomized control trial for risperidone, but there were risks associated with the adverse effects (Deb et al., 2007). This led the authors to conclude there currently is not a large enough body of research available to recommend specific medications for specific challenging behaviour (Deb et al., 2007).

The one randomized control study, mentioned above, was conducted by Gagiano et al. in 2005, which included 77 adults between the ages of 18 and 57. All participants had an intelligence quotient between 35 and 84. Participants had to show a conduct disorder and antisocial personality disorder in the absence of any comorbid psychiatric disorders (Gagiano et al., 2005). There was a four week double blind phase where

participants were assessed at weeks two and four. The risperidone group showed a greater improvement of 52.8% on the Aberrant Behaviour Checklist (Aman & Singh, 1994) along with 31.3% improvement on the Behaviour Problems Inventory (Rojahn et al., 2001; Gagiano et al., 2005). Improvements were also noted for 48.5% on the Clinical Global Impressions (Guy, 1976) scale at four weeks (Gagiano et al., 2005). The Extrapyramidal Symptom Rating Scale (Chouinard, RossChouinard, Annable, & Jones, 1980) remained similar in the risperidone and control group with 59% of those taking the risperidone reporting adverse affects to the 66% reporting adverse effects in the placebo group (Gagiano et al., 2005). Somnolence and weight gain were found to be the significant adverse events associated with the use of risperidone (Deb et al., 2007).

Tyrer and colleagues conducted a study in England, Wales, and Australia (2008) with a parallel group trial of placebo, haloperidol, and risperidone. A blind assessment was conducted at four, 12, and 26 weeks. All but one participant was in a community setting. Participants were excluded if they had a diagnosis of psychosis, had been injected with antipsychotic drugs within the past three months, or had taken any oral antipsychotic drugs within the past week (Tyrer et al., 2008). The Modified Overt Aggression Scale (Knoedler, 1989) was used to measure aggressive behaviour at the assessment points, as well as weekly during an interview with the keyworkers (Tyrer et al., 2008). Additional scales were used to look at other aspects of challenging behaviour, quality of life, and medication side effects. Participants had to have two episodes of aggressive behaviour in the last week to be included (Tyrer et al., 2008). Eighty-six participants were assigned to the treatment groups, most with a mild or moderate intellectual disabilities (Tyrer et al., 2008). Participants assigned to the risperidone

group had higher scores on the Modified Overt Aggression Scale at baseline (Tyrer et al., 2008). A reduction in aggression was shown in all groups, but the greatest being the placebo group (Tyrer et al., 2008). This is different from the previous study showing resperidone was more effective as measured by the Aberrant Behaviour Checklist (Gagiano et al., 2005). This study by Tyrer et al. (2008) shows the psychotropic medication had no benefit in treating challenging behaviour, and is not an effective form of treatment. This study holds added weight due to the blind assessment. Further replications are needed to evaluate the use and effectiveness of psychotropic medications for behaviour.

Challenging behaviour exhibited by people can lead to placements outside the home due to carer stress and inability to care for the person who exhibits the challenging behaviour (Joyce, Ditchfield, & Harris, 2001) . Exclusions from local services and removal to out of area placements can also be a consequence for those persons displaying challenging behaviour (Cooper et al., 2009; Felce & Kerr, 2013) . When children who display challenging behaviour are placed out of area, or in a residential facility with little family contact, there is a heightened risk of abuse (White, 2003). These settings can lead to deprivation of the natural surroundings, limit the person's exposure to peers, limit opportunities to participate in the community, limit employment, limit family contact, and even limit access to healthcare (Lowe & Felce, 1995). Placement findings indicate more children than adults were in an out of area placement due to aggressive behaviour, destructiveness, or self-injury (Lowe & Felce, 1995).

Out of area placements are costly; McGill and Poynter (2012) were asked to provide information about the five highest cost residential placements for adults with learning disabilities in a series of geographical areas. To gather the five highest cost placements, 14 local authorities were asked to provide info about the cost, gender, age, nature of the disability, out of area or in area placement, along with a discharge date (McGill & Poynter, 2012). These 14 local authorities responded with their five highest costs placement. The average placement cost was £172,000 per annum, with a range of £83,000 to £333,000 (McGill & Poynter, 2012). The highest cost was found to be associated with hospital placements and placements for people presenting challenging behaviour, particularly young males (McGill & Poynter, 2012). Having a diagnosis of an autism spectrum disorder was also a risk factor for being in an out of area placement (McGill & Poynter, 2012). Of the individuals that were being served in these out of area placements 73% were males, with 39% being under the age of 39 (McGill & Poynter, 2012). The largest setting included residential care for 61%, and 71% of all high cost placements were considered to be out of area (McGill & Poynter, 2012).

Hassiotis and colleagues (2008) surveyed any placement made by five London boroughs that cost more than £70,000 per annum. There were 205 placements identified, with 65% being out of area (Hassiotis, Parkes, Jones, Fitzgerald, & Romeo, 2008). The majority of these contained males with a moderate to severe intellectual disability, and one third had a diagnosis of an autism spectrum disorder (Hassiotis et al., 2008). A comparison between the out of area and local placements found that the out of area placements contained younger service users who were exhibiting severe challenging behaviour (Hassiotis et al., 2008).

Joyce and colleagues (2001) conducted a study on services available for children with challenging behaviour. This is based on the definition Emerson gives of challenging behaviour, referenced under the challenging behaviour section. The questionnaire asked for demographic information, as well as current service provisions, medication, involvement with the law, or other specialist input. Joyce and colleagues (2001) found there was a high correlation between the frequency of challenging behaviour and the staff's perceptions of management difficulty. The behaviours reported most frequently included grabbing, hitting, and self-injury under the category of aggression (Joyce et al., 2001). Under the category of non–aggression, refusal, making loud noises, and shouting and swearing were most frequently cited, and reported to occur on a daily basis (Joyce et al., 2001). Out of borough placement was seen as a consequence to aggressive and destructive behaviours (Joyce et al., 2001). This study was conducted in three London boroughs, and in the borough where the qualifications for staff was the highest, there were the least number of out of borough placements, leading the researcher to believe the more trained staff, the less chance placement breakdown (Joyce et al., 2001). This study would have more value with a larger participant base, more than three boroughs. These conclusions are limited, but still add to body or research saying staff training is important when dealing with challenging behaviour.

McGill (2008) also reviewed previous studies on children attending residential schools and out of area placements. This showed the most expensive being 52 week residential schools with an average cost £159,000 (McGill, 2008). All those attending presented with aggressive behaviour, with 75% being male and diagnosed with an autism spectrum disorder (McGill, 2008). These findings were similar to those

presented in the previous studies, which gives weight to the argument that exhibiting challenging behaviour can lead to an out of area placement. These out of area placements have significant impacts on the individual as mentioned above.

Challenging behaviours are also associated with parental stress, overuse of medication, higher service costs, and a greater risk of out of area placement (Handley et al., 2013). Again, the physical consequences of challenging behaviour, including self-injury can be infections, physical deformities, loss of sight or hearing, neurological damage, or even death in extreme forms (Borthwick Duffy, 1994). Self-injury or injury to others also comes with additional social consequences including exclusions, restrictive practices, anti-psychotic medications, and neglect and abuse (Emerson, Hastings, & McGill, 1993). Challenging behaviour can further lead to an out of area placement limiting a support network, which can further limit opportunities for meaningful activities. Challenging behaviour does not just impact the individual displaying the challenging behaviour, but also the family and carers. These impacts are explained below.

### 1.7.2 Impacts on Family and Carers

Challenging behaviour not only affects the person who displays the behaviour, but can negatively affect family members and carers, causing high levels of stress, generating additional caring burdens, and increasing depression in families (McIntyre & Phaneuf, 2008). The increased stress on family carers can influence decisions to place people in residential care, and increase staff turnover (Emerson et al., 2001). Challenging behaviour is a major cause of stress and anxiety for those who support the individual displaying the challenging behaviour (Jenkins, Rose, & Lovell, 1997). All these

staff implications impact staff performance and absences from work (Robertson et al., 2005). Working with those who display challenging behaviour can increase the burden of carer stress; produce strong emotional reactions, increase the risk of injury, and cause deterioration in health (Allen, Hawkins, & Cooper, 2006; Hastings, 2002; Jenkins et al., 1997; Kiernan et al., 1997).

Emotional reactions including fear, irritation, anger, and disgust have been reported by staff who support people who display challenging behaviour (Emerson et al., 1993). Belief systems of those supporting people with challenging behaviour, also affect how they perceive the challenging behaviour (e.g. appropriateness of shouting) (Emerson et al., 1993; Hastings & Remington, 1994) . The belief system can also have knock on effects for the intervention. If the carers do not see the intervention as effective because they believe the challenging behaviour is caused by an underlying medical disorder, or are afraid to approach the person who displays the challenging behaviour, this can inhibit an intervention being implemented (Emerson & Bromley, 1995).

Care staff spend more time with persons who exhibit challenging behaviour than with other service users who do not (Duker et al., 1989). Hastings, Remington, and Hopper (1995) conducted a questionnaire with 109 qualified and unqualified nursing staff and 137 student nurses in a large institution for people with learning disabilities and challenging behaviour. Experienced workers were considered anyone who had more than five years working with people with learning disabilities (Hastings, Remington, & Hopper, 1995). The questionnaire had three vignettes describing a fictitious man's challenging behaviour on which they would base their answers to the questions (Hastings et al., 1995). There was a seven-point scale from very unlikely to

very likely, rating possible statements describing reasons for challenging behaviour. Additionally, participants were asked if they had experienced the behaviour described in the questionnaire. Experienced staff reported challenging behaviours were communicative in nature (Hastings et al., 1995). The experienced group identified behavioural and biological factors relating to challenging behaviour, while the inexperienced group believed emotional states and environmental antecedents were the contributing factors to challenging behaviour (Hastings et al., 1995). This can present a challenge when trying to work with staff to address challenging behaviour from a behavioural/functional perspective as inexperienced staff do not view the same factors contributing to challenging behaviour (Hastings, 1995).

Emerson and Bromley (1995) did a survey of all people with learning disabilities and challenging behaviour in one borough in the North West of England. The survey was conducted on the characteristics, needs, and service response to persons who display challenging behaviour and also have an intellectual disability (Emerson & Bromley, 1995). This survey replicated the materials (with an extension) of those in Qureshi and Alborz, (1992) study. This survey had two stages, stage one included interviews of all services for persons with intellectual disabilities identified by the local authority (Emerson & Bromley, 1995). This included schools for severe and mild learning disabilities, short-term care facilities, supported living, private homes, and hospitals. Behaviour was considered challenging if it met the criteria set by Qureshi and Alborz (1992) (the behaviour caused an injury to the person themselves or another person, there was damage to property, or severe social disruption.) For the second stage, a detailed interview was completed for the individuals who showed challenging

behaviour according to this definition. If more than one individual in a service met the criteria, only one interview was completed, and staff were asked to complete the questionnaire on their own for any other individuals who met the challenging behaviour definition (Emerson & Bromley, 1995).

This survey identified 70 people who met the definition of challenging behaviour, 44 of whom were male (Emerson & Bromley, 1995). The majority were living in their natural homes or with foster families. Sadness was rated as the top emotional reaction of carers for self-injury and destructive behaviours (Emerson & Bromley, 1995). Annoyance was rated as the top emotional reaction to aggression and other challenging behaviour not covered by the previous labels (Emerson & Bromley, 1995). The biggest stressors included unpredictability and the inability to understand the challenging behaviour (Emerson & Bromley, 1995). Staff cited lack of time most frequently as a factor that contributed to challenging behaviour (Emerson & Bromley, 1995). The findings of this study do need to be taken with caution as it was conducted in one local authority. Additionally, if more than one individual displayed challenging behaviour only one survey was conducted. Different topographies of challenging behaviour could elicit different emotions, which could further limit the findings of this study.

In regards to children with challenging behaviour, students with intellectual disabilities, spend a great amount of time within school. School staff perceive challenging behaviour as stressful (Kiernan & Kiernan, 1994). School staff's perspectives have a significant impact on how they react to students who exhibit challenging behaviour, as well as on their work stress and work satisfaction (Male, 2003). Causes of challenging behaviour and the emotional responses have been shown

in the literature to influence how school staff deal with the challenging behaviour (Male, 2003). A study was conducted by Harris (1993) on staff's perspectives of challenging behaviour. Feelings towards the pupils who displayed these behaviours were found to be frustration, anger, stress, and determination (Harris, 1993).

Male (2003) also conducted a survey of school staff to find out the following: which aspects of challenging behaviour concerned school staff, school staff's responses to challenging behaviour, what school staff believe caused challenging behaviour, and how stressed school staff felt. These items were assessed by a questionnaire, which was sent to 12 different local education authorities that all had special schools (Male, 2003). The responses were obtained for only schools of pupils with severe learning disabilities who ranged in age from five to 16 years of age (Male, 2003). School staff were categorized by additional qualifications and experience, defined as greater than five years (Male, 2003).

The results of this study showed school staff were concerned about challenging behaviour and found challenging behaviour to be stressful (Male, 2003). Frustration was the emotion most often reported (Male, 2003). The most frequently reported type of challenging behaviour was aggression, but staff reported self-injury to be the most challenging to them (Male, 2003). School staff reported challenging behaviour to be a form of communication, but they reportedly used strategies of diffusion rather than teaching other communicative skills proactively (Male, 2003). More experienced and qualified teachers were found to be more consistent in their answers and approaches for students who displayed challenging behaviour (Male, 2003). The school staff sought advice from other school staff, including teachers and teaching assistants, rarely seeking outside professionals for help (Male, 2003). Male (2003) felt this finding showed the

need for school staff to be able to access professional advice, as well as better identify training needs to support teachers to be more effective in dealing with challenging behaviour.

Male and May (1997) conducted a postal survey for 56 schools, eight of which provided a service for children with moderate learning difficulties, eight for severe learning difficulties, and eight for emotional behavioural difficulties. In all three of the special school settings, a high level of emotional exhaustion was reported, as measured on the Maslach Burnout Inventory (Male & May, 1997; Maslach, Jackson, & Leiter, 1986). .These groups reported longer working hours and work overload (Male & May, 1997) . The sources of stress were created from work load and challenging behaviour (Male & May, 1997). Challenging behaviour ranked as the most intense source of stress for schools for students labelled as emotionally behaviourally disordered, and second for students with severe learning difficulties (Male & May, 1997). Challenging behaviour was ranked fourth for students with moderate learning difficulties (Male & May, 1997). The equal number of each type of school helps to validate the findings. These findings show there is need for training to ensure these teachers can deal with the stress and be effective with their students (Male, 1997).

In summary, school staff, feel an extra level of stress and exhaustion when managing students who display challenging behaviour. Given support from professionals with expertise, being integrated within the school, and having higher qualifications lowers stress levels for school staff. With school staff able to better manage challenging behaviour, this allows the pupils more access to curriculum. By providing staff with resources both the staff and students become less impacted by the

challenging behaviour. The research within this section shows the need for more school staff training.

## 1.8 Service Provision for Children with Intellectual Disabilities

School is only a portion of the service provision for children diagnosed with an intellectual disability. In this section services for children with intellectual disabilities will be described, including special education schools. This section will show service provisions for the child, their health, as well as for their families provided within the United Kingdom.

### 1.8.1 Special Education Schools

A briefing paper entitled "Early Intervention for Children with Learning Disabilities whose Behaviours Challenge" was written in 2013. Information provided here is from the accompanying data supplement, which presents national data for children within England (Cooper et al., 2014). This data supplement pulls together information from two different sources, the Special Education Needs data collected by the Department of Education, and the Learning Disabilities Census which provides a snapshot of children with learning disabilities, autism spectrum disorder, or behaviour that challenges by inpatients in assessment and treatment units in September 2013 (Pinney, 2014). It was estimated that there are 41,000 children with learning disabilities whose behaviour challenges between zero and 18 years of age in England in 2014 (Pinney, 2014). In January 2013, there were 179,000 children with learning disabilities in England's schools (Pinney, 2014). One third of this population had a

statement of special educational needs and one quarter were at the School Action Plus level (this will be explained below) (Pinney, 2014).

While the majority of children with learning disabilities are served within a mainstream school, special education schools are still needed. The population within these schools is made up of 73% of students with either an intellectual disability or an autism spectrum disorder (Pinney, 2014). Just over 1% of individuals with an intellectual disability or autism spectrum disorder were served in boarding or residential schools (Pinney, 2014). One third of these placements were out of area (Pinney, 2014).

In 1993 the idea that children with special educational needs should be educated in the mainstream school, was put into law (National Foundation for Educational Research, 2001). Conditions were set out to ensure the mainstream schools could meet the education of the child with special educational needs as well as the rest of their pupils (National Foundation for Educational Research, 2001). These conditions were open, leaving room for interpretation and denial for students who could have succeeded in a mainstream school (National Foundation for Educational Research, 2001). In 1994 the Salamanca Statement was drawn up by the United Nations Education Scientific and Cultural Organisation, which called for governments to "adopt as a matter of law or policy the principle of inclusive education, enrolling all children in regular schools, unless there are compelling reason for doing otherwise" (Unesco, 1994). The United Kingdom supported this statement. In 1997, Excellence for All Children – Meeting Special Educational Needs (Department for Education and Employment, 1997) was published. This document was intended to promote more inclusion and was followed by

the publication of Meeting Special Education Needs – A Programme of Actions (Department for Education and Employment (DFEE), 1998) in 1998. This led to a review of the statutory framework for inclusion with the Disability Rights Task Force and publication of From Exclusion to Inclusion (Force, 1999) in 1999. The Special Educational Needs and Disability Act of 2001 (Needs, 2002) amended the Education Act of 1996, which again emphasized inclusion. This strengthened the parents right to choose a mainstream or special school (National Foundation for Educational Research, 2001). This guidance must be followed by all schools within the local education authority and ensures mainstream education is considered for all children. Even if a decision is made that a special school is the most appropriate placement at that time, it does not exclude the individual from later being educated within the mainstream setting (National Foundation for Educational Research, 2001).

A new code of practice was introduced in 2014 for Special Educational Needs and Disability Code of Practice. For the purposes of this thesis, the 2001 Special Education Needs Code of Practice was still in place. A brief overview is given for the reader to understand the policies in place. A child was considered to have a special educational need if,

> "he has a learning difficulty which calls for special education provision to be made for him: where learning difficulty means "significantly greater difficulty in learning than the majority of children his age" or " a disability which either prevents or hinders him from making use of educational facilities generally provided for children of his age in schools within the area (Department for Education and Skills (DfES), 2001)."

Special education is anything different or additional than is made available to typically developing students. There was a graduated approach in the 2001 Special Educational Code of Practice. This included meeting the child's special education needs at the School Action, School Action Plus, or through a Statement of Special Education Need. School Action is when the child is not making progress and may require extra staff, different materials, or different methods. School Action Plus level requires specialist advice or input from outside agencies. The final level, a statement of special educational needs is where the local authority has determined what provisions must be made by the school in coordination with outside agencies. This can include students who are termed to have special educational needs who have a moderate or severe learning difficulty; physical, neurological, or sensory disabilities; as well as an autism spectrum disorder or attention deficit hyperactivity disorder. Any student with a Statement of Special Educational Needs has the right to be educated by the local authority, whether included in the mainstream school or within the special school.

### 1.8.2 Health Services

Education is not the only area where the government provides services for children with a disability. There are also health services. A child development team sees some children with a learning disability, which is a group of individuals within the community working together to meet the needs of a particular child (Royal College of Psychiatrists Child and Family Public Education Editorial & The Children's Trust, 2012). This team can include paediatricians, community nurses, speech and language pathologists, and psychologists (Royal College of Psychiatrists Child and Family Public Education Editorial & The Children's Trust, 2012).

**Community Learning Disability Teams**

In some areas there are social services available, including a Children with Disabilities Team. This team is available for children aged five to 18 years of age, who have a substantive and severe physical or intellectual disability, a complex health need, or severe autism (Kent County Council, 2012). These teams can carry out assessments to understand the child's developmental needs, parents and carers capacity, family support and other environmental factors that influence what support is needed and maintainable by the family (Kent County Council, 2012). The team can help with finding organisations that support these individuals, accessing payments, provisions of aids and equipment, respite care, along with specialist support and advice (London Borough of Hillingdon, 2007). There are a variety of specialists that can be associated with a children's community learning disability team, including social workers that provide access to transport, counselling, and care packages available for the child. Occupational therapists can also serve on the team, and can provide aids, equipment and home adaptations to help the child increase their independence (London Borough of Hillingdon, 2011). Additionally, family carers could encounter a clinical psychologist, a dietician, learning disability nurse, physiotherapist, or other specialist, which could provide some help to meet their needs. This team works together to create a personal care plan for the individual with input from the appropriate specialists (London Borough of Hillingdon, 2011).

### Child and Adolescent Mental Health Service (CAMHS)

In England all children may also have access to a service called the Child and Adolescent Mental Health Service (Department of Health, 2012). The Child and Adolescent Mental Health Service teams specialize in providing treatment to children and young people who have emotional, behavioural, or mental health problems. They give support and professional advice to persons 18 years old or younger, provide weekly appointments to talk about issues, suggest different types of therapy, and work one to one with carers and parents (Department of Health, 2012; NHS Choices, 2014). Referrals to the Child and Adolescent Mental Health Service teams come from the general practitioner, and the team can be made up of clinical psychologist, community nurses, psychiatrists, mental health workers, social workers, and support workers (Department of Health, 2012). Not all Child and Adolescent Mental Health Service teams have a learning disabilities specialist on the team. This service is not specific to having an intellectual disability, but important to note since one of their primary objectives is to address challenging behaviour. These professionals are guided by a competence framework regarding competencies for all members serving on a team, and those for members using direct intervention techniques with an individual (Roth, Calder, & Pilling, 2011).

### Short Break Services

Another service offered for individuals with intellectual disabilities includes respite services. Respite services are those provided within the home, community, and overnight stays allowing carers a respite or break from their caring duties (London Borough of Hillingdon, 2011). Respite services can include short break services, where

families and carers are offered the opportunity to leave the child for a short break. Breaks are thought to help the families care for the individual better allowing them to sustain the level of care required while spending time away from the individual (Renfrewshire Council, 2014). These short breaks occur less often for persons who display challenging behaviour, even though their families probably have a greater need.

A research study was conducted by the National Development Team as a result of the white paper entitled "Caring for People" (Social Care Research, 1996). A survey of all 108 social services was undertaken, with 76 social services responding (Social Care Research, 1996). The information provided from the survey results in an estimation, as social services shared they did not always have accurate numbers to base their responses on (Social Care Research, 1996). This survey showed the types of respite services include: day services, family based respite, volunteer/befriending schemes, holiday respite, and domiciliary care. Nine respite services were visited that were considered innovative in the fact that they were developed using the views of their services users, considered friendship and leisure outside the family or carer setting important (Social Care Research, 1996). Of those nine settings, the one with the lowest cost per hour did not extend its services to those individuals who displayed challenging behaviour, further excluding this population. Researchers found the following: most respite services took place in a residential setting, and persons who utilised the service (mostly adults with intellectual disabilities) and the social care providers had different views on what constituted a respite service (Social Care Research, 1996). These previous sections have provided the reader with a brief overview of services available to

persons with an intellectual disability and challenging behaviour. In the final section of this chapter, satisfaction regarding the services will be explored.

### 1.9 Satisfaction with Services

Satisfaction with services is measured in all types of industries. This holds true for the human services, such as those teaching, caring, or consulting for individuals with an intellectual disability. Porter and Lacey (1999) conducted a survey of teachers who worked with students with learning disabilities. The teachers reported service, support, and satisfaction for students with challenging behaviour. The results indicated 69% received additional support, most of the time from teaching assistants (Porter & Lacey, 1999). The teachers reported this was to promote learning, manage the challenging behaviour, or ensure the safety of others in that order of hierarchy (Porter & Lacey, 1999). The respondents were split into groups that were satisfied with service provided, and those that were not. For those who were unsatisfied with the provision of services, they were more likely to be segregated within the school setting (Porter & Lacey, 1999). The satisfied group was reported to receive support from a variety of personnel including the head teacher, behaviour specialist, or clinical psychologist (Porter & Lacey, 1999). Additional training was among the top three things teachers felt would help to improve their responses to challenging behaviour (Porter & Lacey, 1999). Additionally, 26% of parents reported that they had never received any advice, and 61% said they never received any helpful advice (Joyce et al., 2001). This dissatisfaction with the current service provision shows the need for more adequate service provision.

Einfeld et al. (2010) conducted a survey with parents of students who attended six special schools and were under age 11 years in Australia. Parents were asked to recall services they had received in the last six months. All children were living at home during the time of the survey. Poor sight and poor hearing was reported for 25% of the sample, and 70% reported to have a behaviour problem that required intervention by the parents (Einfeld et al., 2010). A behaviour problem was defined as any behaviour found to be unacceptable in public (Einfeld et al., 2010). A correlation was found between the increased severity in the intellectual disability and the number of behavioural problems. Considering 70% were reported as having a behaviour problem, it is alarming that only 16% had seen an educational psychologist and 11% had seen a clinical psychologist, with one to two average visits in the last six months (Einfeld et al., 2010). Of those that had seen a psychologist, they felt their needs were rarely met (Einfeld et al., 2010). The 27% of children who received support had to exhibit three or more behaviours that challenged to access this support (Einfeld et al., 2010). This left parents and school staff to support a child with challenging behaviour with little to no support, in spite of most reporting there was a recognized problem but an intervention had not been provided. Only two children reported receiving solutions to their problems (Einfeld et al., 2010).

**Conclusion**

Understanding the population of students who have an intellectual disability, and also engage in challenging behaviour will be crucial to the basis of this thesis.

While this population is not large in numbers (less than 20% of those with intellectual disabilities) (Harris, 1993), it has significant impacts for the person who displays the challenging behaviour, as well as their carers. It is also important to note that once the challenging behaviour develops, it is persistent (Emerson et al., 2001) and early intervention is key to decrease or eliminate the challenging behaviour. Children who display challenging behaviour often have a communication difficulty, a more severe learning disability, are male, and end up at a residential school, potentially out of their local area (McClintock et al., 2003; McGill & Poynter, 2012) . In addition those children who have a diagnosis of autism are more likely to display challenging behaviour. School staff report needing training to better meet the needs of their pupils and have more satisfaction within their jobs (Male, 2003). Knowing the factors that contribute to challenging behaviour, and what services are available to these individuals will set the framework for the research contained within this thesis.

# Chapter 2 – Applied Behaviour Analysis and Positive Behaviour Support

Challenging behaviour can be addressed by a variety of biological and psychotherapeutic interventions (Heyvaert, Maes, & Onghena, 2010). A large body of research shows empirical evidence for the psychological interventions of applied behaviour analysis and positive behaviour support, and this chapter, will focus on these two approaches.

## 2.1 Brief History of Behaviourism in relation to Applied Behaviour Analysis

To understand how applied behaviour analysis came to be an application of behavioural psychology, that was considered innovative at its inception, a history of the precursors to its development will be briefly explored below. This will allow the reader to understand how behaviourism first came to be adopted and the underpinnings for what is the current application of applied behaviour analysis.

### 2.1.1 Introspection

During the 1900s, the field of psychology largely focussed on the study of internal states, feelings, and emotions. This included the study of consciousness, images and other mental processes. Introspection was defined as the act of carefully observing one's own conscious thoughts and feelings (Cooper, Heron, & Heward, 2007). Introspection was not a new idea, and had even been defined by Descartes in the 1600s. His definition was looking into your own mind and reporting what was discovered there (Descartes, 1989). Introspection was thought to be infallible, because the person

experiencing the event was self-reporting or reflecting their personal beliefs (Boring, 1953). Experiments were done in one laboratory and then another, and experiences were unable to be described in the same way, although the same conditions were presented (Boring, 1953). This brought introspection under question. As introspection began to be questioned, behaviourism began to flourish.

### 2.1.2 John B. Watson

John B. Watson was regarded as the first psychologist to look at an organism's overt behaviour as opposed to their internal state. In 1913, he wrote an article entitled, "Psychology as the Behaviorist Views It." A quote from this article still holds true to the field of applied behaviour analysis today,

> "*Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its' theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods nor is the scientific value of its data dependent upon readiness with which they lend themselves to interpretation in terms of consciousness* (Watson, 1913, p. 158)"

This was claimed to be the first time the word behaviourism was used in print (Schneider & Morris, 1987). Watson was looking at behaviour in terms of science on the same level as biologists, establishing behaviourism as a new system of psychology (Schneider & Morris, 1987). Watson's behaviourism was seen as modern, practical, and forward thinking; looking at what is in the present, not the past, to tackle the problems within psychology (Morris, Todd, Midgley, Schneider, & Johnson, 1990). Behaviourism began to be seen in other journals as well as in the *Psychological Review,* including the *Psychological Bulletin,* and the *Journal of Philosophy, Psychology,* and *Scientific Methods*

(Melville, 1914; Wells, 1913). Within a year publications within the field of psychology were referring to behaviourism and adopting it as a new way forward.

### 2.1.3 B. F. Skinner – Experimental Analysis of Behaviour

The next major contributor to the field of applied behaviour analysis was B. F. Skinner. He moved Watson's theory of looking at preceding events to also taking into account consequent events that could control voluntary behaviour. This became known as the study of operant behaviour (Skinner, 1938). Skinner's discoveries within the field of psychology are seen as having a "greater and more enduring effect on man's views of himself" than those of Freud (Dews & Skinner, 1977).

**Philosophy**

From 1930 to 1938, Skinner was able to focus on behaviour as the main dependent variable, usually the rate of response of a single organism (Michael, 1980). Skinner published his first book, *The Behavior of Organisms* (1938), describing his laboratory research of operant behaviour, showing the immediate consequence of behaviour had more impact than the preceding variable that was Watson's focus (Kimball, 2002). This was the distinction of operant behaviour, behaviour change by the consequence that followed the behaviour. With the development of the operant three-term contingency, a new science was born. The three-term contingency establishes a functional relationship not only between the behaviour and its consequence, but also the behaviour and certain antecedent conditions.

> *An adequate formulation of the interaction between an organism and its environment must always specify three things: (1) the occasion upon which a response occurs; (2) the response itself; and (3) the reinforcing*

*consequences. The interrelations among them are the "contingencies of reinforcement*." (Skinner, 1969, p. 283).

This can be demonstrated when a teacher asks her students to "name a vowel" (antecedent stimulus). The student answers "e" (behaviour) and the teacher responds, "well done, e is a vowel" (consequence). This new science rejected the idea of mentalism, looking at an "inner" dimension and focused on what could be observed and measured (Cooper, Heron, & Heward, 2007) .

Skinner's book showed scientific methodology as well as technical dimensions by accurately describing his procedures and showing the functional relationship between the independent and dependent (behaviour) variables (Morris et al., 1990). More regarding the methodology of B.F. Skinner's behaviourism will be explored below.

**Methods**

The formal beginning of the experimental analysis of behaviour is considered to be 1938, with the publication of B. F. Skinner's *The Behavior of Organisms*. The formulation of the three-term contingency presented above served as the basis for the new science, the experimental analysis of behaviour. Skinner is considered the pioneer of this science and provided the methodology through which to practice the science (Cooper et al., 2007). A single subject emitted behaviour in a controlled experimental chamber and that behaviour was recorded (Cooper et al., 2007). This methodology provided a test of the functional relationship between the behaviour and environmental events, which underpins the foundation of applied behaviour analysis (Morris et al., 1990).

Skinner was practical in his scientific evaluation of behaviour looking first to see if the behaviour could be attributed to any genetic or organic causes before experimenting with the behaviour. Again, as Watson did, Skinner focused on what was observable and manipulable (Skinner, 1955). Skinner is credited with the contributions of single case design in behavioural research, controlled environments for researching, and data collection with individual subjects that were able to produce orderly findings (Matson & Coe, 1992) . This new science looked at ways the environment could predict behaviour, thus the experimental analysis of behaviour was born.

**Principles**

Between the 1930s and 1950s, Skinner verified the principles of behaviour analysis in a laboratory setting, which serves as the foundation for these principles still used today. Within *The Behavior of Organisms* basic behaviour principles were introduced (Skinner, 1938). These included reinforcement, extinction, stimulus control, establishing operations, and generalization (Skinner, 1938). Some of these principles will be expanded upon in the next section under section 2.2.3. The goal of experimental behaviour analysis was to conduct basic research, often with animals, as well as human beings, to discover and clarify the basic behaviour principles, and functional relations between behaviour and different variables (Cooper et al., 2007).

**Demonstrations**

Prior to the publication of his book, in 1937 Skinner made his first public demonstration of behavioural engineering. He trained a rat named Pliny to pull a string and receive a marble. Pliny lifted the marble, dropped it down a tube, which produced food. This was an early demonstration of positive reinforcement, a behavioural

principle (Morris et al., 1990). Skinner continued to conduct laboratory experiments with rats and pigeons and even extended his work to people.

His publication of *Science and Human Behavior* (1953) was considered the extension of operant behaviour to human problems. This book provided extensive examples of behavioural principles to everyday human life, presenting the effects of reinforcement on human behaviour within experimental and applied settings (Martin & Pear, 1992; Skinner, 1953). This book offered many possible applications of behavioural principles to socially important behaviours (Michael, 1980). In the late 1950s and early 1960s Skinner undertook applied research with psychiatric patients (Lindsley & Skinner, 1954). Skinner also became interested in education and applying behavioural principles to learning (Morris et al., 1990).

The first conference on the Experimental Analysis of Behavior was held at Indiana University in 1947 (Michael, 1980). With subsequent conferences, the Society for Experimental Analysis of Behavior was born. This society is responsible for publishing the *Journal of Experimental Analysis of Behavior* as well as the *Journal of Applied Behavior Analysis* (discussed below) (Michael, 1980). In 1958, the first volume of the *Journal of Experimental Analysis of Behavior* was published and in 1966 the American Psychological Association Division for the Experimental Analysis of Behavior (Division 25) was created.

The two terms 'experimental analysis of behaviour' and 'applied behaviour analysis' were often used interchangeably, though they are subtly different. The biggest difference between them (summarized below) was not the methodology with which they studied behaviour, but the application. The difference between the experimental

analysis of behaviour and applied behaviour analysis, are a matter of emphasis and goals, such as the improvement in behaviour (Baer, Wolf, & Risley, 1968).

### 2.1.4 Behaviour Modification

Behaviour modification is briefly reviewed to understand the differences between behaviour modification and applied behaviour analysis. While in its infancy, applied behaviour analysis was used synonymously with behaviour modification. Today, there is considered to be differences between these procedures. Wolf's 1964 study entitled "Application of Operant Conditioning Procedures to the Behavior Problems of an Autistic Child" has been cited as the premier study of behaviour modification (Risley, 2001). Behaviour modification has been used to study a wide variety of behaviours, including token economies in psychiatric hospitals (Ayllon & Azrin, 1968; Krasner, 1968; Winkler, 1970) and the study of appropriate, inappropriate, disruptive, and no study behaviour in schools (Hall, Lund, & Jackson, 1968; Hall, Panyan, Rabon, & Broden, 1968; Thomas, Becker, & Armstrong, 1968).

**Philosophy**

Behaviour modification is based on operant and classical conditioning (Kazdin, 1978). The use of conditioning assumes behaviour can be learned, and unlearned (Kazdin, 1978), as is assumed in the experimental analysis of behaviour and applied behaviour analysis. Behaviour modification is focused on changing the behaviour, not understanding why or how the behaviour is occurring. This is done through the principles and methods described below.

**Principles and Methods**

Behaviour modification uses positive reinforcement, negative reinforcement, punishment, aversion therapy, and extinction. (Reinforcement will be further explained in the section 2.2.3). Applied behaviour analysis is more rigorously defined than behaviour modification, with one of the key differences being the component of analysis (monitoring the behaviour change), which is not typically found in behaviour modification (Alberto, Troutman, Anne, Paul, & Anne, 2009). A lot of the early work using behavioural intervention for persons with intellectual disabilities used behaviour modification, increasing adaptive responses and reducing challenging behaviour by any effective means (Matson & Coe, 1992). During this time, the use of aversives including, overcorrection (Azrin, Gottlieb, Hughart, Wesolowski, & Rahn, 1975), sensory extinction (aromatic ammonia sprayed) (Tanner & Zeiler, 1975), and restraint on the observation of stereotyped behaviour was also used (Koegel, Firestone, Kramme, & Dunlap, 1974).

**Demonstrations**

Behaviour modification has been found to be effective in the treatment of children diagnosed with autism (Hewett, 1965; Koegel & Rincover, 1974; Lovaas, Freitas, Nelson, & Whalen, 1967; Lovaas, 1966; Metz, 1965; Wolf, Risley, & Mees, 1963). In a 1975 review of the literature, behaviour modification was shown to produce considerable treatment gains for persons with autism and replicated numerous experiments in laboratories (Kozloff, 1974). Koegel and colleagues (1977) conducted a study of 12 children diagnosed with autism who had all been excluded from their public school classroom, and produced little appropriate speech. Teachers were given 25 hours of training after completing a training manual of behaviour modification

procedures (Koegel, Russo, & Rincover, 1977). The teacher also received feedback on their skills of teaching until the trainer was "satisfied" with their proficiency (Koegel et al., 1977). All 11 teachers showed "considerable increases" in their use of behaviour modification procedures and these generalized to new untrained tasks (Koegel et al., 1977). Children's correct responses also increased (Koegel et al., 1977).

## 2.2 Applied Behaviour Analysis

Applied behaviour analysis, ABA, seeks to make socially significant changes in an individual's life. Applied behaviour analysis assumes behaviour is caused and maintained by the environment rather than underlying psychological causes, and looks for functional relationships between antecedents and consequences. (This is the same as in the experimental analysis of behaviour). These changes look to improve human performance, functioning, health, satisfaction, and again overall quality of life (Weiss, DelPizzo-Cheng, LaRue, & Sloman, 2009). This caveat of social significance/improving behaviour is the dimension that sets applied behaviour analysis apart from the experimental analysis of behaviour. Experimental analysis of behaviour looks at any variable that can possibly relate to behaviour, while applied behaviour analysis is looking at what will improve behaviour (Baer et al., 1968). Applied behaviour analysis is a field of psychology dedicated to the study of behaviour, the events that cause that behaviour, and the environment in which the behaviour happens.

According to Cooper, Heron, and Heward (2007), applied behaviour analysis is defined as,

*"the science in which tactics derived from the principles of behaviour are applied systematically to improve socially significant behaviour and experimentation is used to identify variables responsible for behaviour change"* (p. 20).

### 2.2.1 Philosophy

Behaviour analysis is classified as a modernist science looking at behaviour in a technical fashion, as in other sciences such as chemistry and physics (Singer & Wang, 2009). This can include looking at the rate, latency, frequency, duration, and intensity of behaviour, but excluding why the behaviour happens (Singer & Wang, 2009). Again, this is the same philosophy as in the experimental analysis of behaviour explained above. Applied behaviour analysis seeks to find patterns within the behaviour to understand how to better impact, change, and predict future behaviour (Singer & Wang, 2009). ABA has conducted research by rearranging environmental contingencies and understanding how behaviours could be shaped and maintained (Fuller, 1949; Williams, 1959; Wolf, Risley, & Mees, 1965). This was furthered by learning about reinforcement, punishment, as well as, functional relations between the behaviour and its maintaining consequences (Carr, 1977; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata, Dorsey, Slifer, Bauman, & Richman, 1994). By looking at these patterns of behaviour, positive reinforcement, negative reinforcement, and punishment (all consequences of behaviour) applied behaviour analysis seeks to change or modify behaviour in the future (Singer & Wang, 2009). This will be further explored in section 2.2.3 below.

During the late 1960s and early 1980s, university programs in ABA began to develop. The formal beginnings of the field of applied behaviour analysis was said to take place in 1968 with the first issues of the *Journal of Applied Behaviour Analysis* and the Baer, Wolf,

and Risley article. Baer, Wolf, and Risley (1968) first described ABA in a seminal article in the *Journal of Applied Behavior Analysis*. This article went onto describe ABA as: applied, behavioural, analytical, technological, conceptually systematic, effective, and general. The applied element ensures importance to the individual or society, while the behavioural element focuses on working with behaviours that are observable and measurable. This also includes looking at what or whose behaviour needs to be changed in order to provide a quality of life improvement (Cooper et al., 2007). Analytical refers to the ability to understand what will produce the chosen behaviour, and not produce the chosen behaviour (Baer et al., 1968). In other words, what will turn on and off the behaviour. 'Technological' guarantees procedures are described in enough detail for replication by others, while 'conceptually systematic' refers to the use of behaviour analysis principles in the replicable description (Baer et al., 1968). This conceptually systematic relation to behavioural principles safeguards the discipline and allows those researching to understand how else these behavioural principles can be utilized or applied. The effectiveness of a behavioural intervention is judged by whether the behaviour targeted for improvement has improved enough to affect the quality of life for the individual (Baer et al., 1968). 'Generality' looks for change in a wider variety of settings or conditions other than those targeted (Baer et al., 1968; Cooper et al., 2007), as well as, effects that last past when the intervention is discontinued, ensuring true behaviour change. This article was considered to be written by the founding fathers of applied behaviour analysis and set criteria for the standard associated with the psychological discipline of applied behaviour analysis (Cooper et al., 2007). This article

was revisited 20 years later, and the tenets mentioned above were still considered to "remain functional" and still describe the work that is applied behaviour analysis.

### 2.2.2 Methods

Applied behaviour analysis has used single case research methodology with direct observations to establish how behaviour change occurs. This single case research has been backed by graphs and simple statistical analysis (Singer & Wang, 2009). The use of direct observation research and research on service delivery has been able to be replicated hundreds of times (Dunlap, Carr, Horner, Zarcone, & Schwartz, 2008). Further publications have emerged within the field and include *The Behavior Analyst*, *The Analysis of Verbal Behavior, Applied Behavior Analysis in Practice*, and *The Psychological Record* (Association for Behavior Analysis International, 2016a).

To safeguard the science of ABA the *Journal of Applied Behavior Analysis* applied rigorous experimental methods to all research studies accepted. There were distinctive characteristics that made applied behaviour analysis a unique service delivery model (Dunlap & Horner, 2006). These are as follows:

1) Practical solutions for human problems
2) Research that was simple and direct, parsimony
3) Impact that benefited a large population or life altering impact for an individual
4) Having research designs conform to the solutions
5) Ecological validity, the intervention works within the setting in which the behaviour occurs
6) Commitment to collaboration, ensuring those whom the behaviour directly impacts are involved

7) Ideas were more important than ideology (Dunlap & Horner, 2006)

There is further specific methodology regarding functional assessments. This is explained in detail below. Due to this being a key feature of applied behaviour analysis a more detailed account is given.

**Functional Behaviour Assessments and Functional Relationships**

Skinner used the term functional analysis in 1953 to describe "cause and effect" relations between behaviour and the environments (Hanley, Iwata, & McCord, 2003). In the literature, the term function has been used to convey what purpose the challenging behaviour serves for the individual in context with environmental variables (Hanley et al., 2003). The first demonstration of functional analysis was reported by Wolfe and colleagues (Wolf, Risley, & Mees, 1965; Wolf, Birnbrauer, Lawler, & Williams, 1970). They asserted that a particular behaviour, vomiting, was maintained by escape to the dormitory by a nine year old girl (Wolf et al., 1965). Lovaas and colleagues demonstrated the use of social positive reinforcement on self-injurious behaviour with children who were diagnosed with autism and an intellectual disability (Lovaas, Freitag, Gold, & Kassorla, 1965; Lovaas & Simmons, 1969). Other studies have looked at the effects of attention on the challenging behaviour of aggression (Pinkston, Reese, LeBlanc, & Baer, 1973). Sailor and colleagues (1968) showed that challenging behaviour could be maintained by escape from instruction for a young girl with an intellectual disability. This work was extended by Carr, Newsom, and Binkoff (1976, 1980) in two different research studies. These studies showed a correlation between the removal of demands and challenging behaviour in the form of aggression and self-injurious behaviour. These studies set the groundwork for the functional analysis of problem

behaviour and included the key components of direct observation of the challenging behaviour, measurement of the challenging behaviour, and analysing the challenging behaviour under both control and experimental conditions (Hanley et al., 2003). This set the stage for creating comprehensive functional assessment procedures.

The methodology that is still current in today's functional assessment is marked by Iwata's 1982 study (Iwata et al., 1982). This methodology that underpins functional analysis applied operant technology to environmental events with observation of antecedent and consequent events (Iwata et al., 1982). Iwata's seminal article looked at behaviour under the following conditions, social, academic demand, alone, and unstructured play. The play or control condition had no demands, attention was withheld, and there was free access to toys or other forms of stimulation (Iwata et al., 1982). Single subject experimental design, with direct observation and repeated measurement of the behaviour across the conditions, was used with nine children with developmental disabilities who engaged in different forms of self-injurious behaviour (Iwata et al., 1982). This research showed that self-injurious behaviour was more prevalent under particular conditions, differing for different individuals (Iwata et al., 1982). This article led the way for the most significant changes in behavioural treatments (Matson & Coe, 1992). Iwata defined functional analysis as the direct observation of problem behaviour under controlled conditions where environmental events are manipulated with an experimental design to document the functional relationship between challenging behaviour and the manipulated environmental events (Iwata et al., 1982).

Many functional analyses still use the same conditions as those presented by Iwata. There is often a control condition or play condition, and two to four experimental conditions where the challenging behaviour is reinforced by the condition (Matson & Minshawi, 2007). For example, the escape condition elicits the end of demands when the challenging behaviour is demonstrated. The issue with this method is its labour intensity (Matson & Minshawi, 2007). In the literature there have been hundreds of direct systematic replications of Iwata's seminal article as well as extensions to other populations, settings, and topographies of challenging behaviour, which strengths the science, as the original study was a single subject study of just nine children (Hanley et al., 2003).

One example of replication was conducted by Carr and Durand (1985). They conducted a study with four children with developmental disabilities in which attention and difficulty of instruction were manipulated in relation to varied challenging behaviour, tantrums, aggression, and self-injurious behaviour (Carr & Durand, 1985). There were different behaviour patterns for different children (Carr & Durand, 1985). This shows the need for individualized assessment, and that one particular type of challenging behaviour does not dictate a specific function. This also holds true for an individual who displays more than one challenging behaviour (Hanley et al., 2003), each challenging behaviour could serve a different function. Functional analysis research challenged the belief that challenging behaviour was a part of the disability, and showed a way to effectively change challenging behaviour, again showing challenging behaviour is a social construction. By looking at the behaviour functionally, effective treatments can be implemented by changing the environment (Anderson & Freeman, 2000).

Hanley, Iwata and McCord (2003) have suggested that functional analysis has become the hallmark of behavioural assessment and the *Journal of Applied Behavior Analysis* has published the majority of these studies, although over 100 studies have been published in other periodicals. The development of functional analysis has led to a decrease in the use of punishment and more precise reinforcement based interventions (Pelios, Morren, Tesch, & Axelrod, 1999). This has helped practitioners to determine what treatment should work by examining why the challenging behaviour occurs in advance of beginning an intervention (Hanley et al., 2003).

These types of assessments take hours and specialized staff and rooms (Matson & Minshawi, 2007). For this reason, attempts have been made to try and determine function in a shorter but equally reliable method. Several checklists have been created to determine the function of the behaviour. The checklists for functional assessment are in line with those used in other areas of psychology including intelligence, social skills, and psychopathology (Arron, Oliver, Moss, Berg, & Burbidge, 2011). These include the Motivation Assessment Scale (Durand & Crimmins, 1988) and Questions About Behaviour Functions (Matson & Vollmer, 1995). The first functional assessment checklist was the Motivation Assessment Scale (Durand & Crimmins, 1988). Reliability studies proved to be disappointing (Newton & Sturmey, 1991; Zarcone, Rodgers, Iwata, Rourke, & Dorsey, 1991). The Questions About Behaviour Function has been tested for good internal consistency and good test rates reliability, as was interrater reliability (Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2000; Shogren & Rojahn, 2003). A functional analysis interview has been developed by O'Neil and colleagues (1997). It is

a semi-structured interview with a series of open-ended questions, which looks at environmental events and medical conditions (O'Neill et al., 1997).

Functional assessment as defined by O'Neil and colleagues (1997) is the gathering of information on the antecedent and consequent events that are associated with the occurrence of challenging behaviour, as well as the function or motivation of the behaviour. A functional behaviour assessment can involve experimental functional analysis (described above). Functional behaviour assessment could also entail a descriptive functional behaviour assessment, using direct observation during when the target behaviour occurs. The difference is the control over the antecedent and consequent conditions (Neef & Peterson, 2007) . Indirect methods such as checklists and interviews can also be used. By using a functional assessment, intervention treatment should be selected based on the function of the behaviour. This will allow the practitioner to understand the relation the behaviour has with its environmental contingencies and design the intervention to focus on important aspects of a program that will influence behaviour change (Hanley et al., 2003). Interventions that address the function of challenging behaviour are more durable and effective than non-function based interventions. It has been shown that interventions based on functional behaviour assessment are more likely to be effective and reduce challenging behaviour than those not based on function (Carr et al., 1999; Didden, Duker, & Korzilius, 1997; Ervin et al., 2001; Iwata et al., 1994).

Dunlap and colleagues undertook an analysis to produce summary statements backed by evidence for the literature involving children who exhibited challenging behaviour. Within this article, one of the summary statements is,

*"Interventions based on a functional assessment of the relation between challenging behaviours and the child's environment are effective for reducing challenging behaviour of young children* (Dunlap et al., 2006, p. 33)*."*

The findings of this review were compelling and most of the data was considered non-controversial (Dunlap et al., 2006). Sasso (1992) compared the experimental analysis of "aberrant" behaviour with descriptive analysis by teachers. The results were comparable findings in both the experimental analysis and descriptive analysis, which allowed for functional behaviour assessment to move forward in literature. Functional assessment has become highly replicable and the success emphasises making the experimental conditions as close to the natural environment as possible (Hanley et al., 2003).

The process of conducting a functional assessment involves identifying the behaviour, building a hypothesis of events that maintain the problem behaviour, testing to confirm the hypothesis, and designing an intervention based on those events that maintain the problem behaviour (Carr et al., 1994; Dunlap et al., 1993; O'Neill et al., 1997). All antecedent and consequent events should be considered until sufficient evidence demonstrates the functional relationship between the behaviour and the consequent event (Oliver, 1995).

The principles of applied behaviour analysis are further explored below. This section gives a brief overview of a few specific principles, most common to the field of applied behaviour analysis. As these principles are the same as those in the experimental analysis of behaviour, this section further defines the principles briefly mentioned above.

### 2.2.3 Principles

According to Cooper, Heron and Heward, (2007) positive reinforcement is the most important and most widely applied principle in behaviour analysis. Positive reinforcement is most closely associated with the Premack principle or grandma's law. In 1959, Premack believed behaviours themselves could serve as reinforcement for other behaviours. To put in layman's terms, if you read your book you may ride your bike. Of course this assumes, the person enjoys riding their bike. Consequences that increase the likelihood of behaviour happening in the future are considered positive reinforcement.

In the first issue of the *Journal of Applied Behavior Analysis,* several experiments showing the effects of positive reinforcement on student behaviour were presented. Hall, Lund, and Jackson (1968) looked at six primary students who were considered "disruptive or to dawdle". The dependent variable was defined individually for each student, but consisted of the student being seated, oriented toward the materials or teacher, or class participation including writing or answering questions (Hall et al., 1968). The independent variable was teacher attention for all participants (Hall et al., 1968). This teacher attention was cued when the child was on task by an observer holding up coloured paper, signalling the teacher to give verbal attention, or physical attention, such as a pat on the shoulder (Hall et al., 1968). All children showed a decrease in "disruptive" or "dawdling" behaviour, and an increase in on task behaviour (Hall et al., 1968). Positive reinforcement has been studied not only in schools, but in the treatment of anorexia nervosa (Leitenberg, Agras, & Thomson, 1968), treatment of food refusal (Hoch, Babbitt, Coe, Krell, & Hackbert, 1994), training of primates (Laule,

Bloomsmith, & Schapiro, 2003; Prescott & Buchanan-Smith, 2003); reduction of tobacco smoking (Biglan et al., 1996), and to improve drug counsellor's behaviour (Andrzejewski, Kirby, Morral, & Iguchi, 2001), to name a few other areas.

Negative reinforcement can be defined as the removal, termination, reduction, or postponement of a stimulus contingent on a behaviour, which will make this behaviour more likely to occur in the future (Iwata & Smith, 2007). Negative reinforcement requires the four-term contingency, which includes establishing operations (Iwata & Smith, 2007). An establishing operation is something that alters the value of a reinforcer. In the example below, the smell acts as the establishing operation. This can be explained by an everyday situation. Below is an illustration of the four-term contingency using behaviour analytic vocabulary and the specific example of taking out smelly rubbish.

- Establishing Operation – the rubbish stinks
- Discriminative Stimulus – standing near the rubbish bin
- Behaviour – take the rubbish bin liner out of the house
- Negative Reinforcement – escape the stink of the rubbish

The four-term contingency described above also applies to positive reinforcement and punishment. It was briefly explained here to help show negative reinforcement. For behaviour to be positively or negatively reinforced, the behaviour must increase after the reinforcement.

A study conducted by Ahearn and colleagues in 1996 compared the effectiveness of positive reinforcement and negative reinforcement on food refusal (Ahearn, Kerwin, Eicher, Shantz, & Swearingin, 1996). Three children hospitalized for food refusal served

as the participants for this study. The children were offered access to toys contingent upon eating during the positive reinforcement condition and during the negative reinforcement condition, once a bite was accepted even with physical guidance; the eating trial was terminated (Ahearn et al., 1996). Both procedures showed an increase in acceptance of food for all three participants (Ahearn et al., 1996). Negative reinforcement has also been studied in escape maintained behaviour (Deleon, Neidert, Anders, & Rodriguez-Catter, 2001; Piazza et al., 1997; Vollmer, Marcus, & Ringdahl, 1995), caffeine preference (Rogers, Richardson, & Elliman, 1995), drinking motives (Carey & Correia, 1997; Stewart, Zvolensky, & Eifert, 2001), and treatment integrity (DiGennaro, Martens, & McIntyre, 2005).

Task analysis, breaking down a complex behaviour into steps or component behaviour was researched in the field of applied behaviour analysis (Sulzer-Azaroff & Mayer, 1977). This can be combined with chaining, whether forward or backward, systematically teaching someone to complete each component of a complex behaviour. Chaining and task analysis have been used to teach the skills of shoe tying, hair combing, dressing, eating, and checking out books from the library (Blew, Schwartz, & Luce, 1985; Matson, Taras, Sevin, Love, & Fridley, 1990). For instance, in backward chaining, when teaching someone how to make a sandwich, the person is initially given the sandwich upon putting on the last piece of bread. The next time they make a sandwich, they are required to put on cheese and the last piece of bread before being given the sandwich. Each step of the sandwich is subsequently required before the reinforcement of being given the sandwich.

Applied behaviour analysis has also researched strategies for prevention of problem behaviours, not just using consequences to behaviour (Horner, Carr, Strain, Todd, & Reed, 2002). The goal of stimulus-based interventions is to make problem behaviours irrelevant, thus preventing the problem. The belief is the environment can control behaviour, and those working to change behaviour will work within the natural environment, conditions under which the behaviour typically occurs (Weiss et al., 2009).

Behaviour analysis has tackled antecedent based interventions, which include altering the features of an individual's social and physical environment (Dunlap et al., 2006). Antecedent based interventions increase the probability that the appropriate behaviour will occur and reduce the probability of the challenging behaviour occurring (Dunlap et al., 2006). This will result in the opportunity to reinforce appropriate or alternative behaviour to the challenging behaviour (Dunlap et al., 2006). This has been shown by research on the use of choice as an intervention strategy (Dunlap et al., 1994; Dyer, Dunlap, & Winterling, 1990), giving preference in difficult activities (Lohrmann-O'Rourke & Yurman, 2001; Umbreit & Blair, 1997), and even changes in the classroom environment. This can include altering the way in which instructions are presented, arrangement of furniture, or implementing a schedule (Dooley, Wilczenski, & Torem, 2001; Martens, Eckert, Bradley, & Ardoin, 1999). Again, the literature shows this decreases the probability of the challenging behaviours and increases the probability of appropriate behaviours (Dunlap et al., 2006). Research in this area has created interventions that are now considered more humane (Matson & Coe, 1992).

ABA has extended to numerous associations of behaviour analysis, accreditation programs, and even a certification board (Association for Behavior Analysis

International, 2016b; Behavior Analyst Certification Board, 2016). From the 1970s, behaviour analysis has been found in multiple countries. This brief description of applied behaviour analysis shows how the science was developed and became an established science. Applied behaviour analysis strives to tackle socially significant problems through intervention that is technical in nature, while evaluating behaviour that is observable. The ultimate goal is an outcome with significant change for the individual that has an impact for them in a variety of settings (Baer et al., 1968). In the section below, a brief overview will be given of applied behaviour analysis in the literature to understand its impact.

### 2.3 Applied Behaviour Analysis within the Literature

One of the first studies using the principles of operant behaviour with a human took place in 1948. This was conducted by Fuller (1948) with an 18 year old boy with developmental disabilities who was described as a "vegetative idiot". His physicians labelled him as unable to learn (Fuller, 1949). He was bed bound and Fuller took a syringe with warm sugar milk. Every time the young man raised his arm, he was given the syringe of warm sugar milk (Fuller, 1949). Within four sessions he was able to raise his arm at a rate of three times per minute (Fuller, 1949). It was felt that other behaviour responses could be conditioned based on the rapid success of this experiment. (Fuller, 1949).

This kind of research flourished in the 1950s and 1960s. Psychologists at the time were working with human subjects with principles that had been previously seen in the animal laboratory, including punishment, escape, and avoidance. This included typically

developing people, as well as those with intellectual disabilities, schizophrenia and autism (Bijou, 1955; Bijou, 1957; Bijou, 1958; DeMyer & Ferster, 1962; Ferster & DeMyer, 1961; Ferster & DeMyer, 1962). Another of the first landmark studies was "The Psychiatric Nurse as a Behavioural Engineer" conducted in 1959 by Ayllon and Michael. This article described how direct care personnel in a hospital used behaviour principles to improve the functions of their patients, who were considered psychotic or to have an intellectual disability (Ayllon & Michael, 1964). Other early studies increased social play (K. E. Allen, Hart, Buell, Harris, & Wolf, 1964), walking (Harris, Johnston, Kelley, & Wolf, 1964), and decreased operant crying among children (Hart, Allen, Buell, Harris, & Wolf, 1964). This progress continued into the 1970s with the use of behaviour principles to establish contingent teacher praise and attention, token reinforcement systems, curriculum design and programmed instructions (Broden, Bruce, Mitchell, Carter, & Hall, 1970; Broden, Hall, Dunlap, & Clark, 1970; Cossairt, Hall, & Hopkins, 1973; Hanson, Borden, Hall, & Hall, 1976; Resnick, Wang, & Kaplan, 1973; Winkler, 1970). These areas are still researched and utilized today.

By 1970, over 100 behavioural treatment studies had appeared in the literature (DeMyer, Hingtgen, & Jackson, 1981). Considering behaviour analysis was recognized in the 1960s, having over 100 articles within a decade shows the impact of behaviour analysis. Operant conditioning, the foundation for applied behaviour analysis, has been applied in education, mental health, and medical fields (Matson & Coe, 1992) . Areas researched during the early days of applied behaviour analysis included temporal schedules of reinforcement, fixed versus variable (Ferster & DeMyer, 1962; Orlando & Bijou, 1960). (A variable schedule is a random delivery of reinforcement, where fixed

interval is receiving reinforcement at a set interval, for example every minute). This also included behavioural momentum, interspersing low probability requests amongst high probability requests (Nevin, Mandell, & Atak, 1983).

A few key studies highlighting the body of work in applied behaviour analysis are given in the following paragraphs. This is not meant to be an exhaustive review, but to highlight areas researched within the field of applied behaviour analysis. Behaviour analysis has been applied to teaching behaviour skills, working with emotional/conduct disorders, treating tantrums (Wolf et al., 1965), social withdrawal (Lovaas, Schaeffer, & Simmons, 1965), and self-injury (Lovaas & Simmons, 1969). Performance feedback and modelling have been shown to treat behaviours such as tone of voice, and volume of speech (Matson & Senatore, 1981; Taras, Matson, & Leary, 1988). Shaping has been used to improve verbal responses, semantics, and syntax (Lovaas, Berberich, Perloff, & Schaeffer, 1966; Risley & Wolf, 1967). Expressive language was also researched using delay techniques (Charlop, Schreibman, & Thibodeau, 1985). (The onset of the prompt is delayed for increasing amounts of time until the individual spontaneously requests the items (Matson, Benavidez, Compton, Paclawskyj, & Baglio, 1996). Receptive language has been studied including understanding prepositions by placing objects in relation to others on a table (Egel, Shafer, & Neef, 1984).

Perhaps one of the most widely known studies in applied behaviour analysis is from Lovaas (1987). Lovaas created a comprehensive early intervention program for children diagnosed with autism. Parents were trained to be the primary therapists in an intensive home based program for two years, 40 hours per week (Lovaas, 1987). This lead to 47% of the children being placed in general education with normal intelligence

scores, compared to only one child placed in a general education classroom from the control group (Lovaas, 1987).

Outside of language, life skills have been taught. Picture prompts, modelling, and fading have been used to teach dressing, food preparation, setting the table, doing laundry, and making beds (Pierce & Schreibman, 1994). Pedestrian skills were taught using modelling and positive reinforcement (Steinborn & Knapp, 1982) and purchasing items was taught using prompts and positive reinforcement (Haring, Kennedy, Adams, & Pitts-Conway, 1987). Teaching leisure skills, including ball play was also shown to be socially significant (Coe, Matson, Fee, Manikam, & Linarello, 1990; Stahmer & Schreibman, 1992).

Another area of applied behaviour analysis is including peers within the intervention to help promote peer relationships. Peers have been used to reinforce play skills (Coe, Matson, Craigie, & Gossen, 1991), increase reading fluency, increase duration of social interactions, and get correct responses from comprehension questions (Kamps, Barbetta, Leonard, & Delquadri, 1994). Social skills are another focus of applied behaviour analysis. Koegel and colleagues (1992) used self-management to increase social skills in children diagnosed with autism spectrum disorder (Koegel, Koegel, Hurley, & Frea, 1992). Other such research within the field of applied behaviour analysis has included treating fears via desensitisation. One such study included treating a male diagnosed with Downs syndrome who had a fear of store mannequins (Waranch, Iwata, Wohl, & Nidiffer, 1981). The mannequins were moved closer to the child and eventually the child was taken to a shopping mall where mannequins were present. This was combined with relaxation exercises (Waranch et al., 1981).

Horner and colleagues conducted a review of behavioural interventions for children with autism ages eight years of age or younger between 1996 and 2000 (Horner et al., 2002). Reductions for challenging behaviour were reported for all classes of problem behaviour and all individuals (Horner et al., 2002). From 1990 more stimulus based and instruction based intervention procedures were reported to consequent based procedures (Horner et al., 2002). ABA has been recognised by the Surgeon General of the United States as the intervention of choice for persons diagnosed with autism, "*Thirty years of research demonstrated the efficacy of applied behavioural methods in reducing inappropriate behaviour in increasing communication, learning, and appropriate social behaviour* (US Department of Health and Human Services, 1999)." As can be seen by the above studies, many were conducted with persons with disabilities. Indeed this is a larger portion of the research within ABA. The next section will explore this relationship further.

**Intellectual Disabilities**

In the 1950s, there were limited interventions available to persons with intellectual disabilities. From the outset of operant conditioning, the procedures began to be employed with persons with intellectual disabilities (Matson & Coe, 1992). From the 1960s to the 1980s, interventions in toilet training (Azrin & Foxx, 1971; Ellis, 1963), self feeding (Azrin & Armstrong, 1973), dressing (Martin, 1971; Reid, 1983), tooth brushing (Bensberc, Colwell, & Cassel, 1972), and showering (Matson, Marchetti, & Adkins, 1980) were all researched. A number of these researchers were students of B. F. Skinner. These interventions dramatically improved the lives of those persons with intellectual disabilities (Matson & Coe, 1992).

Early research focused on how environmental manipulations influenced the behaviour of individuals with intellectual disabilities. Early research often employed conditions similar to a laboratory, having the people press levers for reinforcers both edible reinforcers and tokens that lead to another form of reinforcement (Ellis, Barnett, & Pryer, 1960; Ferster & DeMyer, 1962). These early experiments led to the conclusions that higher rates of responding were achieved on shorter variable schedules of reinforcement as opposed to longer fixed interval schedules (Ferster & DeMyer, 1962; Orlando & Bijou, 1960). Bijou, a pioneer in early intellectual disability research, felt behavioural interventions were successful due to the fact that they emphasize what can be manipulated in the environment; are able to be applied to all individuals, not just those with an intellectual disability; and didn't require the interventionist to ascribe to one theory of intellectual disability (Matson & Coe, 1992).

From the 1970s to the 1980s, over 200 studies were published looking at behavioural interventions for persons diagnosed with autism (DeMyer et al., 1981). Research in the area of language was also conducted (Lovaas, 1977). For example, echolalia was decreased by teaching appropriate verbal responses (Carr, Schreibman, & Lovaas, 1975; Freeman, Ritvo, & Miller, 1975; Schreibman & Carr, 1978). Social skills and academic interventions were also targeted, including increasing social initiations with others (Ragland, Kerr, & Strain, 1978; Strain, Kerr, & Ragland, 1979).

Matson and colleagues (1996) undertook a study to evaluate literature published from 1980 – 1995 on behavioural interventions for persons diagnosed with autism. Using their criteria, 251 studies were found that met the definition (Matson et al., 1996). These studies revealed research in increasing functionality of appropriate behaviours,

decreasing challenging behaviours, using functional analysis (Matson et al., 1996). Treatment procedures were found to use less aversives, and behavioural techniques were described as more "sophisticated and efficient" (Matson et al., 1996).

The biggest area of research within behaviour analysis has been challenging behaviour. Extinction and differential reinforcement were researched in the area of challenging behaviour (Carr et al., 1976). One example of differential reinforcement was the study by Luiselli and Slocum (1983) treating a nine-year-old girl with an intellectual disability and autism by delivering praise and an edible reinforcer for seven minutes of non-aggression. Non-aggression was defined as the absence of hitting, kicking, hair pulling, spitting, and tantruming (Luiselli & Slocumb, 1983). Another example is a study by Mulhern and Baumeister (1969). They treated stereotypic behaviour by reinforcing individuals when they were not engaging in the stereotypic behaviour through the use of differential reinforcement (Mulhern & Baumeister, 1969).

ABA grew from a scientific background to address socially significant problems for individuals. While ABA grew from objections to simple introspection, there is still very much a field of psychology that tackles a person's inner thoughts and experiences. That field has its own body of literature and place of work within the field of psychology. Behaviour analysis does not work within that realm, and is better suited to keeping within its science of observable behaviours. ABA does have its critics, including those who criticise the length of interventions, ignoring the inner thoughts, and even those who are critical of positive reinforcement as opposed to being "intrinsically motivated" (Canella, 1986; Dillenburger, Keenan, Gallagher, & McElhinney, 2004). While this field has made a significant contribution to the lives of those individuals with intellectual

disabilities, there are other experts to deal with life events including grief, trauma, and even engagement within the community. Applied behaviour analysis requires consistency, data collection, and having experts within your home/community environment. These time commitments are often something persons may choose not to have as a method of intervention and can be viewed as intrusive (Dillenburger et al., 2004). Much of this ABA work has been done in relation to people with disabilities. As this is the population for this thesis, the next section will look at the political climate during the inception of ABA, especially in relation to persons with intellectual disabilities.

### 2.4 Values Movements

During the development of ABA (1970s) the deinstitutionalization movement was taking place (Rose-Ackerman, 1982). This created more integrated and less restricted settings (Anderson & Freeman, 2000; Haring & Kennedy, 1992; Meyer, Peck, & Brown, 1991). During this time, in the United States, parents of children who were severely and profoundly "retarded" formed a core of political activists (Rose-Ackerman, 1982; The Arc, 2016). They organized the Associations for Retarded Children (now termed Citizens), which exists at the local as well as national level (ARC) within the United States (The Arc, 2016). This formed a group to lobby for public funds and equal treatment. In the United States, in 1978 Amendments to Developmental Disabilities Services and Facilities Construction Act (P.L. 95 – 602) contained statements favouring deinstitutionalization for those who are "developmentally disabled".

**Normalisation Movement**

During the 1960s institutions for the "retarded" were considered unacceptable in terms of their living conditions. (Blatt & Kaplan, 1966; Rivera, 1972). Many children labelled as "retarded" were excluded from school, and were in receipt of no services. This also extended to adults (Rose-Ackerman, 1982). Parents and professionals banded together to seek a change in funding and treatment for those persons who had an intellectual disability (The Arc, 2016). The idea of the normalization movement was for persons with disabilities living and working within their own communities, as well as offering support to family members to help them achieve goals and increase the entire family's quality of life (Singer & Wang, 2009). The idea of a "normal" life focused on housing, schooling, work, friendship, and family. One caveat of this movement was looking not at individual choice, but at what most people would choose as a "normal" life. Skills taught focused on daily living. During this time, persons with intellectual disabilities were housed more in smaller residential facilities, as opposed to institutional settings (Rose-Ackerman, 1982).

Another theory that grew out of the normalization movement was social role valorisation. Wolf Wolfensberger was involved in the normalisation movement and established the social role valorisation theory (Osburn, 2006). The idea behind social role valorisation is "good things in life"; dignity, respect, education, a decent standard of living, opportunities for work, etc. are given to those who hold valued social roles within society (Osburn, 2006; Wolfensberger, 1983). This is relevant to those people in society that are devalued, or at risk of being devalued. Having a disability can put a person at risk of becoming devalued, therefore not holding an important social role within the

social role valorisation theory. The valorisation can be sought through changing perception of others, or changing the competencies of those perceived at risk of being devalued (Osburn, 2006). A criticism of social role valorisation was similar to that of normalisation, again asserting that it was imposing views of what may be considered "middle class" on others who do not hold these views (Wolfensberger, Thomas, & Caruso, 1996). Goldiamond (1975) was also presenting the theory of a constructional approach to change.

The constructional approach looks at what is the current behaviour repertoire, what is the goal, how is the goal going to be accomplished, and how is the goal going to be maintained. Essentially, "where are we currently?" "where do we want to go?", "how do we get there?", and "how do we keep going?" (Goldiamond, 1975). In applied behaviour analysis terms, it would be identifying the behavioural repertoire, establishing a goal, looking a behavioural approximations, and generalization/maintenance for maintenance of the new skill. This was again on the heels of the deinstitutionalization movement.

**Person Centred Approach**

Person centred planning, developed between the 1970s and 1990s, is now considered an evidence-based practice (O'Brien & O'Brien, 2000). The UK White Paper *Valuing People* made a step towards allowing people who wish to choose person centred planning the ability to do so (Department of Health, London (United Kingdom), 2001). For this approach to work, the person for whom the plan is being created needs to be at the centre of every thought, planning, and implementation; looking at all aspects

through their perspective and what they really want. This enhances the above movements by not assuming each individual would want to live exactly as the majority.

Robertson and colleagues (2005) conducted a longitudinal study for 93 people with learning disabilities. This study is considered to be the largest international evaluation of the outcomes related to person centred planning to date (Sanderson, Thompson, & Kilbane, 2006). This took place over two years in four different locations within England. These four sites were selected by their commitment to person centred planning and represented a variety of cultural and economic groups (Robertson et al., 2005). The first 25 people in each site to be offered a person centred plan served as participants for this study (Robertson et al., 2005). The participants ranged in age between 16 and 86 and covered a full range of intellectual disabilities (Robertson et al., 2005). Interviews and questionnaires were used to determine the outcomes. The impact on life experiences was seen by significant increases in contact with friends, increases in community activities, and increases in scheduled daily activities, (Robertson et al., 2005). There were a large number of categories where increases were not seen. No improvement was seen in family contact, physical activity, and overall health to name a few, and staff training and time was seen as an additional need (Robertson et al., 2005). The overall perception was that there was little evidence person centred planning had resulted in the positive changes occurring; rather these could just be attributable to time passing (Robertson et al., 2005) and a better designed study is needed.

These values movements were changing the service delivery for those individuals with disabilities. Individuals were having more choice about where they were to be

educated, reside, and even spend their leisure time. With this change, these individuals were looked at in a more humane way and treatment for their behaviour also needed to be approached in an individualized, humane fashion.

## 2.5 Positive Behaviour Support

Positive Behaviour Support, PBS was developed in the late 1980s and early 1990s as a general intervention to increase a person's quality of life and reduce challenging behaviours through support (Johnston, Foxx, Jacobson, Green, & Mulick, 2006; Weiss et al., 2009). Behaviour modification was a term used during this period (referenced in Section 2.1), which included contingent punishment, later called aversives, upon the demonstration of a challenging behaviour. As the deinstitutionalization movement happened, these contingent punishers or aversives that were used within institutions and hospitals were not seen as procedures that could be used within the community (Weiss et al., 2009).

The field of applied behaviour analysis was still using such treatments within segregated settings including schools during the 1980s (Singer & Wang, 2009). Still seen acceptable in schools during this time, were the use of extinction, overcorrection, time-out, verbal reprimands, restraint, and response cost. Even more "intrusive" interventions were used if they could be justified, by life threatening challenging behaviour. There were concerns regarding the over use of aversive procedures and the focus on interventions based on consequences, not antecedents (Horner et al., 1990; Weiss et al., 2009). A call to action was underway for persons with disabilities to be treated as equals, in humane ways, within their own communities (Sailor, Dunlap, Sugai,

& Horner, 2008; Singer & Wang, 2009) . This led to exploring new technologies that could address these challenging behaviours in a socially appropriate and acceptable manner to the community at large. This new technology needed to be durable, effective, and efficient (Sailor et al., 2008; Singer & Wang, 2009) . In 1990, Horner and colleagues referred to "nonaversive behaviour management as "positive behaviour support" as an approach. This early work led to the functional analysis and functional assessment (referenced in Section 2.2), which serves still today as the foundation for positive behaviour support (Sailor et al., 2008; Singer & Wang, 2009). This diversification from the aversive to interventions that looked at the positive alternatives and improvement in the quality of life, is what is thought to set positive behaviour support apart from applied behaviour analysis (Singer & Wang, 2009).

**Philosophy and Definition**

The scientific underpinnings of positive behaviour support are based on human behavioural science (Dunlap, Sailor, Horner, & Sugai, 2009). According the *Handbook of Positive Behavior Support*, there are core features of PBS. These include the application of behaviour science; practical, multicomponent interventions; lifestyle outcomes; and systems change (Dunlap, Sailor, Horner, & Sugai, 2009). The science employed within positive behaviour support includes many facets of psychology from cognitive, developmental, social, environmental, and of course behavioural (Dunlap et al., 2009). Interventions within positive behaviour support are based on a functional assessment for each individual, which is also a tenet of applied behaviour analysis. Also incorporated into positive behaviour support is the use of data to design and evaluate multicomponent interventions (Dunlap et al., 2009). Multicomponent interventions

include antecedent interventions discussed earlier as well as consequence based strategies. Many studies have shown the effectiveness of these multicomponent interventions for young children who engage in challenging behaviour (Chandler, Dahlquist, Repp, & Feltz, 1999). The ultimate goal is a change in the quality of life for the individual (lifestyle outcome) that is sustainable within the setting, even if that requires systems change. These systems change include not only looking at the physical needs of the space, but the culture and support available within the setting (Dunlap et al., 2009). Horner (1998) defined PBS as,

> *"Positive behavior support" is the integration of:*
>
> *(a) Valued outcomes,*
>
> *(b) Behavioural and biomedical science,*
>
> *(c) Validated procedures, and*
>
> *(d) Systems change*
>
> *To both enhance quality of life, and minimize/prevent problem behaviours."*

Horner (1998) further explained positive behaviour support is a broad range of systematic and individualized strategies that prevent challenging behaviour while achieving important learning and social outcomes. This definition is closely aligned with the Association for Positive Behavior Support's definition of PBS:

> *"Positive Behavior Support (PBS) is a set of research-based strategies used to increase quality of life and decrease problem behavior by teaching new skills and making changes in a person's environment. Positive behavior support combines:*
>
> - *Valued outcomes;*
> - *Behavioral and biomedical science;*

- *Validated procedures; and*
- *Systems change to enhance quality of life and reduce problem behaviors."*

(APBS, 2012)

According to APBS (2012) interventions should increase the individual's success in personal satisfaction and positive social interactions across all environments, which will ensure a better quality of life. Valued outcomes include assisting the individual in developing and maintaining satisfying relationships, participating in meaningful activities (including education and employment), and developing skills to access the community (Anderson & Freeman, 2000).

The behavioural tenet is the science of applied behaviour analysis looking at the interaction between the individual's behaviour and the environment, specifically focusing on the control the environmental factors play (APBS, 2012). These behavioural approaches are applied in everyday settings. The biomedical science is the interaction between biological factors, including physiological factors, and environmental factors which influence behaviour (APBS, 2012). Lastly, systems change looks at the resource allocation of staff, and if the intervention is a good fit for the environment, ensuring those charged with implementation will be able to be successful (APBS, 2012).

Both definitions reference the valued outcomes, validated procedures, behaviour and biomedical science, and the improvement in the quality of life. This ensures a focus on inclusion and integration into the community while using the contextual fit of the intervention to be tailored to the individual and their environment(s) (Anderson & Freeman, 2000). The difference between the two is the Association for Positive Behaviour Support has referenced research-based strategies to accomplish these

outcomes and quality of life change. This can be summed up by Bradley and Horner's 1998 description of PBS: Positive behaviour support is the use of research-validated practices, focusing on prevention, looking at function based behaviour support, and ensuring the use of effective practices (Bradley & Horner, 1998).

In 2002 Carr & Sidener went further, describing PBS as an applied science which uses educational methods to expand an individual's behaviour repertoire, as well as a systems change methods to redesign the individual's living environments, enhance the quality of life, and minimise challenging behaviour. Positive behaviour support is viewed as a way of organizing the physical, social, educational, medical and logistical supports to achieve quality of life, while reducing challenging behaviour (Dunlap & Carr, 2007; Koegel, Koegel, & Dunlap, 1996). Carr and Colleagues (2002) state the primary goal is an increase in quality of life with a secondary goal of decreasing challenging behaviour thereby, making it irrelevant in the person's environment (Singer & Wang, 2009).

Gore and colleagues created a revised definition and scope of positive behaviour support (Gore et al., 2013). Within this publication a framework for delivering PBS is given. They define PBS as,

"*Positive behavioural support is a multicomponent framework for*

*(a)* *developing an understanding of the challenging behaviour displayed by an individual, based on an assessment of the social and physical environment and broader context within which it occurs;*

*(b)* *with the inclusion of stakeholder perspectives and involvement;*

*(c)* *using this understanding to develop, implement and evaluate the effectiveness of a personalised and enduring system of support;*

*(d) that enhances quality of life outcomes for the focal person and other stakeholders* (Gore et al., 2013)*."*

The article goes on to detail the scope of positive behaviour support including its use within residential or small group homes, schools, and family homes for both and adults and children (Gore et al., 2013). This scope extends to working with persons on a case-by-case basis, professional teams, or through a systems wide approach (Gore et al., 2013). Gore and colleagues give a comprehensive description of the multicomponent framework. Ten elements have been identified that set PBS apart from other approaches (Gore et al., 2013). These include the values of prevention and reduction of challenging behaviour alongside an increase in quality of life, constructional approaches to intervention which build stakeholder skills while avoiding aversive or restrictive practices, and stakeholder participation in not only the design but also the implementation and evaluation of the intervention (Gore et al., 2013; Weiss et al., 2009). The stakeholders are key people within the person's life and environment. The ten elements also cover theory and evidence base by focusing on challenging behaviour serving a function for the individual and intervening through applied behaviour analysis methodology as well as other evidence-based approaches (Gore et al., 2013). The last of the ten elements is about the process through which PBS works. This includes making decisions based on data including functional assessments to create function based interventions to challenging behaviour (Gore et al., 2013). This is all done with multicomponent interventions with on-going support and evaluation (Gore et al., 2013). This framework with the ten elements outlines not only the theory behind positive

behaviour support, but also the way in which it should be implemented, serving as a guide for practitioners within the United Kingdom.

**Methods**

Positive behaviour support has a literature that includes systematic and meta-analytic reviews of not only single case research, but group designs as well. This body of research has shown significant reductions (commonly 50% or more) in challenging behaviour when a PBS intervention has been implemented (Carr et al., 1999; Dunlap & Carr, 2007; Gore et al., 2013; LaVigna, Christian, & Willis, 2005). Randomized trials have been conducted, including one study within the United Kingdom. This study looked at challenging behaviour displayed by adults with intellectual disabilities, which showed a decrease in challenging behaviour by 43% after the positive behaviour support intervention was implemented (Hassiotis et al., 2009). The research has taken place in both children and adults, as well as in multiple counties (Gore et al., 2013).

Conroy and colleagues (2005) conducted a comprehensive review of articles published between 1984 and 2003 across 23 peer-reviewed journals. This review looked at research in positive behaviour interventions for children from birth to six years of age referenced in the databases of ERIC and PsycLit (Conroy, Dunlap, Clarke, & Alter , 2005). The qualifications for inclusion were an experimental study with at least one child who engaged in challenging behavior and a positive behaviour approach as the intervention (Conroy et al., 2005). The interventions employed within the studies were categorized into seven areas: antecedent interventions, instructional interventions, self monitoring interventions, functional assessment based interventions, multicomponent interventions, interventions linked to functional assessment outcomes, and those which

only conducted an assessment (Conroy et al., 2005). In total 73 studies were found that fit these criteria (Conroy et al., 2005). The studies included all children with 59% using children who were identified has having a developmental delay, autism, or pervasive developmental disorder (Conroy et al., 2005). Only one study employed a group design, the other studies were all single case design (Conroy et al., 2005). An increasing trend was seen in the number of studies published beginning in 1992 (Conroy et al., 2005).

Positive behaviour support also looks at what maintains behaviour change in larger organizations, such as schools and service organizations (Knoster, Villa, & Thousand, 2000; O'Neill et al., 1997; Weiss et al., 2009). How to take data and evaluate success at this organizational level is something that needs to be defined further (Singer & Wang, 2009). For example, within school-wide positive behaviour support, office discipline referrals have been targeted as a unit of measure outside of direct observation, traditionally used, when looking at functional behaviour assessments. These larger organizations require different ways to measure behaviour. Positive behaviour support is looking to neighbouring social sciences as a way to collect qualitative and quantitative data. Like applied behaviour analysis, positive behaviour support is hoping to have a dynamic problem solving approach for greater quality of life for both individuals and well as larger populations, keeping scientific support central (Dunlap et al., 2008). This view of expanding what data is acceptable and the ability to look outside rigorous experimental methods is what PBS practitioners believe sets them apart as a new science, along with the moral underpinnings of positive behaviour support, i.e. focus on the quality of life above reduction in challenging behaviour (Singer & Wang, 2009).

In 1987, the United States Department of Education provided funding for national research and training on non-aversive behaviour management. This first focused on individuals using a new technology known as positive behaviour support, which used functional behaviour assessment with antecedent manipulations, teaching strategies, rearrangement of reinforcement contingencies to focus on the positive consequences and reduce aversive consequences (Sugai & Horner, 2002). This was based on applied behaviour analysis research that had been conducted in the previous two decades, but emphasised ecological and social validity as well as respect and a quality of life for the individual being treated. This became disseminated through a system of statewide team trainings (Sugai & Horner, 2002). The first group targeted were students with severe emotional disturbances or emotional/behaviour disorders. This led to the general public gaining broader access to the technology employed within applied behaviour analysis (Sugai & Horner, 2002). Positive behaviour support has been written into United States federal special educational law, specifically the Individual with Disabilities Education Act. This act requires students who meet the requirements for special education services or have behaviour plans, to have positive behaviour support procedures implemented with their Individualized Education Plan.

PBS is mentioned in United States federal statute IDEA (Law, 1997) below.

*In the case of a child whose behavior impeded his or her learning or that of others, consider when appropriate, strategies, including positive behaviour interventions, satisfies, and supports to address the behaviour.*

And

> *The regular education teacher of the child, as a member of the IEP team, shall, to the extent appropriate, participate in the development of the IEP of the child, including the determination of appropriate positive behavioural interventions and strategies and the determination of supplement art aids and services, program modifications, support for school personnel consistent with paragraph (1)(A)(iii)* (Law, 1997).

Under this law, parent training is offered.

Positive behaviour support has been used by many United States government entities including the United States Department of Education National Institute on Disability and Rehabilitation Research, the Research and Training Center on Positive Behaviour Support, and the Office of Special Education Programmes, Center on Positive Behavioral Interventions. The Research and Training Center on Positive Behaviour Supports purpose is to develop and disseminate effective, practical, empirically validated procedures for improving support for individuals with disabilities. The Office of Special Education Programmes Centre on Positive Behavioural Interventions and Supports mission statement is as follows, "*to give schools capacity-building information and technical assistance for identifying, adapting, and sustaining school-wide disciplinary practices*" (Johnston et al., 2006). Positive behaviour support can also be found inside mental health services, the juvenile justice system, Head Start (federally funded pre school programs), family therapy, and child welfare systems within the United States of America (Dunlap et al., 2009).

PBS has also been the focus of a number of conference presentations, workshops, with the Association for Behavior Analysis and now has a journal devoted to the

research conducted within PBS, the J*ournal of Positive Behavior Interventions* (Anders & Freeman, 2000; Dunlap & Koegel, 1999). Additionally in 2012 the *International Journal of Positive Behaviour Support* came into publication. Since this time, there have been dozens of textbooks and practitioner manuals, and hundreds of research reports that are continuing to grow in volume (Dunlap et al., 2009). The Association for Behavior Analysis has developed a special interest group for positive behaviour support.

While positive behaviour support is being mentioned within policy documents in England, it has not quite made it to the national level. Some of those documents are found in the British Institute of Learning Disabilities (BILD) publications and include: BILD Code of Practice (BILD, 2010), *Physical Interventions: A Policy Framework* (Harris, Allen, Cornick, Jefferson, & Mills, 1996), *International Journal of Positive Behavioural Support, and Positive Behaviour Support: A Guide for Schools* (Akefield & Paley-Akefield, 2012). Additionally, PBS is referred to in the *Challenging Behaviour: A Unified Approach* (2007) produced by the Royal College of Psychiatrists, British Psychological Society and Royal College of Speech and Language Therapists. Policy and guidance coming from the Department of Health will further establish positive behaviour support as evidence based practice within the United Kingdom and allow broader dissemination (Gore et al., 2013). This shows that positive behaviour support is getting seen as a crucial element for working with people with intellectual disabilities, and attention is being given by larger organizations within the United Kingdom. Positive behaviour support is included within the NICE guidelines and quality standards on learning disabilities and behaviour that challenges (Pilling et al 2015), and a recent review states that improvement in staff knowledge and reductions in challenging behaviour are seen following training (Busk,

2017). Busk (2017) challenges this finding, and asserts there needs to be more evidence/research regarding staff training and individualization of challenging behavior approaches. Additionally, positive behaviour support was mentioned, and not set out as the only way to address challenging behavior.

In the next section, the differences between positive behaviour support and applied behaviour analysis will be further explored. Their similarities and differences will be described. This will help the reader to further understand how positive behaviour support developed and where it fits within the field of applied behaviour analysis today.

### 2.5.1 Similarities and Differences

The origin of positive behaviour support is grounded in applied behaviour analysis; this is not disputed (Anderson & Freeman, 2000; R. H. Horner et al., 1990; Johnston et al., 2006). The theoretical and technological foundations come from the field of applied behaviour analysis, partly due to the creators of positive behaviour support being trained behaviour analysts (Horner et al., 1990). The differences between applied behaviour analysis and positive behaviour support have been adherence to the scientific approach of ABA and the perceptions of treatment acceptability (Brown, Michaels, Oliva, & Woolf, 2008). The ideas of positive behaviour support are not new, but the combination of applied behaviour analysis, the normalization movement, and person-centred planning to improve quality of life through multi component interventions, which makes PBS unique (Anderson & Freeman, 2000; Carr et al., 2002; Weiss et al., 2009).

Positive behaviour support has grown from the behavioural analysis literature, using the same principles paramount to ABA. The use of antecedent based strategies is still within the applied behaviour analysis wheelhouse. Environmental adaptations, providing choices, varying instructional delivery, altering routines, and looking at variables including health and sleep are all part of applied behaviour analysis interventions (Weiss et al., 2009). The idea of individualization is also used within the field of applied behaviour analysis (Mulick & Butter, 2005).

Positive behaviour support is claiming to move past applied behaviour analysis due to its emphasis on contextual fit (Singer & Wang, 2009). This can been see in many studies including the one by Moes and Frea (2002). In this study three children diagnosed with autism were worked with in the home environment to replace challenging behaviour with functional communication training during one family routine (Moes & Frea, 2002). Probes were collected to see if challenging behaviour decreased within other family routines. One family reported dinnertime as being a source of challenging behaviour and stress, the family used therapists to provide encouragement and emotional support to the spouses, and the challenging behaviour then reduced to zero (Moes & Frea, 2002). This shows the added benefit and sustainability of using person centred approach and contextual fit to ensure success with interventions, for instance when parents' goals are addressed (Moes & Frea, 2002).

Anderson and Freeman (2000) view positive behaviour support as a framework to guide practitioners within the field of applied behaviour analysis, which allows for the design and evaluation of effective programs for individuals with challenging behaviour. This framework is best practice that includes a set of values around quality of life and

the rights of the individual including procedures and steps for working with the individual (Anderson, Albin, Mesaros, Dunlap, & Morelli-Robbins, 1993; Anderson & Freeman, 2000; Horner et al., 1990). This applies behaviour analytic procedures to both challenging behaviour and quality of life (Anderson & Freeman, 2000).

### 2.5.2 Controversy over Aversives

In the 1980s controversy over the use of aversive consequence based procedures began. Rob Horner solicited professionals within the field of ABA to sign up to a referral network of those who would treat problem behaviour without the use of aversives (Brown et al., 2008). This could be seen by some as going against the science and ethics of psychology as these aversive procedures are always used a last resort (Mulick & Butter, 2005). Additionally, The Association for Persons with Severe Handicaps began to only take articles that did not include aversive procedures (Mulick & Butter, 2005). Hastings and Noone (2005) point out that behaviour analysts are guided by ethical principles of finding the least restrictive treatment. There is still the use of aversive consequence based practices in place and, "in some cases, a client's right to effective treatment may dictate the immediate use of quicker-acting, but temporarily more restrictive procedures" (Van Houten et al., 1999 p. 383). In 2002 Khang, Iwata, and Lewin reported there had been an increase in reinforcement-based interventions in the past decade, but the reports of punishment based interventions had decreased slightly. These differences in treatment acceptability have been shown through research and surveys. In the 1970s, positive behaviour support reported the use of sensory and physical punishment as 25%, but in the 1990s, less than 3% reported to use the same

procedures (Brown et al., 2008). These experts reported changing their perception due to ethical reasons and the ineffectiveness of the interventions (Brown et al., 2008).

Brown and colleagues (2008) surveyed applied behaviour analysis experts for the treatment acceptability of consequence based behavioural procedures. Individuals were chosen to be applied behaviour analysis experts by publishing in the *Journal of Applied Behavior Analysis* from 2000 – 2003, published in other journals referenced within the *Journal of Applied Behavior Analysis*, and lead authors and presenters from the Association of Applied Behavior Analysis Conference from 2001 – 2003 (Brown et al., 2008). Positive behaviour support experts met similar criteria: state contacts to the Rehabilitation Research and Training Center on PBS, members of the editorial board of the *Journal of Positive Behavior Interventions*, TASH (The Association for Persons with Severe Handicaps) Subcommittee on PBS, and the editorial board of *Research and Practice for Persons with Severe Disabilities* (Brown et al., 2008). The survey was the same as the one sent to the positive behaviour support experts with minor modifications of PBS to ABA, and reviewed by psychologists with expertise in applied behaviour analysis (Brown et al., 2008). Nine categories of declarative consequence-based interventions for persons who engaged in dangerous behaviour were rated for treatment acceptability. They were as follows:

1) Differential reinforcement with extinction
2) Differential reinforcement with mild reprimand
3) Extinction
4) Response cost
5) Overcorrection

6) Seclusion timeout
7) Sensory punishment
8) Physical punishment
9) Contingent electric shock

Statistical significance was found between ABA experts and PBS on six of the nine rated procedures. Applied behaviour analysis experts were more likely to perceive treatment acceptability for differential reinforcement with a mild reprimand or response cost, overcorrection, seclusion timeout, sensory punishment and physical punishment (Brown et al., 2008). The rationale for using these procedures was the same for both groups; effective in changing behaviour, the literature/research supports the approach, and there had been past success in using these techniques (Brown et al., 2008). Reasons for not using a procedure consisted of ethical reasons, alternative approaches found within the literature/research, or ineffective in producing behavioural change. Overall the applied behaviour analysis experts showed a greater willingness to use the declarative consequence-based interventions (Brown et al., 2008). On average, more ABA experts responded, and were nine years younger than their positive behaviour support counterparts, which could account for the differences between the two groups. Both ABA and PBS experts reported a decrease in using these procedures between the 1980s and 1990s, however there is an increase in contingent electric shock in the 2000s (Brown et al., 2008). One of the biggest limitations of this study is how it solicited experts, and not full time clinicians.

### 2.5.3 Methodological Differences

Positive behaviour support has adopted strategies employed within applied behaviour analysis research, including direct observation methods (Dunlap et al., 2008). During the first years of the publication of the *Journal of Applied Behavior Analysis* there were common themes for the field research conducted. Experimental methods employed were rigorous in nature and the characteristics defining this quality research included:

1) Practical solutions to human problems
2) Research that was simple and direct
3) Life altering effects for an individual or society in a larger context,
4) Finding ways to ensure the research conformed to the situation
5) Looking at the environments as part of the research and the solution
6) Collaboration among those impacted
7) Cultivation of innovative ideas

These characteristics strengthen not only applied behaviour analysis but also those interventions that take place today within the positive behaviour support community (Dunlap et al., 2008). Within this list are tenets of positive behaviour support including life-altering effects and ensuring the environment fits the interventions. The published studies in positive behaviour support have included studies which have been more descriptive rather than experimental, have variability in the methodology, unclear independent variables, and lack direct measurement methods (Brown & Boltz, 2002; Johnston et al., 2006).

Mulick and Butter (2005) claim the usual chain of citation from the previous works has been neglected in the positive behaviour support research. By citing previous works, the reader is able to understand the chain of research and how the current research is an expansion of previous research, weather a new setting, new variable, or new procedure. By not doing this, Mulick and Butter (2005) feel positive behaviour support is misrepresenting their work as original.

Both positive behaviour support and applied behaviour analysis look at problem solving as a dynamic approach and ways in which to find new solutions. This problem solving approach is applied to human quality of life and uses science, making these two camps more similar than different (Dunlap et al., 2008). Research is still needed in applying functional assessments to multiple applied settings, evaluating the effectiveness of antecedent interventions including environmental changes, and looking at more than just the single subject approach (Anderson & Freeman, 2000). Additional studies, which ensure they adhere to the underpinnings of applied behaviour analysis, including exact methodology, direct manipulation of the behaviour through intervention and direct observation can ensure these two camps can co-exist.

## 2.6 Positive Behaviour Support as a framework for Applied Behaviour Analysis

PBS supporters believe positive behaviour support is an applied science, which uses education and systems change methods to minimize problem behaviour and enhance quality of life (Carr & Sidener, 2002). The novelty of the science is the combination of the science of applied behaviour analysis with the value systems, a value-based applied science (Mulick & Butter, 2005). Within the *Handbook of Positive*

*Behavior Support*, it is stated, "It is not clear if [PBS] is best understood as a new applied science, as a branch of the field of applied behaviour analysis, or as an approach to delivering social services (Singer & Wang, 2009, p. 17)" and further explains it is still defining its boundaries (Singer & Wang, 2009). Horner has also stated there is too little information available to say positive approaches are capable of solving all behaviour problems and that documenting that one approach is superior to another, referring to positive behaviour support being superior to traditional applied behaviour analysis techniques is unfounded (Horner, 2002). Positive behaviour support is still viewed to be in its infancy regarding becoming a full science, as there needs to be a better creation of data to establish the science and cohesive framework that underpins the science (Carr et al., 2002; Dunlap, 2004).

Horner (2002) reiterates positive behaviour support is not a new approach, just the application of applied behaviour analysis to social problems. Turnbull and colleagues (Turnbull, Turnbull, & Wilcox, 2002) went on to call positive behaviour support an extension of applied behaviour analysis, while Carr and Sidener (2002) pointed out the behaviour change methods used in positive behaviour support were documented in applied behaviour analysis previously. Wacker and Berg (2002) argue all these ideals are within the realm of applied behaviour analysis and not a new science, just the development of a service delivery model of ABA. A big portion of the normalization movement expects people to be treated as others, reacted to as others, and living/working/educated within the same community as others. Effective behaviour treatment often involves contrived reinforcement of behaviour, not a typical occurrence by the general population, again showing how these behaviour interventions

inside positive behaviour support must be based on the science of applied behaviour analysis (Mulick & Butter, 2005).

Mulick and Butter (2005) assert science is predicated on people who perform the same actions to get the same results, which can be replicated by others. They go on to further declare, just the word positive within PBS or Positive Behaviour Support can lead to an observer effect because there are pleasant feelings associated with positivity (Mulick & Butter, 2005). Applied behaviour analysis has been described as "pragmatic" and "traditional", while PBS has been described as "comprehensive, "proactive", and "flexible" (Mulick & Butter, 2005). This type of language assumes that these adjectives apply to the specific discipline and are not seen across both disciplines. Another controversial point within the positive behaviour support literature is changing terminology for more pleasing terms. Instead of challenging behaviour, PBS has used rule violating behaviours, again not entirely representing the field as a whole (Mulick & Butter, 2005). This vague language does not allow for consumers to understand or evaluate the services provided (Mulick & Butter, 2005).

This can be illustrated in a study by Carr and colleagues (2003). The study looked at "mood" as an establishing operation. Mood was defined as yelling, pouting, appearing to be irritable, angry, or frustrated (Carr, McLaughlin, Giacobbe-Grieco, & Smith, 2003). When staff members rated the participants in a "bad mood", it served as a greater predictor of problem behaviour than when participants were rated as "neutral" or in a "good mood" (Carr et al., 2003). The intervention within the study involved trying to get the participant in a "good mood" by offer a preferred activity or tangible for anywhere from15 – 45 minutes (Carr et al., 2003). The study showed compliance

increased with this preferred activity and problem behaviour of yelling, pouting, anger and frustration were eliminated (Carr et al., 2003). Mulick and Butter (2005) point out this is pure reinforcement of yelling, pouting, anger, or frustration, and no data was gathered on weather more "bad moods" occurred, as could be a potential negative side effect to this study.

Another criticism of positive behaviour support is that those who are trained lack the expertise in behaviour analysis and monitoring by those trained in behaviour analysis. Johnson and colleagues (2005) purport positive behaviour support is a mere form of staff training, not adhering to the strict scientific principles of applied behaviour analysis and watering down ABA science. Both of these camps value the persons they serve and do everything to preserve their dignity, while using data to track progress. This separation could confuse consumers and add to the misunderstanding of these sciences both using evidence based practices forcing consumers to see one as right and one as wrong (Weiss et al., 2009). Applied behaviour analysis professionals are recognized by a licensing board, and in the United States even have licensure in some states and are able to bill insurance for their work. By creating a separate science from positive behaviour support there is no such board and professional credentialing. This leads to confusion of the consumer as there is no way to vet the professionals (Weiss et al., 2009). Separating the two leads to confusion among policy makers, legislators, and grant funders. The field needs to have a clear message so there is a clear understanding of behavioural science and its effectiveness (Weiss et al., 2009). Positive behaviour support is typically considered to be an extension of applied behaviour analysis, and

separating these two behavioural sciences could leave a fractured psychological discipline and confused consumers (Weiss, DelPizzo-Cheng, LaRue, & Sloman, 2009).

Applied behaviour analysis and positive behaviour support can strengthen their support of people who exhibit challenging behaviour, and improve the quality of those person's lives by joining together (Brown et al., 2008). Dunlap and colleagues (2008) argue the core values of both applied behaviour analysis and positive behaviour support are the same, the science of behaviour change, the ideals to work with socially significant problem behaviours, to ensure there is collaboration and impact for the person they are serving, all he while respecting the individual. Both of these sciences use data to evaluate their interventions, therefore, how can they be different? Those who see positive behaviour support and applied behaviour analysis as the same field, view these characteristics as an evolution of the science, and good behaviour analysis (Weiss et al., 2009).

It is important that positive behaviour support is not seen as a new technology but a framework, recognized as part of applied behaviour analysis as its foundation and principles were taken straight from this science. By presenting positive behaviour support as anything but applied behaviour analysis, would be a misrepresentation to the field and the public. Positive behaviour support remains within the discipline of applied behaviour analysis as a framework that should be followed. The British Institute of Learning Disabilities has offered guidance for the implementation of positive behaviour support (Akefield & Paley-Akefield, 2012). According to the British Institute of Learning Disabilities by using positive behaviour support, there will be an increase in opportunities for the development of independence, making people feel valued due to

their positive experiences. They further suggest development of communication skills should be seen, as well as an understanding of the consequences for behaviour through the implementation of positive behaviour support (Akefield & Paley-Akefield, 2012). Additionally, risk management procedures should be put in place to reduce the risk presented by the challenging behaviour. Strategies should not only include how to prevent and manage the challenging behaviour, but also how to reduce the impact of the challenging behaviour on others around them with consistency (Akefield & Paley-Akefield, 2012).

Below are examples of PBS in application, both with an individual, and one showing a systems approach. These are examples are not meant to represent the entire field of PBS interventions but give the reader an application through which to understand the background presented above.

### 2.6.1 PBS in an Individual Application

A case study involving Antonio, diagnosed with autism, is presented to illustrate positive behaviour support at an individual level. Antonio was verbal, and enjoyed looking at, sorting, and collecting cards (Strain & Schwartz, 2009). Antonio adhered to a routine and schedule he had learned. At three years and four months old, he began to engage in self-injurious behaviour that involved head banging when given a demand, or a change to his routine happened (Strain & Schwartz, 2009). This led the team, consisting of both parents and professionals, to determine the function of the self-injurious behaviour. Observations were conducted at home, in the preschool setting, during extended day, and during after school care. Consistently, it appeared Antonio engaged in head banging when presented with nonpreferred tasks, which took a greater

amount of time (Strain & Schwartz, 2009). This was seen across settings and time periods.

A multicomponent intervention was created that involved teaching Antonio how to ask for a break from work and a token system visually showing how many more tokens were required before the work session ended (Strain & Schwartz, 2009). Antonio was given a choice about his activities and the order he wanted to complete the activities during the session. Since Antonio's function of self-injury was escape from the task, it was decided to ignore the behaviour when he displayed the head banging (Strain & Schwartz, 2009). To ensure Antonio's safety, a soft-sided helmet was used, and put on at the first occurrence of head banging (Strain & Schwartz, 2009). It was removed after five minutes of no head banging. With this multicomponent intervention, Antonio's self-injury was completely extinguished after one month of intervention (Strain & Schwartz, 2009).

### 2.6.2 PBS in a Systems Wide Application

In this section, a positive behaviour support application is given in a school, to show a systems wide application. In the 1990s a focus group was conducted in South Carolina with the Department of Disabilities and Special Needs. Direct support staff, supervisors, managers, and regional office staff participated in focus groups due to frequent requests for behaviour support assistance and alternative placements from the school districts (Rotholz & Ford, 2003). A task force was developed in a two-tiered approach to look at consistent implementation of behaviour support for students. The task force was made up of a university affiliate behaviour support director, behaviour analyst, family members of a person with an intellectual disability(s), a community

behaviour consultant, a clinical supervisor, residential coordinator, pharmacy director, the director of psychology, and support staff supervisor (Rotholz & Ford, 2003). There were monthly meetings with tasks assigned that were to be completed between the meetings. This task force created recommendations for focus in seven areas, paradigm change, capacity building, training for all staff, supervisory changes, improved communication, revisions of staff qualifications, and quality review (Rotholz & Ford, 2003). These were to be addressed and implemented with coordination.

The second tier was the implementation of a workgroup (Rotholz & Ford, 2003). A residential services director and coordinators of services were added to the key players from the task force mentioned above. The work group contributed having the director as an active participant a key factor in the success. The work group felt the involvement also helped align communication to the executives within the state as well incorporation of positive behaviour support into policy (Rotholz & Ford, 2003).

Training was the first component to roll out statewide. Training was divided into positive behaviour support, and then writing a positive behaviour support plan. Three semesters long courses were developed with the University of South Carolina, including a feedback component. The courses had 26 modules, and four skills checks were conducted in person (Rotholz & Ford, 2003). Direct staff and supervisors were offered the first round of training, and by year three 92% of staff had completed the training (Rotholz & Ford, 2003). Those who completed this series were allowed to enter the trainers' course where their knowledge and presentation skills were assessed by presentation of a module. To ensure authors of behaviour support plans were qualified, a doctorate level behaviour analyst and psychologist interviewed professionals through

an application process and presentation of a positive behaviour support plan (Rotholz & Ford, 2003). They would receive termly review from the initial interview.

For anyone at risk of losing their full time placement, a full time behaviour analyst was allocated to design a plan, train staff and families, and provide on-going follow up. There was an estimated cost savings of $150,000 per year in terms of placements avoided (Rotholz & Ford, 2003) .

The authors reported challenges including maintaining sufficient qualified staff to write and review plans. The systems change was reported to be slow and labour intensive (Rotholz & Ford, 2003). Support was needed not only on philosophical buy in, but also in financial resources. Communication to those in charge was considered to be essential for both of these elements. Of the 46 participants originally undertaken in the research, only 14 successfully completed the university three term coursework (Rotholz & Ford, 2003).

Rotholz and Ford (2003) reported there was no other example of such systems change within the literature. This shows that while positive behaviour support at the individual level has been researched extensively, this systems level change is still emerging. Systems level change is needed, and further research is required to ensure change at this level can be successful and maintain this success over time.

**Conclusion**

Psychology moved past the study of internal events in the early 1900s with Watson's approach to viewing behaviour as a scientist viewed organisms in biology (Watson, 1913). B. F. Skinner furthered this in the 1930s where he began to use behaviour as a dependent variable (Michael, 1980). The experimental analysis of

behaviour was born and many studies were conducted on behavioural principles, through the use of animal labs (Cooper et al., 2007; Skinner, 1938). In 1968 the birth of a new science, applied behaviour analysis, came about with the application of these behavioural principles for socially significant problems (Baer et al., 1968). Much work has looked at challenging behaviour as a functional behaviour, specifically in the population of individuals with an intellectual disability (Hanley et al., 2003; Iwata et al., 1982).

As this field grew, and the behaviour principles were continuing to be applied, change was in inevitable for persons with disabilities. Political activists worked to have persons with disabilities viewed more humanely by seeing them as rightful members of their communities with the ability to choose their own opportunities and activities (Rose-Ackerman, 1982; The Arc, 2016). With this brought about treatments that were more humane and did not use anything seen as aversive, hence the birth of positive behaviour support (Brown et al., 2008). The positive behaviour support perspective includes person centred values, ensuring the individuality of each person, working towards meaningful outcomes; and using a behavioural approach (Bambara, 2002; Koegel & Kern Koegel, 2006) . This behavioural approach systemically looks at operationalized definitions of behaviour, which are measures applied through a precise/replicable intervention (Bambara, 2002).

In the next chapter, literature surrounding systems change within school-wide positive behaviour support will be systematically reviewed. This area of research is essential to make changes that are for the greater good of not only the individual but also those educating and supporting these people within the community. By employing

the framework of positive behaviour support, individuals are given access to scientifically based interventions through the field of applied behaviour analysis with their individual needs and rights at the centre. By looking to change systems through school-wide positive behaviour support, change can be seen on a larger scale.

# Chapter 3 – Systematic Review

## 3.1 Introduction to School-wide Positive Behaviour Support

Positive behaviour support has been described in the previous chapter and a brief overview of its applications has been given. This chapter reviews the literature involving schoolwide positive behaviour support. Schoolwide positive behaviour support was first introduced as an alternative to punitive forms of school discipline in the late 1980s (Solomon, Klein, Hintze, Cressey, & Peller, 2012). Schoolwide positive behaviour support is a schoolwide system for teaching, defining, and supporting appropriate student behaviour, creating a positive school environment (PBIS, 2017). Schoolwide positive behaviour support uses research validated behaviour based systems to provide three tiers of support to improve the overall school quality of life (PBIS, 2017). Schoolwide positive behaviour support has had growing support and even been included within the United States education policies and laws as mentioned in the previous chapter (Individuals with disabilities education act (IDEA) amendments, 1997; Individuals with disabilities education act, 2004). Within the United States, more than 30 states report the establishment of state wide, schoolwide positive behaviour support leadership teams, with 7,900 schools purporting its use (Solomon et al., 2012). Even with this extensive use, schoolwide positive behaviour support is still a developing model and being refined through research (Solomon et al., 2012), such as in this thesis.

Schoolwide positive behaviour support is designed as an approach to classroom management and school discipline through evidence based practices, which focus on multicomponent interventions (Sugai & Horner, 2009). Schoolwide positive behaviour

support is said to have five key components (Solomon et al., 2012). The first of those is its foundation within behavioural theory, particularly, applied behaviour analysis (Solomon et al., 2012; Sugai & Horner, 2009). This includes the use of functional behaviour assessments and positive reinforcement (Goh & Bambara, 2012; Solomon et al., 2012; Weigle, 1997). The second key feature is the focus on prevention, and altering the setting to prevent the problem behaviour from occurring (Goh & Bambara, 2012; Solomon et al., 2012). Third, instruction is tied to schoolwide positive behaviour supports (Solomon et al., 2012). This ensures that not only are strategies put in place to decrease problem behaviour, but also that teaching of alternative and appropriate behaviour is paramount. Fourth, evidence based behavioural practices are used to ensure the interventions conducted are effective (Solomon et al., 2012). The last key component of schoolwide positive behaviour support is a systems approach, ensuring the school culture, administration, and resources are available to implement the behaviour change (Solomon et al., 2012). Without those systems and supports, interventions are less likely to be successful and this is why a systems approach is essential for schoolwide positive behaviour support. Sugai and Horner further explain that schoolwide positive behaviour support cannot exist without data collection that is gathered not only for determining problem behaviour but also for designing interventions, as well as monitoring their effectiveness (Solomon et al., 2012; Sugai & Horner, 2009). Again, interventions used within schoolwide positive behaviour support are grounded on evidence based interventions that have been shown to be effective and have the systems support in place to bolster the interventions to ensure change is long lasting (Sugai & Horner, 2009).

Traditionally schoolwide positive behaviour support focuses on three to five expectations that are the same for the entire school (Hawken & O'Neill, 2006; Solomon et al., 2012). These expectations are stated in a positive way and designed by a team, made up of school staff, and taught to all students and staff (Hawken & O'Neill, 2006; Sugai & Horner, 1994). These expectations are then translated to positively stated rules for each setting within the school and again taught to all students and staff (Hawken & O'Neill, 2006; Solomon et al., 2012). Following these expectations is said to lead to reinforcement and acknowledgement in a school that uses positive behaviour support (Hawken & O'Neill, 2006; Solomon et al., 2012).

Schoolwide positive behaviour support is a three-tiered model, based on the three-tiered model from the field of public health (Mrazek & Haggerty, 1994). Tier 1 is universal intervention for everyone, Tier 2 a small group intervention, and Tier 3, individually designed intervention. The universal tier (Tier 1) is designed for all staff and students (Lane, Wehby, Robertson, & Rogers, 2007). Participation happens just by being a part of the school (Lane et al., 2007). The intention is all students will benefit from being taught the expectations for school and receiving acknowledgment for following those expectations. Those students who are not responding at the universal tier, with the reinforcement of schoolwide expectations, are then given a small group intervention (Tier 2). Secondary interventions (Tier 2) can include working with students who have acquisition, fluency or performance deficits (Elliott & Gresham, 1991). Interventions at this level include more frequent monitoring of the school expectations (every hour, social skills groups, targeted intervention (reading), or even self monitoring (Crone, Hawken, & Horner, 2010; Lane et al., 2003). Traditionally this

should be for 15% or less of the school population and is conducted in a small group setting (Horner & Sugai, 2000; Lewis & Sugai, 1999). A third tier also exists where individual intervention, usually based on functional behaviour assessments, is implemented for those students who do not respond to Tier 1 or Tier 2 interventions (Kern & Manz, 2004). This is purported to be less than 5% of the population within the school (Sugai & Horner, 2002) . Students and staff are monitored via data, which are often office discipline referrals (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004). Other data points taken may include absences, tardies (lateness), suspensions, tickets given for following school expectations, or even direct observations. These data are used to not only identify students and staff who are not responding, but also where, when, and possibly why they are not responding (Irvin et al., 2004). These data will help program managers to design interventions that address not only the non-responders, but also what the issue is (Solomon et al., 2012).

Schoolwide positive behaviour support is said to take years for full implementation. The initial adoption and trial implementation is considered to take an entire year, followed by an addition of one or two years for full implementation (McIntosh, Horner, & Sugai, 2009; Sugai, Horner, & McIntosh, 2007; Sugai et al., 2010). To ensure the system is continuously regenerating and self-sustaining within the school is said to take another two to four years (McIntosh et al., 2009; Sugai et al., 2007). This is all accomplished through district level support, on-going evaluation, political support, and visibility on the school campus (Positive Behavioral Interventions and Supports OSEP Technical Assistance Center, 2015). Three randomized controlled studies have been published demonstrating the impact of Tier 1 schoolwide positive behaviour

support on reduction of suspensions and office discipline referrals (Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010; Horner et al., 2009). Horner and colleagues found perceived school safety improved, third graders meeting or exceeding the state reading standards increased, as well as a reduction in office discipline referrals (Horner et al., 2009). Bradshaw and colleagues also reported reductions in office discipline referrals and suspensions from school (Bradshaw et al., 2010). Lastly, Bradshaw and colleagues found improved organizational health for those schools that implemented school-wide positive behaviour support (Bradshaw et al., 2009).

Sugai and Horner (1994) applied positive behaviour support to school and incorporated best teaching practices. They include applied behaviour analysis, direct instruction, outcome based assessment and evaluation, proactive prevention, behaviour programming in schoolwide environments, and team based development as critical components of schoolwide positive behaviour support (Sugai & Horner, 1994; Weigle, 1997). Schoolwide positive behaviour supports is based on a train the trainer model where a core group of staff receive intensive training on positive behaviour support and those best teaching practices referenced above (Johnson & Reichle, 1993; Langone, Koorland, & Oseroff, 1987). This core group is then responsible for training at their school or district level in not only the initial phase, but also through implementation and follow up throughout the year. Training should include evaluation and feedback on skills learned and implemented within positive behaviour support (Weigle, 1997).

## 3.2 Previous Systematic or Meta analytic Reviews on School-wide Positive Behaviour Support

When looking at the literature surrounding schoolwide positive behaviour support, it was considered that a systematic review was needed given the large body of literature that exists. Previous systematic as well as meta-analytic reviews are summarised in Table 3.1, followed by a brief discussion of these findings.

*Table 3.1 Previous Literature Reviews of School Positive Behaviour Support Applications*

| Author | Subjects | Methodology | Design Criteria | Studies Included |
|---|---|---|---|---|
| Gresham et al. (2004) | 18 years of age or younger | Review of the *Journal of Applied Behavior Analysis* | - Tier 3 PBS<br>- Single Case<br>-18 years or younger<br>-Graphs<br>-School setting<br>-3+ pages | 150 school based intervention studies (1991 – 1999) |
| Snell, Voorhees, & Chen (2005) | 21 years of age or younger with a disability | ERIC, Igenta, PSYCHLIT<br>Hand searched 22 journals<br>Other literature reviews | - Not school setting<br>- Functional assessment or analysis<br>-School-aged students with disabilities | 111 studies (1997 – 2002) |
| Lane, Wehby, Robertson, & Rogers (2007) | Secondary school students | Not given | -Tier 1 PBS<br>-Secondary school (high) | 14 studies (1997 – 2005) |
| Chitiyo, Mackweche-Chitiyo, Park, Ametepee, & Chitiyo (2011) | 18 years of age or younger with a disability or at risk | ERIC, Info Trac, PsycINFO<br>Follow up searching of journals | - Tier 2, Tier 2 PBS<br>- Single Subject<br>-PBS<br>-Disability or At Risk<br>-Challenging behaviour and academic achievement outcomes<br>-Graphs | 5 articles, 25 participants (1996 – 2006) |
| Solomon, Klein, Hintze, Cressey, & Peller (2012) | Students participating in schoolwide positive behaviour support | PsycINFO, ERIC, dissertation abstracts<br>Bibliography on Positive Behavior Interventions and Support website | -Tier 1 PBS<br>- Single Case<br>-Graphs with 3 data points | 20 studies (1993 – 2008) |
| Goh & Bambara (2012) | School aged with or without disabilities | PsychINFO, ERIC<br>Hand search of 22 journals<br>Reference lists of literature reviews | - Tier 3 PBS<br>- Single subject<br>-FBA<br>-School-aged<br>-School setting<br>-Graphs | 83 studies, 145 participants (1997 – 2008) |

As can be seen by Table 3.1, no two design criteria were the same. These reviews have looked at aspects of positive behaviour support, functional assessment; differing levels, Tier 1 and Tier 3, and different student populations, secondary students. This leads to different reviews and very different numbers of studies reviewed.

Gresham and colleagues conducted the first review regarding positive behaviour support in schools in 2004. They reviewed 150 school based intervention studies conducted with children published in the *Journal of Applied Behavior Analysis* from 1991 to 1999 (Gresham et al., 2004). All issues of the *Journal of Applied Behaviour Analysis* were reviewed, totalling 625 articles (Gresham et al., 2004). There were five inclusion criteria. The study had to be experimental using single case design methodology, participants had to be 18 years of age or younger, means or legible graphs had to be included, the setting had to be a school, and the article had to be longer than three pages (Gresham et al., 2004). The school setting was loosely defined as this included public, private, residential, as well as hospital schools (Gresham et al., 2004). Studies were then coded for type of functional behaviour assessment conducted, as well as the dependent variable measured (Gresham et al., 2004). A functional assessment could include a functional analysis or descriptive methods as long as direct observations took place (Gresham et al., 2004). Of these studies, it was found 52% did not report using any functional behavioural assessment methodology (Gresham et al., 2004). Multicomponent interventions, using both proactive and reactive components, were found in 66% of the studies reviewed (Gresham et al., 2004). Only 15% of the studies reviewed were exclusively proactive and antecedent based in nature (Gresham et al.,

2004). This included manipulation of setting events, tasks, or response requirements to prevent the challenging behaviour from occurring (Gresham et al., 2004).

These findings by Gresham and colleagues (2004) showed that less than half those interventions conducted in schools were able to use functional behavioural assessment technology, which could result in the inability to reliably determine function or base interventions on those functions. Additionally, limited time for the school staff or limited reporting in the articles could account for this finding (Gresham et al., 2004). While multicomponent interventions, which are the hallmark of schoolwide positive behaviour support, were being used in 66% of the studies surveyed, only 15% were focused on the proactive or preventative approaches (Gresham et al., 2004). This small figure was also reported for teaching replacement skills for problem behaviour (Gresham et al., 2004). This is low, considering this a key component for positive behaviour support, showing this is not what the majority of these studies are reporting within the literature from this review. This shows the need to educate school staff on how to determine not only function of behaviour, but also focus on preventing challenging behaviour by using a proactive approach, such as positive behaviour support.

Snell and colleagues conducted a review in 2005. The purpose of their review was to determine how frequently the key components of positive behaviour support were being used within the literature (Snell, Voorhees, & Chen, 2005). They looked at studies between 1997 and 2002 (Snell et al., 2005). This review again looked for the use of functional assessment or functional analysis as was done in Gresham (2004) review above. They also looked to see if stakeholders or teams were involved in the positive

behaviour support process, as this is another key component of positive behaviour support (Snell et al., 2005). They included school-aged individuals with disabilities in peer-reviewed journals (Snell et al., 2005). Their key words included behaviour management, positive behaviour support, disability, collaboration, and teaming (Snell et al., 2005). ERIC, Ingenta, and PSYCHLIT were searched (Snell et al., 2005). Other literature reviews in positive behaviour support were also reviewed and 22 journals were hand searched (Snell et al., 2005).

There were six inclusion criteria. One was that participants 21 years of age or younger with a disability, which could include learning, intellectual or even emotional disabilities, were the focus of the research through functional analysis or assessment (Snell et al., 2005). Additionally, there had to be a control or baseline condition, an intervention that was not just pharmacological in nature, and direct observation of the student(s) (Snell et al., 2005). This produced 111 studies (Snell et al., 2005). Of these 111 studies, 79 were found within the *Journal of Applied Behavior Analysis*, *Journal of Positive Behavior Interventions*, and *Research and Intervention in Developmental Disabilities* (Snell et al., 2005). The disability breakdown included 43% with severe disabilities, 35% with mild to moderate intellectual disabilities, and 23% with developmental disabilities (Snell et al., 2005). Single subject designs were used for 95% of the studies found (Snell et al., 2005). School settings were found in only 30% of the articles reviewed (Snell et al., 2005).

While the results were promising, showing reductions in problem behaviour across 97% of the articles reviewed, the use of the natural environment (school) and typical change agents (staff and family) were not found (Snell et al., 2005). Positive

reinforcement was the intervention used most frequently, 78% of the time (Snell et al., 2005). The majority of the database was composed of elementary school age males (Snell et al., 2005). Destructive and disruptive behaviours were the top two most frequently cited challenging behaviours (Snell et al., 2005). As found in the Gresham (2004) review above, functional analysis or assessment was used half the time (Snell et al., 2005). Half the research articles reported teaching skills (Gresham et al., 2004). Those studies that were conducted in the natural setting were more likely to use natural change agents, teams, and multicomponent interventions, all vital to positive behaviour support (Snell et al., 2005). This finding led Snell to conclude there is a critical need for research involving comprehensive applications of positive behaviour support, involving those relevant in the environment (Snell et al., 2005).

Lane and colleagues conducted a review in 2007 to see how positive behaviour support programs were being applied in high school and if student characteristics dictated their performance within the schoolwide positive behaviour support program. Fourteen studies were found in articles published between 1997 and 2005 that were looking at primary level (Tier 1) positive behaviour supports in secondary schools (Lane et al., 2007). These included information for 63 schools, with only one article specifically talking about high school outcomes (Lane et al., 2007). Outcomes showed a decrease in office discipline referrals, lower levels of aggression, and increases in school safety (Lane et al., 2007). Even though there are numerous studies conducted in positive behaviour support, little research has been done with high school populations.

In 2011 another review was conducted by Chitiyo and colleagues. Chitiyo and colleagues conducted a meta-analysis of existing research using the percentage of non-

overlapping data points (Chitiyo, Makweche-Chitiyo, Park, Ametepee, & Chitiyo, 2011). Studies were included that had used a positive behaviour support intervention to reduce problem behaviour, included a measure of academic achievement, had a single subject design, reported the results graphically, used children who were either diagnosed with a disability or labelled at risk, and interventions studied were either individual or class wide (Chitiyo et al., 2011). Articles were included from ERIC, Info Trac, and PsychINFO from 1996 – 2006 (Chitiyo et al., 2011). There were a total of five articles found totalling 25 participants (Chitiyo et al., 2011). The majority were male, and ranged in age from five years old to 14 years old (Chitiyo et al., 2011). Only four of the participants had been diagnosed with a developmental disability, the others included attention deficit hyperactivity disorder, autism, and emotional behaviour disorders (Chitiyo et al., 2011). Again, there was a category for those not diagnosed with a disability, but considered at risk. The difference between this study and the Snell study, were the inclusion criteria. The Snell study looked at those studies involving functional assessment, while this review focused on using positive behaviour support which had outcome measures for both behaviour and academic achievement (Chitiyo et al., 2011; Snell et al., 2005).

Moderate intervention effects were found on challenging behaviour, but the same was not true for academic achievement (Chitiyo et al., 2011). Those four students with developmental disabilities did not show significant responding to the interventions (Chitiyo et al., 2011). Only three of the five studies showed favourable results for academic achievement (Chitiyo et al., 2011). All the studies included in this review were at the individual or Tier 3 level (Chitiyo et al., 2011).

Another meta-analysis was conducted in 2012. This study undertaken by Solomon and colleagues (2012), who reviewed peer-reviewed journals or published dissertations published between 1993 and 2008. The key words positive behaviour support and schoolwide or whole school were searched, bringing 50 articles for review (Solomon et al., 2012). The dissertation search produced 41 studies and a bibliography from the Positive Behaviour Intervention and Support website produced an additional 53 studies (Solomon et al., 2012). Study inclusion criteria included the use of positive behaviour support on a school-wide level, focusing on change in student behaviour (Solomon et al., 2012). Single case design with graphic displays, containing at least three data points in each phase of the research were also required for inclusion (Solomon et al., 2012). Of these search results, 20 studies were identified for inclusion (Solomon et al., 2012). Of these 20 studies, only 12 were considered to have fully implemented schoolwide positive behaviour support and the other eight were implementing partial components from positive behaviour support (Solomon et al., 2012). Line and bar graphs from each study were coded using a regression based procedure to produce effect sizes (Solomon et al., 2012). Studies were weighted by their number of observation points and confidence intervals were calculated (Solomon et al., 2012). Both experimental and quasi-experimental studies were included in this meta-analysis (Solomon et al., 2012). The number of studies is reflective of the inclusion criteria, only including those studies that were using positive behaviour support on a school-wide level, limiting the number of studies included.

Schoolwide positive behaviour support was seen as more effective in spaces within the school but outside the classroom (Solomon et al., 2012). It was concluded

schoolwide positive behaviour support is moderately effective in reducing problem behaviour in students and robust evidence was seen for student reduction of problem behaviour at the Tier 3 individual level (Solomon et al., 2012). More studies were thought to need to include class wide level evaluations and direct observations (Solomon et al., 2012). Solomon and colleagues (2012) concluded further research efforts need to be undertaken on schoolwide positive behaviour support to show its effectiveness.

Goh and Bambara (2012) conducted a meta-analysis of school based intervention research on functional behavioural assessment and individualized positive behaviour support within school settings, essentially only Tier 3 studies. Eighty-three studies were reviewed including 145 participants (Goh & Bambara, 2012). Studies were compared by the percentage of non-overlapping data points (Goh & Bambara, 2012). PsychINFO and ERIC databases were searched from 1997 to 2008 for peer reviewed journals (Goh & Bambara, 2012). A hand search was also conducted of journals as well as reference lists of previous literature reviews on individualised positive behaviour support (Goh & Bambara, 2012). There were six criteria for inclusion (Goh & Bambara, 2012). The study had to be conducted in a school setting with school aged children, include functional behaviour assessment methodology to reduce problem behaviour with single subject data that was presented in a graphic format (Goh & Bambara, 2012). The majority of participants were in elementary grades and were male (Goh & Bambara, 2012). Fewer than half the participants were diagnosed with a developmental disability, and there were no significant differences found across those diagnosed with a disability and those who were not diagnosed with a disability (Goh & Bambara, 2012). Forty-

seven percent of the participants were receiving instruction in self-contained special education classrooms (Goh & Bambara, 2012). The majority of studies were considered to use short interventions (less than 20 data points), and these interventions showed large effect sizes (Goh & Bambara, 2012). It was found that positive behaviour support for students with and without disabilities in both segregated and inclusionary settings were equally effective (Goh & Bambara, 2012). No difference was seen between grade levels (Goh & Bambara, 2012). Statistically significant differences were found in those interventions that included a team in the decision making process (Goh & Bambara, 2012). Goh and Bambara (2012) point out more research is needed, particularly with specific populations of students.

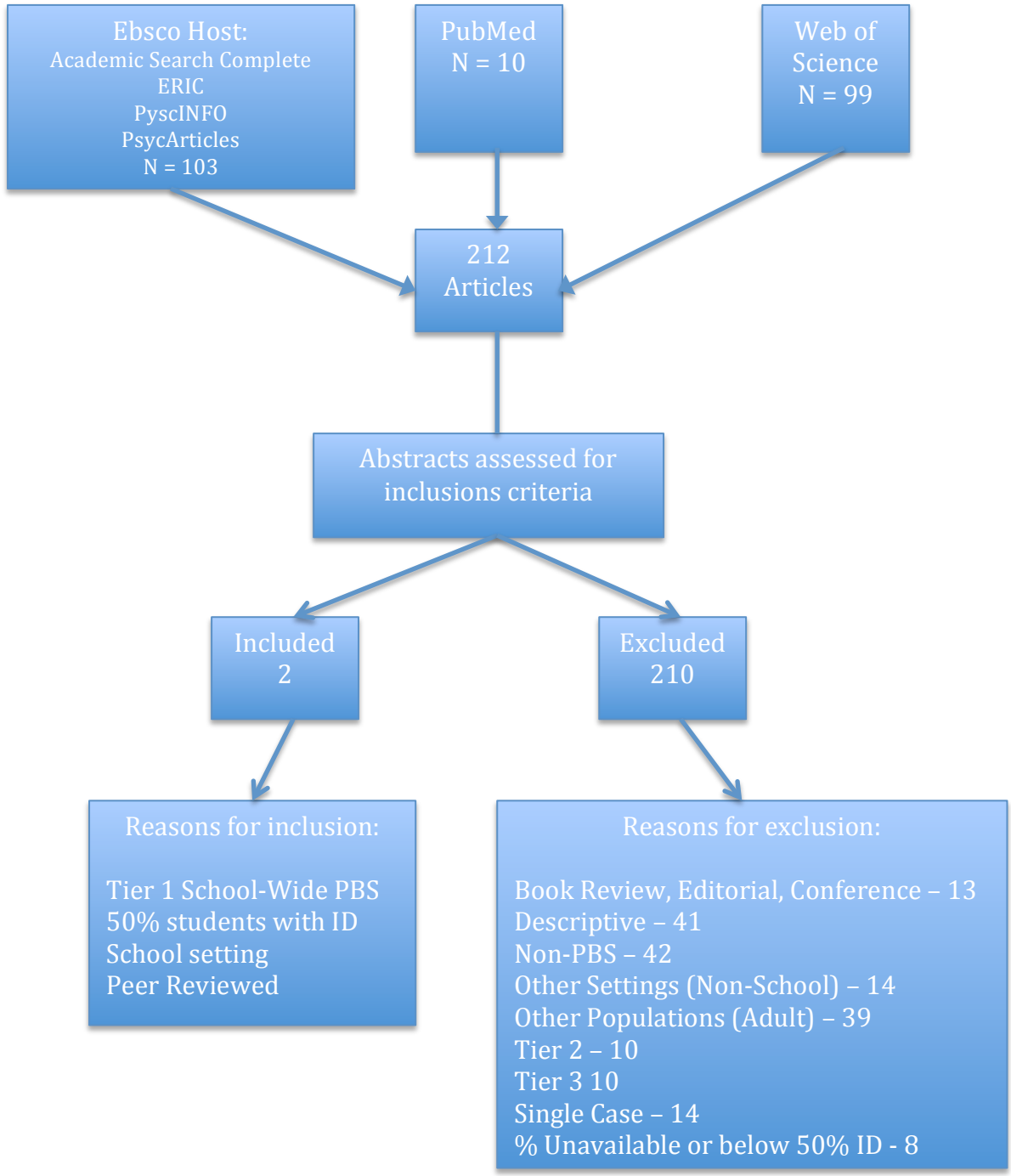
Schoolwide positive behaviour support has been researched and reviewed. Reviews have looked at specific age levels, specific tiers within schoolwide positive behaviour support, as well as specific components, particularly functional behaviour assessments. There is currently no review of schoolwide positive behaviour support being applied at the school level for individuals with intellectual disabilities. As this was the focus of this thesis, this review was undertaken. The methodology and findings are reported below.

### 3.3 Methodology

A review was undertaken to see what other studies had applied schoolwide positive behaviour support to individuals with intellectual disabilities. The review was conducted through the databases of Academic Search Complete, ERIC, PsycINFO, PsycArticles, Pub Med, and Web of Science. Key search terms included positive

behavio(u)r support; school; and intellectual disability or learning disability, or developmental disability, or mental retardation. Initially, school wide instead of school was used with the other two key terms staying the same. The results only produced 34 articles. With school being used along with the other search terms (positive behaviour support and intellectual disabilities), 212 articles were found in peer reviewed academic journals once duplicates had been removed. The search was conducted for articles published between 1994 until 2016.

*Figure 3.1 Systematic review inclusion and exclusion criteria for articles*



Articles included had to have an outcome measure and not just be descriptive in nature. At least 50% of the participants had to have an intellectual disability, and the study had to be conducted on a school-wide level. These criteria were chosen as multiple studies were found on students categorized as having emotional behavioural disorders, and this was not the target population of interest for this thesis. Case study examples were excluded. The study had to take place in a school setting, which was limited to a general education or special school environment.

Inclusion Criteria

- Implementation of Tier 1 schoolwide positive behaviour support
- Students – 50% had to be diagnosed as having an intellectual disability
- School setting
- Peer reviewed articles between 1994 – 2016
- Databases searched Academic Search Complete, ERIC, PyschINFO, PsychArticles, PubMed, Web of Science

Hospital, alternative, or juvenile justice settings were excluded. These settings were excluded due to the variability and lack of applicability to the current research undertaken. Positive behaviour support had to be the basis of the intervention used and evaluated. Studies that did not give a break down of students with and without disabilities were unable to be included. In those studies that did implement schoolwide positive behaviour support with a breakdown of students, multiple studies were found with 11% or fewer students diagnosed with disabilities. This would also include all types of disabilities, not just an intellectual disability as was required for this study. This

was far fewer than the 50% criteria set for the review due to applicability to the current thesis, so these were excluded.

Exclusion Criteria

- Tier 2 or Tier 3 applications of positive behaviour support
- Single case (1 participant) studies
- Settings other than a school
- Populations with unknown levels of intellectual disabilities or less than 50% diagnosed with an intellectual disability
- Adults – aged 18 or over
- Books or book reviews

A second reviewer looked through articles identified in the search. The second reviewer holds a masters degree and serves on a school positive behaviour support committee. There was agreement on all but one article, making the agreement 99.56%. The researcher and second reviewer came to a consensus about the exclusion of the one article due to the fact that there were no data reported, and its descriptive nature.

### 3.4 Findings

Two studies were found that fitted the inclusion criteria; Table 3.2 below gives a brief overview of the two studies. This is followed by a review of both studies.

*Table 3.2 Systematic Review of Positive Behaviour Support in Schools for Students with Intellectual Disabilities*

| Author & Country | Participants | Outcome Measure | Time Frame | Outcomes |
|---|---|---|---|---|
| Hetzroni (2003) Israel | 67 students with intellectual disabilities | Assessment inventory beginning and end of the school year | 1 school year | Communication increase Challenging behaviour decreased |
| Hill & Flores (2014) United States | 50 elementary school students with autism and other developmental disabilities 26 undergraduate and graduate special education teachers | Staff behaviours: Frequency of star behaviour & positive to negative comment ratio Survey of effectiveness | 21 days | Increase in star behaviour (writing positive comments about other staff) |

Hetzroni conducted one study in 2003. The purpose of the study was to investigate augmentative and alternative communication when applied as part of a systematic positive support plan to the whole school for students with intellectual disabilities (Hetzroni, 2003). The school contained nine classrooms with 67 students ranging in age from six years old to 21 years old (Hetzroni, 2003). Each classroom contained seven to ten students (Hetzroni, 2003). Sixty-four of the students were labelled has having a moderate developmental disability, and three as having a severe developmental disability (Hetzroni, 2003). Records were reviewed in regard to behaviour and communication and found consistent according the students'

individualized education plans over the previous two years (Hetzroni, 2003). All students attended the school for seven hours a day, six days a week (Hetzroni, 2003). There was one classroom teacher and one teacher aide in each classroom (Hetzroni, 2003a). All students in the school had an individualized education plan and access to additional services including speech and language therapy, occupational and physical therapy, psychology, and even music and art therapists (Hetzroni, 2003).

The individualized education team met at the beginning and end of each school year to complete an assessment inventory developed for the study (Hetzroni, 2003). This bespoke inventory included demographic information, statements regarding communication difficulties, current levels of communication, and statements about behaviour (Hetzroni, 2003). At the beginning of the study, the school principal introduced the idea of the schoolwide positive behaviour support as well as alternative and augmentative communication (Hetzroni, 2003). The speech and language pathologists (speech therapists) were selected as trainers for the school and they were given weekly time with each classroom for training with the school staff (Hetzroni, 2003). There were two training sessions with the entire school staff, where positive support plans were built for a student in each classroom by the school team (Hetzroni, 2003). The training covered the importance of communication, symbol sets and systems, assessment and intervention using alternative an augmentative communication, intentional communication, assistive technology, and strategies for implementation (Hetzroni, 2003).

Positive behaviour support was introduced as one plan for enhancing the communication of every member of the school (Hetzroni, 2003). Each student was given

a positive behaviour support plan based on data, which were also used to evaluate the plan (Hetzroni, 2003). After the initial workshop, two additional meetings were held at two and four months for questions or refinement of the plan, implementation and evaluations were conducted seven months after the initial implementation at the end of the school year (Hetzroni, 2003).

Decreases in the number of students exhibiting challenging behaviour were seen, from 35 students at the beginning of the year, to two students at the end of the year (Hetzroni, 2003). Hitting, biting, and lying on the floor were eliminated for students who exhibited those behaviours at the beginning of the year (Hetzroni, 2003). The severity of behaviour problems rated on a five point likert scale was seen to significantly decrease (Hetzroni, 2003). The largest numbers of behaviour problems were seen in the adolescent age group (13 – 17 years of age) (Hetzroni, 2003). Five students were selected by school staff for a more in depth evaluation (Hetzroni, 2003). These five students all showed decreases in challenging behaviour as well as an increase in appropriate behaviour that was still seen in the maintenance checks (Hetzroni, 2003). There was however an increase seen in the adolescent age group and the number of challenging behaviours displayed (Hetzroni, 2003).

Statistically significant improvements were found for all the variables measured on communication abilities including number of words, verbal abilities, number of gestures, and number of symbols (Hetzroni, 2003). This was true for students who received both individual and group speech therapy sessions (Hetzroni, 2003). Symbols became adopted into the school for education goals including class routines, labels within the school, communication notebooks and daily living skills (Hetzroni, 2003).

This saturation of symbols within the school could be part of the reason for the increase in the use of symbols by the students.

The author reports the decrease in behaviour problems can be attributed to the increase in communication ability (Hetzroni, 2003). Teacher reports were the main data collection method in this study and should be seen as a limitation since direct observation did not conclude these results. This means teachers reported the change, but no direct observations were conducted to see if an independent observer was able to detect a change. This study conducted a pre and post evaluation looking at scores at the beginning of the school year and then again at the end (Hetzroni, 2003). However, some changes may have occurred for reasons other than positive behaviour support and alternative and augmentative communication (e.g. developmental maturation, or getting used to the school setting or new teacher etc.) This study had methodological strengths in using the same measures pre and post, but the rest of the methodology had limitations. By only using a pre and post measure that was subjective to teacher report, it is unknown if these changes actually occurred. As mentioned previously an independent observer could have addressed this methodological weakness. Observations of behaviour change are considered more robust than teacher report. Additionally, this study has not been replicated to see if the same changes would have been seen the following school year, within a different school, or even with another set of students. As mentioned above, the introduction of augmentive and alternative communication could also account for the behaviour change, as opposed to the positive behaviour support plan. By giving students the means to communicate, and the instruction, they may have engaged in less challenging behaviour as they were able to

communicate. While this study has obvious limitations, given the small body of research within the school population of individuals with intellectual disabilities, it has value to the field of positive behaviour support research.

The second article included is by Hill and Flores in 2014. In this study, 26 pre-service teachers were teaching extended school year to 50 elementary students with autism and developmental disabilities from four school districts (Hill & Flores, 2014). Teachers were all masters level teachers, with assistant teachers possessing an undergraduate degree (Hill & Flores, 2014). The extended school year was offered to students who would experience slower recuperation of skills and considerable regression over the summer break. The program lasted 21 days with three hour daily sessions, five days a week (Hill & Flores, 2014). Each classroom served four to eight students with one teacher and two teaching assistants (Hill & Flores, 2014). The school expectations were "Be Respectful, Be Responsible, Be Safe" and tickets were awarded for following these expectations (Hill & Flores, 2014). These tickets were then traded in for incentive items including crayons, stickers and erasers (Hill & Flores, 2014). In addition, all students received a daily behaviour report card, which would also serve to earn an incentive if the expectations were met at the end of the day check up (Hill & Flores, 2014). Results were not given on student improvement during the summer program, but the positive behaviour support was extended to the staff to model and help them fully understand how to implement positive behaviour support with their students.

Staff were provided with two days of training prior to the start of the extended school year (Hill & Flores, 2014). The staff expectations were to be "proactive, positive, and professional" (Hill & Flores, 2014). During these two days of training expectations

were defined in observable measureable terms (Hill & Flores, 2014). Proactive was defined as planning ahead, anticipating requirements, having the room and instruction materials ready (Hill & Flores, 2014). Positive included using a positive to negative comment ratio of 5:1, focusing on students positive behaviour and reinforcing it, and using positive language (Hill & Flores, 2014). Professional was defined as being on time, meeting expectations, communication, and dressing appropriately (Hill & Flores, 2014). Staff received star notes that were drawn for prizes based on a preference assessment conducted with the staff (Hill & Flores, 2014). Additional training was provided during the summer along with written evaluations of staff performance (Hill & Flores, 2014).

Staff were encouraged to write notes about other staff for following expectations (Hill & Flores, 2014). There were two phases for this research (Hill & Flores, 2014). One phase included staff writing positive notes regarding other staff and publically posting the notes on the staff bulletin board (Hill & Flores, 2014). The second phase consisted of the researcher taking those notes and drawing for a prize chosen by the preference assessments conducted previously (Hill & Flores, 2014). Those who won had their notes read aloud during a meeting and were awarded a prize (Hill & Flores, 2014). These phases were administered in four-day intervals (Hill & Flores, 2014), with four days of public posting, four days of drawing names and reading aloud those who won (Hill & Flores, 2014).

Positive to negative comments ratios were observed in five-minute sessions in eight of the nine classrooms (Hill & Flores, 2014). The researcher either stood outside the classroom or acted as though they were in the classroom for other business (Hill &

Flores, 2014). Finally a survey was administered at the end to gain the staff perception of satisfaction (Hill & Flores, 2014). In total, 97 stars were earned by the staff with a range of one to seven stars and a mean of 3.7 stars (Hill & Flores, 2014). The most stars earned were on the last day of the intervention (Hill & Flores, 2014). The mean of total comments were 11:1 with a range of 0 – 22 positive comments, and 0 -1 negative comment for the first round data collection and 16:1 with a range of 3 – 26 positive comments and a range of 0 – 4 negative comments for the second round of data collection (Hill & Flores, 2014). (Both of these data collections happened after training, providing no baseline ratio of positive to negative comments.) Twenty-three staff elected to complete the survey, and all reported that they found the exercise valuable (Hill & Flores, 2014).

Secondary supports were provided to teachers in the form of additional sessions regarding PECS (Picture Exchange Communication Systems), and no tertiary supports were provided (Hill & Flores, 2014). The study showed an increase in writing positive comments when the intervention phase was introduced, drawing for a prize (Hill & Flores, 2014). The authors reported this increased the staff knowledge of how students would experience positive behaviour support, as well as their understanding (Hill & Flores, 2014). The staff also reported a more positive climate within the school, which the authors hope would reduce teacher stress and enhance teacher retention (Hill & Flores, 2014). However, the study can be criticized for not conducting baseline observations regarding positive to negative comment ratios. This gives no way to know if increases were made prior to the intervention. Additionally, while positive behaviour support was implemented with the students, no data was reported for student

behaviour. Therefore, it is unknown if the implementation with the students showed any effect on behaviour or academic performance.

This study had some methodological strengths, which included having direct observations and having several phases, but still did have some limitations. The study did directly observe teachers for positive praise, but did not conduct a baseline phase. Therefore it is unknown what the positive praise was prior to any intervention at all. The teachers targeted for intervention could have been at a higher rate of praise prior to any intervention, making the claims less remarkable. This was balanced with the phase changes within the study. There was seen to be higher rates of praise during the phase where prizes were drawn, suggesting the intervention did have an impact, even if the teachers were already at a higher rate of praise. As in the Hetzroni (2003) study reviewed previously, there is limited research at looking at Tier 1 interventions within the school setting where the majority of the student population is individuals with intellectual disabilities. For this reason, this study and the Hetzroni (2003) study are valuable to the small body of research and show an area that additional research is needed.

### 3.5 Discussion

As can be seen in the above studies, schoolwide positive behaviour support has not been studied extensively for use with a majority school population of students with intellectual disabilities. The Gresham et al. (2004) review looked at 150 articles that utilized positive behaviour support in the Tier 3 or individual level. This shows a broad literature basis for positive behaviour support, and this is the level of intervention

typically utilized for individuals with disabilities. While this is a positive step forward for positive behaviour support, this study did not just look at students with intellectual disabilities and needs, again showing the need for more studies within this population in regards to the benefits of positive behaviour support. Goh and Bambara (2012) also looked at the Tier 3 level of positive behaviour support within school age students with and without disabilities. Again this review was the second largest in terms of research results. This shows the Tier 3 area, or individual intervention is the most researched within positive behaviour support and is what is most closely aligned with applied behaviour analysis. While these studies are valuable and adding to the growing body of research to support positive behaviour support, looking at the universal or systems level is essential to make broader changes. The Snell and colleagues (2005) study did look individuals with intellectual disabilities, again on an individual level but not in a school setting. While this does show value for positive behaviour support, the lack of school setting shows the need for more research within this setting and within the population of individuals with intellectual disabilities.

The Lane (2012) and Solomon (2012) reviews did focus on schoolwide intervention at the Tier 1 level but not specifically for students with intellectual disabilities. The Lane et al. (2012) study only looked at secondary students, while the Solomon et al. (2012) study did not set an age range. These reviews both had 20 or less articles, even when combined, this is not a large body of research regarding Tier 1 positive behaviour support within the school setting regardless of population. These reviews show that while there is beginning to be a body of research showing how universal interventions in the school can be effective, more research is needed and

within broader school age populations including secondary schools and schools who service individuals with intellectual disabilities as their primary students. Tier 3 or individual interventions have been demonstrated to be effective with these individuals. While this is pertinent to positive behaviour support, this finding shows change at an individual level, not a systems level. This school-wide or systems approach needs evaluation to ensure its applicability to students with intellectual disabilities.

The Chitiyo (2011) is most closely aligned with what this current review was attempting to do. They looked at Tier 2 or small group intervention for students with disabilities in the school setting. They were only able to find five articles; again showing this population needs more research in terms of positive behaviour support (Chitiyo et al., 2011). Positive behaviour support has been adopted by many as the way forward for serving individuals with disabilities, but Chitiyo's review and the review conducted in this thesis, show the need for more research particularly in the small group and schoolwide settings.

Future research is highly needed. As PBS is contested and its effectiveness not yet completely accepted, research is needed to show the effects of Tier 1 universal intervention for positive behaviour support for individuals with intellectual disabilities. There is a larger body of research regarding using positive behaviour support in the individual or Tier 3 level. If its effectiveness can work on an individual level, then it follows that the universal or Tier 1 level should also be explored. This would allow a larger number of individuals with intellectual disabilities the ability to access support with limited resources. Research needs to focus on what changes can be done at this level, and give others procedures that are replicable in other school settings.

Implementing positive behaviour support on a schoolwide or even class wide level is less labour intensive for educators, essentially making it easier if found to be more effective. If change can be made at the universal or Tier 1 level, extensive interventions at the Tier 2 and Tier 3 levels would not be needed. It seems as though, this is an area where research is surely needed to not only verify the effects of positive behaviour support at a universal level for persons with intellectual disabilities, but also to help alleviate the effort involved in individualizing interventions for each student.

# Chapter 4 – Study 1

In this chapter, a brief literature review will be given reminding the reader of the prevalence of challenging behaviour in the population of persons diagnosed with an intellectual disability. A brief summary will also be given of how challenging behaviour affects school staff. These issues were addressed in more detail in Chapter 1. The chapter will also explain the purpose of the survey, and explain the survey undertaken in this thesis. Results will be given with a discussion to conclude the chapter.

## 4.1 Background

As discussed in Chapter 1, persons diagnosed with intellectual disabilities can display challenging behaviour. Challenging behaviour can include aggression, self-injury, and/or stereotypy and a number of other behaviours. Challenging behaviour is defined by causing harm to the person themselves, others around them, or impacting on the person's quality of life (Emerson & Einfeld, 2011). It is important to remember challenging behaviour is a social construction. This is due to the fact challenging behaviour is defined by what is considered appropriate behaviour in a given setting, the ability of the person to explain their behaviour, the beliefs of others within the setting, and the capacity of the setting to manage the disruption caused by the challenging behaviour (Emerson & Einfeld, 2011; Lowe & Felce, 1995).

Students with intellectual disabilities, spend a great amount of time within school and occasionally show challenging behaviour. School staff perceive challenging behaviour as stressful (Kiernan & Kiernan, 1994). School staffs' perspectives have a significant impact on how they react to students who exhibit challenging behaviour, as

well as impacts on their own work stress, and work satisfaction (Hastings, 2002). The putative cause of challenging behaviour and the emotional response of staff has been shown in the literature to influence how school staff deal with the challenging behaviour (Male, 2003).

Harris (1993) conducted an early study on staffs' perspectives of challenging behaviour. Feelings towards the pupils who displayed these behaviours were found to be frustration, anger, stress, and determination (Harris, 1993). Male (2003) also conducted a study with a survey of school staff to find out the following: which aspects of challenging behaviour concerned school staff, school staffs' responses to challenging behaviour, what school staff believe causes challenging behaviour, and how stressed school staff felt. These items were assessed by a questionnaire taken from twelve different local education authorities that all had special schools (Male, 2003). The responses were obtained for only severe learning disability schools and students who ranged in age from five to 16 years (Male, 2003). School staff were categorized by additional qualifications, and experience, defined as greater than five years (Male, 2003).

The results of this study showed school staff were concerned about challenging behaviour and found challenging behaviour to be stressful (Male, 2003). The most frequently reported type of challenging behaviour was aggression, but staff reported self-injury to be the most challenging to them (Male, 2003). School staff reported challenging behaviour to be a form of communication, but they used strategies for defusing challenging behaviour rather than teaching other communicative skills (Male, 2003). More experienced and qualified teachers were found to be more consistent in

their answers and approaches for students who display challenging behaviour (Male, 2003).

Frustration was the emotion mentioned the most (Male, 2003). The school staff sought advice from other school staff, including teachers and teaching assistants, rarely seeking outside professionals for help (Male, 2003). Male (2003) felt this finding showed the need for school staff to be able to access professional advice. Additionally, Male (2003) also thought schools need to identify training needs to support teachers to be more effective in dealing with challenging behaviour.

Male and May (1997) conducted a postal survey for 56 schools, eight which catered for pupils with moderate intellectual disabilities, eight for severe intellectual disabilities, and eight for emotional behavioural disorders. The aim of this study was to look at stress, a topic in schools which is rare in the research literature. In all three of the special school settings, a high level of emotional exhaustion was reported, as measured on the Maslach Burnout inventory (Male & May, 1997). Teachers of students with severe intellectual disabilities reported longer working hours and work overload (Male & May, 1997). The sources of stress were created from work load and challenging behaviour (Male & May, 1997). Challenging behaviour ranked as the most intense source of stress for school staff for emotionally behaviourally disordered students, and second for students with severe learning difficulties (Male & May, 1997). These findings show there is need for training to ensure these teachers can deal with the stress and be effective with their students (Male, 1997).

In summary, school staff feel an extra level of stress and exhaustion when managing students who display challenging behaviour. Given support from

professionals with expertise and being integrated within the school could potentially lower stress for school staff (Male & May, 1997). These findings were not conclusive but preliminary and suggest a place where additional research could help. With school staff able to better manage challenging behaviour, pupils would gain more access to curriculum. By providing staff with resources both the staff and students become less impacted by the challenging behaviour.

**Purpose**

The web based survey within this thesis was conducted to ascertain a prevalence number from the schools of how many pupils are engaging in challenging behaviour, the topography of the challenging behaviour, frequency and impact of the challenging behaviour, and what support the school staff are receiving. The goal of gathering this information was to understand the school staffs' perspectives of the prevalence of challenging behaviour in the southeast of England's special schools, the current resources available, and level of support felt by the school staff. The hypothesis was staff would not have received substantive training in positive approaches to managing challenging behaviour. Below are the research questions that were proposed for this survey:

**What is the prevalence of student challenging behaviour in schools within the southeast of England?**

**What input is given to school staff when a student displays challenging behaviour?**

**If input is given, do school staff find this input to be effective?**

## 4.2 Methodology

Below is a brief review of survey methodology, and the specific steps taken to conduct the survey presented in this chapter. This is not meant to be an exhaustive review of survey methodology, but a brief overview to understand why a web survey was chosen when conducting this research.

### 4.2.1 Survey Methodology

Surveys are intended to gather information or opinion. With all survey methodology, there are caveats. There is no guarantee accurate information is provided, or the intended recipient is the one completing the survey (Wright, 2005). Duplicate responses can be completed in various formats, but this issue is particularly concerned with web-based formats. Surveys tend to suffer from bias, due to the nature of those invited to participate. There will naturally be a group that is more likely to complete the survey, than others. This in itself could provide bias of the sample surveyed (Wright, 2005). This can keep the researcher from being able to accurately estimate populations or make generalizations about a group (Wright, 2005).

Web based surveys allow researchers to conduct thousands of surveys in minutes, with immediate answers, already coded and ready for statistical analysis. Web surveys have been used to find out about interpersonal skills (Parks & Floyd, 1996; Tidwell & Walther, 2002; Wright, 2004) , health (Rice & Katz, 2001), and mass communication (Flaherty, Pearce, & Rubin, 1998; Flanagin & Metzger, 2001) to name a few areas of research. Three advantages to conducting a web survey include decreased

costs, faster response times, and increased response rates (Cobanoglu, Warde, & Moreo, 2001; Cook, Heath, & Thompson, 2000; Lazar & Preece, 1999; Oppermann, 1995). Web based surveys can also reach a large number of potential respondents, check the data for quality, offer confidentiality, and offer a variety of question formats (Jansen, Corley, & Jansen, 2007). The ability to reach populations quickly, allows surveys of greater scale for researchers, saving them time and resources, allowing for broader data collection. These quality checks can help to improve the reliability of the data (Jansen et al., 2007). The ability to tailor question formats allows responses based on previously asked questions, sending the user to the appropriate next question. Web surveys also offer the advantage of having the data entry completed for the researcher, and can offer a further ability to export data to statistical software, such as SPSS (Wright, 2005).

Web based surveys are considered a strong survey methodology (Jansen et al., 2007), but do offer less control over the sample, along with the threat of technology problems or inexperience with respondents (Jansen et al., 2007). A recommendation from previous survey research is to ensure alternative methods of completing the survey when technology fails, or if the user is uncomfortable with the format, essentially using a mixed mode design (Jansen et al., 2007). Mixed survey methodology (collecting surveys by than more than one method) improves the response rate. Other recommendations from previous research include providing summary information when the survey is complete to participants and ensuring contact information for the researcher is included with the survey (Wright, 2005).

Some studies have examined differences between paper pencil and web based survey methodology. For example, a survey was conducted for caregivers of persons

with Alzheimer's disease (Query Jr & Wright, 2003) to see if there were differences in responses when presented with both a paper survey and a web survey. No significant differences were found between the paper pencil survey and the web survey (Query Jr & Wright, 2003). Cook and colleagues conducted a meta-analysis of response rates in web or internet based surveys (Cook et al., 2000). Surveys in general do not have a have good response rate, with less than 40% being common (Kerlinger & Lee, 1999). Cook and colleagues (2000) coded results from 68 electronic surveys for their meta-analysis, independently rated by two parties. They found the mean response rate to be 39.6%, with surveys being complete for 34.6% of the surveys coded (Cook et al., 2000). Follow up to non responders was also coded, and it was reported that an increase can be expected with follow up, but the larger numbers of follow ups resulted in a decrease in survey responses (Kittleson, 1997). A few other findings are summarized below regarding the benefits of web surveys. The number of contacts, personalized contacts, and pre contacts were the factors that were most associated with higher response rates in the web studies (Cook et al., 2000). Another advantage noted was that web surveys remain in contact with the respondent until they are deleted; this offers an advantage over paper pencil surveys (Sheehan & Hoy, 1999).

Cobanoglu and colleagues (2001) conducted a survey to compare mail, fax, and web-based surveys in a university setting for speed, response rate, and costs. Three hundred hospitality professors were the target respondents and fax was found the fastest response method, but the highest response rate was for web surveys (44.21%) as compared to 26.27% for mail surveys (Cobanoglu et al., 2001). A cover letter was personally addressed to each professor, with instructions on how to respond with a link

to the web-based survey (Cobanoglu et al., 2001). Web-surveys were also shown to produce the best response quality, and most complete surveys, while costing the researchers the least amount of money ($0.00) (Cobanoglu et al., 2001). The response rates reported for this study were similar to those found in previous studies (Bachmann, Elfrink, & Vazzana, 1999; Kiesler & Sproull, 1986; Parker, 1992). The recommendation was to use web-based surveys for educators due to the low cost and higher response rate (Cobanoglu et al., 2001). Educators already have web and email access and the automatic coding saves the researcher time and additional resources.

Kaplowitz, Hadlock, and Levine (2004) conducted a survey with over 17,000 students at Michigan State University. The recipients were divided into five groups, and each group was given a different survey mode. Group one received a postcard, two hard copies of the survey, as well as a reminder postcard (Kaplowitz, Hadlock, & Levine, 2004). Group 2 received a postcard in the mail and then an email of the survey (Kaplowitz et al., 2004). Group 3 received a postcard in the mail, an email survey, and a reminder postcard in the mail (Kaplowitz et al., 2004). Group 4 received an email and follow up postcard (Kaplowitz et al., 2004). Group 5 received just an email containing the survey (Kaplowitz et al., 2004). The five groups were considered to have substantially equivalent data (Kaplowitz et al., 2004). There was a statistically significant difference in response rates between the mail and email surveys in terms of response rates, with mail surveys bringing a higher response rate (Kaplowitz et al., 2004). The follow up post card had a positive effect on the response rate of the surveys (Kaplowitz et al., 2004). This result was also found by Kittleson (1997).

This brief overview gives some of the advantages of web based survey methodology for conducting a larger scale survey, including ease of data management and immediacy of responses (Cobanoglu et al., 2001; Jansen et al., 2007). This section also highlighted some of the limitations of survey methodology in general, including lack of control in who completes the survey, which leads to the inability of the researcher to make assumptions or generalizations about the population surveyed (Wright, 2005). Below the methodology employed for the survey undertaken in Study 1 is explained.

### 4.2.2 Participants

The participants included school staff that supported students with intellectual disabilities within the southeast of England. This included teachers, head teachers, teaching assistants, therapists, and any other person who interacted with the students on a daily basis. This school staff were solicited from 39 special schools in Kent and Medway.

### 4.2.3 Setting

Within Kent and Medway, 39 schools were identified which were contacted to take part in the research study. These schools included local authority, private schools, and charity schools. These schools were identified through the Kent County Council list of special schools and Medway County Council list of special schools.

### 4.2.4 Measures

This survey was created in coordination with the faculty at the Tizard Centre and was distributed via Survey Monkey to the schools chosen for research. The measure used was the School Staff Perspectives of Challenging Behaviour Prevalence Survey

(Appendix A). This survey asked school staff to give annonymised characteristics for each student they supported, regardless of whether they displayed challenging behaviour or not. A return was expected for every student the school staff served. They were further asked to answer a series of questions for those students who displayed challenging behaviour (students were not named). The definition of challenging behaviour and categories of challenging behaviour have been taken from the *DC-LD: Diagnostic Criteria for Psychiatric Disorders for Use with Adults with Learning Disabilities/Mental Retardation* (Royal College of Psychiatrists, 2001), an established diagnostic tool. For students who displayed challenging behaviour according to these definitions, the staff's perspectives of the frequency and impact of these behaviours were scored. Additionally, there were questions pertaining to what services the students with challenging behaviour received within the school, and from external sources. The staff gave their opinion of the service, and provided the frequency of input.

The survey covered demographic information for all students within the school. This included age, sex, ethnicity, impairments, diagnosis, intellectual disability level, and health conditions. The survey then asked the respondent to assess whether or not the student had a challenging behaviour according to the definition below:

> ***One*** *of the following is present.*
>
> 1) *The behaviour results in a significant negative impact on person's quality of life or the quality of life of others. This may be owing to restriction of his or her lifestyle, social opportunities, independence, community integration, service-access or choices of adaptive functioning.*
> 2) *The behaviour presents risks to health and safety of the person or others*

3) *Significantly disrupts the learning of the child or others*

***and Both*** *of the following are present.*

a) *The child displays behaviour of significant frequency, severity or chronicity as to require special support (even if there are no actual resources to provide this)*

b) *The behaviour is pervasive. It is present across a range of persons and social situations, although maybe more severe in certain identified settings*

If the answer is no, the survey is discontinued. If the answer is yes, then the respondent is asked to categorize the challenging behaviour as aggressive, destructive, self-injurious, sexually inappropriate, oppositional, or other, not specified above. Once the behaviour is categorized, the respondent is asked how frequently the behaviour occurs; hourly, daily, weekly, monthly, less than monthly and the impact; not a problem at all, slight problem, moderately serious problem, or severe problem.

. Aggression was defined as:

*The child uses or threatens violence (verbal and/or physical aggression).*

*Severity may range from pushing, slapping and physically intimidating to punching, kicking, biting, pulling the hair of others, and more serious physical assault.*

Self-injury was defined as:

*The child self-injures in a way sufficient to cause tissue damage such as bruising, scarring, tissue loss and dysfunction. This may range form skin-picking/scratching, hair-pulling, face-tapping/slapping to biting hands, lips and other body parts, rectal/genital poking, eye-poking and heading banging*

*The behaviour is not a deliberate suicide attempt.*

Sexually inappropriate behaviour was defined in the survey as:

*The child touches, fondles or kisses another person/other people in a way that is unwelcome and/or offensive. This behaviour may also include obscene communications, genital exposure, public masturbation and sexual assault. The child has shown these behaviours within the last 6 months.*

Oppositional behaviour was defined as:

*The child demonstrates persistent, defiant and uncooperative behaviours ranging from defying rules and requests to refusing to move, or socially engage/disengage. It may also include more disruptive behaviours such as lying in the middle of the road.*

There were also questions asking what the behaviour looks like, if medication has been used and the staff's perspective on its effectiveness. Another section ascertained input given from professionals including communication and psychology, the type of input given (report, written recommendations, one to one sessions, group sessions, training of staff, or monitoring of student), the frequency of the input (weekly to one time), and a rating of impact on the child's behaviour (no difference, made things better, or made things worse). The final section asked about training, frequency and impact, and allowed staff to share any input that had made a difference in the child's behaviour.

### 4.2.5 Procedure

Since all school staff have an email account and are expected to have communication from their school via email, a web survey solicited via email was chosen for the cost savings and time savings to the researcher. Survey Monkey was used to conduct the web based survey. Survey Monkey is a survey website which allows using free email support, and a server on which to store not only the survey but also the responses (SurveyMonkey, 2016). Survey Monkey ensures the data is owned strictly by the researcher and utilizes a state-of-the-art infrastructure to make sure the data collected is safe (SurveyMonkey, 2016). Question types included textboxes, drop down menus, and filter questions, allowing the survey to guide the user to the next appropriate question given a yes or no answer. Survey responses were also downloaded into Excel directly from Survey Monkey minimizing any errors in data entry and allowing the researcher to import into SPSS for data analysis.

The head teacher was sent a personally addressed email containing the letter below:

> *Challenging behaviour displayed by pupils in the classroom can be anything from aggression to disruption. Challenging behaviour not only impacts the pupil who displays the behaviour, but also the other pupils in the classroom, and the staff supporting these pupils. Challenging behaviour is not displayed by all children with special educational needs or intellectual disabilities, but can cause parents and school staff to feel stressed when supporting these children.*
> *A survey is being conducted on school staffs' perspectives of students who exhibit challenging behaviour by the University Kent, Tizard Centre. This an electronic survey that will allow school staff the ability to share their opinions anonymously, of challenging behaviours' impact, what they consider the most challenging*

*behaviour to be, and ways of supporting challenging behaviour. This will help to identify good practice and support schools and services even further in the future. If you are happy for your school staff to take part, please reply to this email and receive an email with the survey link, or let the researcher know you would like to meet in person, and she will be happy to arrange a visit. You may contact the researcher by phone at 07703 628 662 or at kf79@kent.ac.uk. The researcher will phone you within the coming weeks to discuss the proposed survey.*

*Thank you for taking the time to take part in our research.*

*Regards,*

*Karen E. Hans, M.A., BCBA*
*PhD Student*
*Tizard Centre*

If the school agreed to participate, the head teacher was asked their total enrolment and sent the following letter to disseminate to any staff who worked directly with students, reminding them to have only one survey per student completed:

*Dear Sir or Madam,*

*Challenging behaviour displayed by pupils in the classroom can be anything from aggression to disruption.* ***Challenging behaviour*** *not only* ***impacts*** *the* ***pupil*** *who displays the behaviour, but also the* ***other pupils*** *in the classroom, and the* ***staff*** *supporting these pupils.* ***Challenging behaviour*** *is not displayed by all children with special educational needs or intellectual disabilities, but can* ***cause*** *school* ***staff*** *to* ***feel stressed*** *when supporting these children.*

*A survey is being conducted for research on school staff perspectives of students who exhibit challenging behaviour. This is an electronic survey that will allow you*

*the ability to share your opinions of challenging behaviours' impact, how to best manage challenging behaviour, and what you consider the most challenging behaviour to be. Your input and time to complete this survey is valuable, and will help to identify good practice and support schools and services even further in the future.*

*The link to the survey is included within this email. Please have one staff member from each classroom fill out a survey for each child they support. You may skip questions or discontinue the survey at any time. If you need assistance, or have questions, you may contact the researcher by phone at 07703 628 662 or by email at kf79@kent.ac.uk.*

*By clicking the link below you agree to take part in the survey. No identifying information will be taken, and your answers will remain confidential.*

*https://www.surveymonkey.com/s/School_Staff_Perspectives_of_Challenging_Behaviour*

*Your School Code is:*

*Thank you for taking the time to take part in our research.*

*Regards,*
*Karen E. Flotkoetter, M.A., BCBA*
*PhD Student*
*Tizard Centre*
*University of Kent*
*07703 628 662*

The instructions once the survey link opened advised staff to complete the survey for each student they served (regardless of whether they displayed challenging behaviour),

and only complete one survey per student. A follow up phone call and email was then sent to the head teacher to disseminate the survey to the school staff twice, including the researcher's contact information for further questions. If some staff had completed the survey, this was shared with the school regarding completion numbers and asked for additional prompts to ensure a higher response rate.

Schools were contacted twice for follow up due to a low response rate. This constituted a reminder email sent to the head teacher, along with a phone call to the school to discuss the school's participation in the survey. The researcher also offered to attend each school with a laptop and provided any support necessary for the survey to be completed. No schools ever agreed to the researcher coming to campus.

#### 4.2.6 Ethics

The Tizard Ethic's committee, and research and governance from both Kent and Medway County Councils approved this study.

#### 4.2.7 Consent

Head teachers were sent details of the study via email and asked if they wished for their school to participate. If head teachers agreed, a letter via email was sent to school staff with a link to the online survey. A statement within the email stated if you agree to take part in the survey, click on the link below. School Staff had the option to participate or not. By clicking on the link, and participating in the survey, staff gave their consent. Once within the survey, the staff could terminate the survey at any time. All data from the survey was anonymous and done electronically, giving the researcher no access any identifying details.

## 4.3 Analysis

School results were analysed as a whole and by individual school. Only questions completed could be analysed. As this was the school staff's perspective, there was no way to account for missing data. Throughout the results, the N is provided to help the reader understand what portion of responses were available for those results. Additionally, all numbers given will be rounded to the second decimal place.

Questions with an answer were incorporated into the total and percentages calculated for each type of challenging behaviour and support received. Additionally, those questions, which asked staff to rate their responses on a likert scale, were again reported by percentage of staff responding to each value on the scale. Prevalence was to be calculated as total responses and school by school, but due to the low number of responses, this was not possible.

## 4.4 Results

Thirty-nine schools were identified to take part in the survey. Of the original 39 schools, two schools could not be contacted, even though they were still listed on the Kent county council and Medway website as schools for students with disabilities, leaving 37 schools able to be contacted. Only five schools responded and agreed to take part, giving a response rate of 12.82%. For the schools that completed the survey, a total enrolment at the time was not given, nor was it listed on the county council website, except for one school, which will be reported below. This leaves the researcher unable to estimate the response rate. Through personal knowledge of two schools, the researcher knows the schools did not respond for their entire student population.

Therefore, estimating prevalence of students with challenging behaviour will be impossible from the information provided. Additionally staff were asked to complete the survey for all students, not just those displaying challenging behaviour. The majority of surveys completed were completed for those students who displayed challenging behaviour, again leaving prevalence estimates unable to be reached.

First the data as a whole will be presented, and then school by school data will be presented. A total of 71 responses regarding students were obtained from school staff for the survey. Of those responses obtained for both students who were reported as displaying challenging behaviour and those who were reported as not displaying challenging behaviour, staff reported 19.6% of the students were female, and 80.4% were male. The ages ranged from four years of age to 18, with a median age of 11. The majority (74.5%) were white British, with other ethnicities reported as black, African, and mixed ethnicities. Participants were asked if the student had a sensory impairment, and 28.2% were reported as having an impairment. An official autism spectrum disorder diagnosis was reported for 70.9% of the students, and a further 37.5% of those not diagnosed were reported to display characteristics of an individual with an autism spectrum disorder. The level of the intellectual disability was reported for the students, with severe intellectual disabilities being reported as the highest at 50.0%, moderate being 46.3%, mild as 1.9% and profound as 1.9% of the population. Participants were asked if the students they were reporting on had a clinical diagnosis, 28.2% of the students were reported as having a diagnosis, with attention deficit hyperactivity disorder being the highest reported diagnosis at 12.7%. Students were also reported to have health conditions: 22.5% were reported as having a health condition, with the

majority being multiple conditions. Table 4.1 below gives an overview of each school responding, with more than 2 responses, with their demographic breakdown.

*Table 4.1 Demographic Data of Survey Responses by School*

| | Total Survey Responses | Age Range | % Male | % White British | % ASD | Intellectual Disability % | % Health Condition | % Sensory Impairment |
|---|---|---|---|---|---|---|---|---|
| School 11 | 43 | 6 – 18 | 83.87% | 70.97% | 76.67% | 2.33% Mild<br>44.83% Moderate<br>48.28% Severe<br>2.33% Profound | 21.21% | 30.30% |
| School 37 | 18 | 4 – 12 | 70.59% | 68.75% | 58.82% | 58.82% Moderate<br>1.18% Severe | 22.22% | 35.29% |
| School 5 | 4 | 5 – 10 | 100% | 100% | 75.00% | 25.00% Moderate<br>75.00% Severe | 100% | 50.00% |

Outside of these demographics, the main aim of the survey was to understand student challenging behaviour and how it impacted the staff. Along with this impact, current service provision and staff's satisfaction was also surveyed. This was to inform the researcher of the current state of service provision and how supported staff felt. The tables below provide an overview of the responses in relation to challenging behaviour. Of the 71 respondents, 53 responses were given to the question if the student engaged in challenging behaviour. Of those 53 responses, 51 stated the student presented with a challenging behaviour making the rate of those surveyed 96.2% for displaying challenging behaviour. Below Table 4.2 gives a break down by type of challenging

behaviour displayed, along with the frequency staff reported the student displayed the behaviour.

*Table 4.2 Type and Frequency of Behaviour by Type*

| | N (Number of Responses) | % of Students Reported Displaying | Less than Monthly | Monthly | Weekly | Daily | Hourly |
|---|---|---|---|---|---|---|---|
| Aggression | 53 | 50.7% | 0.0% | 5.7% | 25.7% | 42.9% | 25.7% |
| Destruction | 49 | 44.9% | 0.0% | 9.1% | 45.5% | 36.4% | 9.1% |
| Self-injury | 49 | 26.5% | 7.7% | 7.7% | 38.5% | 38.5% | 7.7% |
| Sexually Inappropriate | 47 | 19.1% | 11.1% | 22.2% | 55.6% | 11.1% | 0.0% |
| Oppositional | 49 | 83.7% | 4.9% | 4.9% | 26.8% | 46.3% | 17.1% |
| Other | 48 | 79.2% | 0.0% | 13.5% | 21.6% | 37.8% | 27.0% |

Table 4.2 shows the highest percentage reported was for oppositional behaviours (83.7%). The N is the number of staff who answered this question in relation to a student. Therefore, the N equals the number of students reported on for the question. This is given as each question has a different N; therefore, it is difficult to make comparisons between the questions. All behaviours were rated as occurring either daily or weekly for at least one child, showing the challenging behaviour is a constant within the classroom and something that must be dealt with by the classroom staff.

Table 4.3 below shows the impact of challenging behaviour has in relation to the staff's view of how serious the problem is. Four of the six categories of challenging

behaviour were rated as a moderately serious problem. The other two behavioural categories (self-injury and sexually inappropriate behaviour) were rated as a slight problem. It was unexpected that these two behaviours were rated as a slight problem. Sexual inappropriateness even on an infrequent scale would have been assumed to be rated as a larger problem, due to the nature of the behaviour. The same for self-injury, as even the name implies injury to a person.

*Table 4.3 Impact of Behaviour by Type*

| | Not a Problem | Slight Problem | Moderately Serious Problem | Severe Problem |
|---|---|---|---|---|
| Aggression | 0.0% | 28.6% | 45.7% | 25.7% |
| Destruction | 4.5% | 27.3% | 59.1% | 9.1% |
| Self-injury | 0.0% | 53.8% | 38.5% | 7.7% |
| Sexually Inappropriate | 0.0% | 55.6% | 44.4% | 0.0% |
| Oppositional | 2.5% | 30.0% | 60.0% | 7.5% |
| Other | 0.0% | 22.2% | 58.3% | 19.4% |

The participants were then asked about interventions related to challenging behaviour, including medication, outside input, training, and even supervision. Of the 48 people who responded to the question, 12.5% reported the student was taking medication in relation to challenging behaviour. Medication type and dosage was asked about, but only given by two participants. Participants were also asked if the medication prescribed made a difference in the student's behaviour, only six participants answered this question, and of those six, 50% felt it made a difference. Not much can be inferred from this given the low response rate from those who were taking medication.

Professional input was categorized into psychological, communication, and external input. 'External' input was anything not covered by psychological or communication input, and examples given included, social work, aromatherapy, occupational therapy, etc. Below Table 4.4 summarizes the number of responses, and the input given to the student in regards to challenging behaviour.

*Table 4.4 Input Impact on Behaviour*

| | N (Number of Responses) | % of Students Reported Receiving | No Difference | Made Things Better | Made Things Worse |
|---|---|---|---|---|---|
| Psychological | 48 | 18.8% | 33.3% | 50.0% | 16.7% |
| Communication | 48 | 72.9% | 16.1% | 83.9% | 0.0% |
| External | 47 | 44.7% | 44.4% | 55.6% | 0.0% |

As can be seen in Table 4.4 above, the majority of students were receiving communication input (72.9%). The majority (71.9%) were receiving multiples types of input from a speech and language therapist. These input types included reports, written recommendations, group or one to one sessions, training of staff, and monitoring of students. Given challenging behaviour has been seen as a means of communication in individuals with intellectual disabilities (Emerson et al., 2001) by addressing the communication needs of the students, challenging behaviour should also be being addressed.

Table 4.5 shows how frequently the students are receiving input. Psychological input was equally rated (37.5%) as being administered on a monthly and weekly basis, showing a very regular input for those receiving this type of service. External input was

rated as highest on weekly input (36.8%), again with those students who received this service having regular contact. Communication was rated highest on an "as needed" basis (37.5%), with weekly coming in second highest (31.3%).

*Table 4.5 Frequency of Input*

| | One Time | As Needed | Annually | Bi-Annually | Quarterly | Monthly | Weekly | Daily |
|---|---|---|---|---|---|---|---|---|
| Psychological | 0.0% | 12.5% | 0.0% | 12.5% | 0.0% | 37.5% | 37.5% | 0.0% |
| Communication | 0.0% | 37.5% | 0.0% | 3.1% | 3.1% | 6.3% | 31.3% | 18.8% |
| External | 0.0% | 21.1% | 0.0% | 10.5% | 5.3% | 10.5% | 36.8% | 15.8% |

Training was reported to be received by 80.4% (N = 46) of the participants responding (i.e. staff). Although staff could have answered this question more than once, it was individualized to each student. (Staff answered in response to receiving training in regards to an individual student, therefore each response was counted individually. This same process was applied to the supervision question as well.) This shows challenging behaviour was being addressed at the schools that responded to the survey. While only 30.4% reported receiving supervision in relation to working with students with challenging behaviour, the majority (48.9% rated as good) were satisfied with the level of support they received. Participants were asked to rate their satisfaction with the support they received in supporting those students who have challenging behaviour. The options were very poor, poor, adequate, good, and very good. No one rated the support as very poor, 10.6% rated the support as poor, and on the opposite end of the spectrum, 8.5% rated the support they received as very good.

Chi-square tests were run to see if there were any differences between all possible combinations of the categorical groups surveyed, including student sex, level of disability, types of challenging, behaviour, etc. For a full list of all tests, refer to Appendix B. A Chi-square test showed a significant association between autism spectrum disorder and those engaging in sexually inappropriate behaviour $x^2(1, N = 45)$, $p = 0.02$, $\Phi_{Cramer} = 0.34$ This does need to be taken with caution, as given the small N, a Type 1 error is possible.

Chi-square tests were also run between the variables listed above, and input received. This was to see if there was a significant difference between those who were receiving different inputs and those who were not. One significant effect was found: A Chi-square test showed a significant association between the levels of learning disability and those receiving communication input $x^2(3, N = 47)$, $p = 0.05$, $\Phi_{Cramer} = 0.40$. Those participants diagnosed as severely intellectually disabled received more communication input than those with more mild intellectual disabilities. For a full list of all tests, refer to Appendix B.

### 4.5 Individual School Results

Schools with more than two staff responses will be presented below to show the data and any differences between the schools. Of the five reporting schools, only three schools had two or more survey responses, leaving the researcher the ability to only report on those three schools. Similarities and differences between the schools as well

as total school reporting will be shared. Chi-square tests were run by individual school variables to see if there were any significant differences, none were found.

### 4.5.1 School 11

School 11, had staff respondents for 43 students of the 212 total enrolment of students, with 33 answering the majority of questions. This was the only school reporting total enrolment, and their response rate was calculated as 20.28%. School 11 made up 60.6% of the total responses when all schools were included. The students ranged in age from six years of age to 18 years of age, with median age being 13. A clinical diagnosis was seen in 30.30% of the population, with the highest reported diagnosis being attention deficit hyperactivity disorder. Health conditions were reported for 21.21% of the population at School 11. Epilepsy/seizure and multiple health conditions accounted for all but one student, who was reported as having a cardiac condition.

Of the 28 responses received asking if a student had a challenging behaviour, 92.86% were reported as having challenging behaviour. This does not take into account, the missing responses. Below are tables describing the types of challenging behaviour reported, frequency with which they occurred, as well as the impact they had on the students and staff, based on the N reported within Table 4.6. Additionally, input given in regards to challenging behaviour will also be reported.

*Table 4.6 School 11 Type and Frequency of Behaviour by Type*

| | N (Number of responses) | % of Students Reported Displaying | Less than Monthly | Monthly | Weekly | Daily | Hourly |
|---|---|---|---|---|---|---|---|
| Aggression | 27 | 81.82% | 0.0% | 5.88% | 35.29% | 29.41% | 29.41% |
| Destruction | 26 | 46.15% | 0.0% | 8.33% | 50.00% | 41.67% | 0.0% |
| Self-injury | 26 | 19.23% | 20.00% | 0.00% | 20.00% | 60.00% | 0.0% |
| Sexually Inappropriate | 25 | 28.00% | 0.00% | 14.29% | 14.29% | 57.14% | 14.29% |
| Oppositional | 26 | 88.46% | 8.70% | 4.35% | 30.34% | 43.48% | 13.04% |
| Other | 25 | 88.00% | 0.0% | 20.00% | 20.00% | 35.00% | 25.00% |

As with the entire survey results, the oppositional category of challenging behaviour was the highest (88.46%) in Table 4.6 above. Again, as in the total results, challenging behaviour is reported as a weekly and daily problem for all categories of behaviour. This echoes the need for staff to have training and support as it is a constant problem.

*Table 4.7 School 11 Impact of Behaviour by Type*

| | Not a Problem | Slight Problem | Moderately Serious Problem | Severe Problem |
|---|---|---|---|---|
| Aggression | 0.0% | 29.41% | 52.94% | 17.66% |
| Destruction | 8.33% | 38.46% | 38.46% | 8.33% |
| Self-injury | 0.0% | 20.00% | 80.00% | 0.00% |
| Sexually Inappropriate | 0.0% | 57.14% | 42.86% | 0.0% |
| Oppositional | 4.55% | 27.27% | 59.09% | 9.09% |
| Other | 0.0% | 20.00% | 65.00% | 15.00% |

As can be seen in Table 4.7, at School 11 all the behaviours were considered a moderately serious problem except sexually inappropriate behaviour, different from the total reported for all schools, where self-injury and sexually inappropriate behaviour were considered a slight problem.

Below Table 4.8 summarizes the interventions put in place by School 11 to address challenging behaviour. Every category asked about was utilized by the school, with the highest rated being challenging behaviour training, received by 79.14% of the staff, followed by communication input for 76.00% of the students in relation to challenging behaviour. This echoes the total schools data above, with challenging behaviour training followed by communication input.

*Table 4.8 School 11 Percent of Interventions Received for Challenging Behaviour*

| | N (Number of responses) | % of Students Receiving |
|---|---|---|
| Medication | 25 | 12.00% |
| Psychological Input | 25 | 20.00% |
| Communication Input | 25 | 76.00% |
| External Input | 25 | 44.00% |
| Challenging Behaviour Training | 24 | 79.17% |
| Supervision | 24 | 29.17% |

School 11 had 25 people report on the satisfaction of support received. Of the 25 respondents, 44.00% felt the support received was good and an additional 16.00% felt the support received was very good. Adequate support was reported by 28.00% of the staff with only 12.00% feeling as though they were receiving poor support in relation to challenging behaviour. A medium effect size on the Chi-square analysis was seen between the satisfaction of support and School 11 $x^2(4, N = 47)$, $(p = .25)$, $\Phi_{Cramer} = 0.30$. For a full list of tests, refer to Appendix B. This shows a difference in the responses between School 11 and the satisfaction with support and the rest of the reporting schools, with school 11 reporting more levels of good and very good support than the other schools.

### 4.5.2 School 37

School 37 had 18 responses, and made up 25.4% of the total responses for the entire survey. School 37 reported on students age four to age 12, with a median age of

seven years old. A clinical diagnosis was reported for 41.18% of the students with the largest category being attention deficit hyperactivity disorder (42.86%). Challenging behaviour was reported for all 17 completed surveys. (While the school had 18 responses, only 17 completed the survey with enough information to be included.)

Table 4.9 below shows the challenging behaviour by type and frequency. Aggression is reported for 82.35% of the students, occurring daily for half those students. This is followed by oppositional challenging behaviour, which is also occurring daily (46.15%) most frequently.

*Table 4.9 School 37 Type and Frequency of Behaviour by Type*

| | N (Number of responses) | % of Students Reported Displaying | Less than Monthly | Monthly | Weekly | Daily | Hourly |
|---|---|---|---|---|---|---|---|
| Aggression | 17 | 82.35% | 0.0% | 7.14% | 21.43% | 50.00% | 21.43% |
| Destruction | 17 | 41.18% | 0.0% | 0.00% | 57.14% | 28.57% | 14.29% |
| Self-injury | 17 | 35.29% | 0.00% | 16.67% | 50.00% | 33.33% | 0.0% |
| Sexually Inappropriate | 17 | 6.25% | 0.00% | 0.00% | 100.00% | 0.00% | 0.00% |
| Oppositional | 17 | 76.47% | 0.00% | 7.69% | 30.77% | 46.15% | 15.38% |
| Other | 17 | 58.82% | 0.0% | 9.09% | 27.27% | 36.36% | 27.27% |

*Table 4.10 School 37 Impact of Behaviour by Type*

| | Not a Problem | Slight Problem | Moderately Serious Problem | Severe Problem |
|---|---|---|---|---|
| Aggression | 0.0% | 28.57% | 42.86% | 28.57% |
| Destruction | 0.0% | 14.29% | 71.43% | 14.29% |
| Self-injury | 0.0% | 66.67% | 16.67% | 16.67% |
| Sexually Inappropriate | 0.0% | 0.00% | 100.00% | 0.0% |
| Oppositional | 0.0% | 38.46% | 61.54% | 0.00% |
| Other | 0.0% | 30.00% | 50.00% | 20.00% |

Table 4.10, shows School 37 rated most challenging behaviour as a moderately serious problem, except self-injury, which was rated by most as a slight problem.

*Table 4.11 School 37 Percent of Interventions Received for Challenging Behaviour*

| | N (Number of Responses) | % of Students Receiving |
|---|---|---|
| Medication | 17 | 11.76% |
| Psychological Input | 17 | 17.65% |
| Communication Input | 17 | 70.59% |
| External Input | 16 | 31.25% |
| Challenging Behaviour Training | 16 | 75.00% |
| Supervision | 16 | 31.25% |

Table 4.11 reflects the same findings as the overall analysis, with challenging behaviour training being rated the most frequent intervention (75%) followed by communication input (70.59%). School 37 rated their satisfaction with support for challenging behaviour on a likert scale between very poor to very good. The majority of school staff (62.5%) rated the support as good, followed by 31.25% rating the support received as adequate. Only one staff member reported the support as poor, and no staff members reported the support as very poor.

### 4.5.3 School 5

School 5 had four respondents. While this N is extremely small, the overview is still given. Two students were rated as having challenging behaviour, which is 50% of the four students, reported for this question. School age was only reported for two students, which were ages five and 10 years old. Two students were reported to have a clinical diagnosis of attention deficit hyperactivity disorder.

Challenging behaviour was reported for all four students. Oppositional behaviour was again the highest rated as in the overall results. Other challenging behaviour was also rated equally as high at 100% as can be seen below in Table 4.12.

*Table 4.12 School 5 Type and Frequency of Behaviour by Type*

| | N (Number of Responses) | % of Students Reported Displaying | Less than Monthly | Monthly | Weekly | Daily | Hourly |
|---|---|---|---|---|---|---|---|
| Aggression | 5 | 60.00% | 0.00% | 33.33% | 0.00% | 66.67% | 0.00% |
| Destruction | 4 | 50.00% | 0.0% | 0.00% | 0.00% | 50.00% | 50.00% |
| Self-injury | 4 | 0.00% | N/A | N/A | N/A | N/A | N/A |
| Sexually Inappropriate | 4 | 25.00% | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% |
| Oppositional | 4 | 100.00% | 0.00% | 0.00% | 0.00% | 75.00% | 25.00% |
| Other | 4 | 100.00% | 0.0% | 0.00% | 0.00% | 75.00% | 25.00% |

As can be seen in Table 4.13 School 5 reported aggressive behaviour was rated equally as high as a moderate and severe problem. While the N for this school is low, this shows challenging behaviour was impactful for the school staff. It is unexpected that with daily sexually inappropriate behaviour reported for one student, it was reported as a slight problem.

*Table 4.13 School 5 Impact of Behaviour by Type*

| | Not a Problem | Slight Problem | Moderately Serious Problem | Severe Problem |
|---|---|---|---|---|
| Aggression | 0.0% | 0.00% | 50.00% | 50.00% |
| Destruction | 0.0% | 0.00% | 100.00% | 0.00% |
| Self-injury | N/A | N/A | N/A | N/A |
| Sexually Inappropriate | 0.0% | 100.00% | 0.00% | 0.0% |
| Oppositional | 0.0% | 25.00% | 75.00% | 0.00% |
| Other | 0.0% | 0.00% | 75.00% | 25.00% |

Table 4.14 again echoes the total results of all the previous schools. This shows challenging behaviour training is rated as the highest intervention, followed by communication and external input.

*Table 4.14 School 5 Percent of Interventions Received for Challenging Behaviour*

| | N (Number of Responses) | % of Students Receiving |
|---|---|---|
| Medication | 4 | 25.00% |
| Psychological Input | 4 | 0.00% |
| Communication Input | 4 | 75.00% |
| External Input | 4 | 75.00% |
| Challenging Behaviour Training | 4 | 100.00% |
| Supervision | 4 | 50.00% |

Satisfaction with support received was also asked of participants at School 5. These participants rated their satisfaction on a five point likert scale from very poor to very good. One participant reported the support as poor, two reported the support as adequate, and one reported the support as good. These are the lowest figures reported for any school, with the majority (50%) reporting the support as adequate.

## 4.6 Discussion

The aim of this survey was to estimate prevalence of challenging behaviour and gain an understanding of school staff's perspectives of challenging behaviour within the schools in the southeast of England, specifically Kent and Medway. Below each research question will again be presented and summary of the findings will be reviewed.

**What is the prevalence of student challenging behaviour in schools within the southeast of England?**

The survey had limited success due to the low response rate, even with multiple follow up attempts. Therefore prevalence rates could not be determined nor compared to previous studies estimating prevalence. With the low return rate, links are unable to be made even in terms of demographic information. The Kiernan and Kiernan (1994) study is most closely aligned to the aims of this study. Kiernan and Kiernan (1994) conducted a postal survey on the prevalence of challenging behaviour in day schools for students with severe learning difficulties. This study was conducted in one in six schools covering the whole of England and Wales. There was a range of 20 students to 87 students per school (Kiernan & Kiernan, 1994). On average, there were more male students than female students who ranged in age from four years old to 20 years old (Kiernan & Kiernan, 1994).

Challenging behaviour in this survey included aggression, disruptive behaviour, stereotyped behaviours and non-compliance, as non-compliant behaviours could interfere with the education in the school setting (Kiernan & Kiernan, 1994). Aggressive behaviour was defined as causing injury to the pupil, other pupils, or staff, or other aggressive behaviour such as verbal abuse and spitting (Kiernan & Kiernan, 1994). Destructive or socially disruptive behaviours were defined as significantly lowering the pupil's own quality of life, the quality of life of others, or behaviour that interfered with their education, or the education of others (Kiernan & Kiernan, 1994). The behaviours had to be displayed by the pupil within the last four months to be considered for inclusion, unless there was a serious incident in which injury occurred within the last year (Kiernan & Kiernan, 1994). Kiernan and Kiernan (1994) reported 10% of the

population studied engaged in challenging behaviour according to the definitions above. Only 57.3% of the schools had been given specific training on challenging behaviour, remarkably low since challenging behaviour was recognized in all the schools surveyed (Kiernan & Kiernan, 1994).

**What input is given to school staff when a student displays challenging behaviour?**

Challenging behaviour training was received by more than 80% of the respondents surveyed. The type of challenging behaviour training was not specified as part of the survey, so no comment can be given on type or content. Communication input for the students was rated as the second highest intervention with over 70% of the students receiving this type of input.

Again, there is a large caveat in the interpretation of these results due to the low response numbers. Since the majority of responses were for those students who displayed challenging behaviour, this small subset of staff could have been trained due to their high rates of experiencing challenging behaviour. If more staff responses were collected, it would be more convincing that school staff, as a whole were receiving challenging behaviour training. This small subset of staff receiving training were experiencing challenging behaviour regularly (weekly at least).

Stormont and colleagues (2011) conducted a study to see if general education teachers knew of supports and evidence-based practices available to school staff for students with disabilities. The participants consisted of 297 general education teachers from five school districts (Stormont, Reinke, Herman, 2011). Results showed, the teachers had only heard of one evidence based practice out of ten presented within the survey, positive behaviour support (Stormont et al. 2011). Other evidence based

practices included Triple P, Steps to Success, Coping Cat, Good Behavior Game, etc. Additionally, school resources were asked about. The resource most commonly known about was classroom support, as well as behavioural consultation (Stormont et al., 2011). Other supports surveyed, included family support, mental health, and functional behaviour assessment (Stormont et al., 2011). While this study is not completely aligned with the current survey, the results do show, that school staff were aware of positive behaviour support and aware of support for students who display challenging behaviour. This seems to support the findings of the current study showing school staff who were dealing with challenging behaviours had access to training and supports within the school. More research in the area of teachers' knowledge, particularly in schools with students with disabilities would be an asset to the field, to know what information is being disseminated to these teachers, and what information is lacking. This is an area future research needs to continue.

**If input is given, do school staff find this input to be effective?**

Staff rated the support they received (on average) as adequate. While this can be improved, it is a better rating than poor or very poor. While staff are receiving input, adequate is not the desired outcome. Therefore, it seems that further research needs to be to look at what would make the input more effective, something that could have been asked in hindsight.

An additional aim was to understand the frequency and impact challenging behaviour was having on the classroom. The survey was more successful in this regard. For the responses received, challenging behaviour was hugely impactful, and at least a

weekly, if not daily problem. The researcher does question whether the students reported on were only those students who display challenging behaviour, as staff who were working with students who displayed challenging behaviour were probably more likely to complete the survey than those who did not support students with challenging behaviour. This would have a dramatic impact on the figures reported here. Without having even one school report their entire student population, it makes prevalence, and training numbers impossible to interprete. As stated above, if school staff only reported on those students who displayed challenging behaviour, the percentage of school staff receiving training is highly biased. This leaves no real conclusions to be drawn from the study. Only cautious conclusions can be drawn about the population surveyed due to the small response rate. The only definitive conclusion is the need to raise the level of support for staff so they feel good or very good about they support they receive. Future research is need to not only assess prevalence within the student population of those individuals who engage in challenging behaviour, but what services are being provided and how those services are impacting the students. A large scale study looking at those key elements would be best placed in future research.

In the next chapter the methodology for Study 2 is reviewed. The remaining chapters of the thesis will present the results as well as interpret the findings and discuss future research.

# Chapter 5 – Study 2: Introduction & Methodology

As shown in Chapter 3, little research has been conducted on schoolwide positive behaviour support at the universal level for individuals with intellectual disabilities, especially in the United Kingdom.

The current study aims to implement and evaluate a three-tiered model of positive behaviour support within a British school setting. The use of direct observation measures, validated checklists and questionnaires as measures and the use of statistical analysis, will help to bridge the gap between the applied behaviour analysis literature, the positive behaviour support literature. The study set out to look at how positive praise would impact student challenging behaviour. Tiered training would be undertaken to see if by increasing teacher praise through training, student behaviour is affected. This was done through lecture format, hands on behaviour plan creation, and even modelling as the tiers progressed. The students and school staff were observed at all levels of training for positive and negative student feedback to see if the training was impactful, and if so, to see if it had effects on student challenging behaviour.

## 5.1 Research Questions

### Can increases in student engagement be achieved through minimal training hours with school staff?

The researcher was proposing training staff for five hours. This is a limited number of hours in terms of making an impact with staff behaviour. The question was if

staff were better able to respond to challenging behaviour, would student engagement increase?

**Will improvements in students' engagement lead to school staff being better able to manage the students?**

The hypothesis was that students who are more engaged should in theory be easier for staff to manage. This would lead to decreased student incidents and staff feeling better equipped in their classroom to manage student behaviour.

**Will school staff report changes that can be observed within the classroom setting?**

While staff could report changes in evaluations of both their management difficulties and student behaviour, the researcher was curious as to whether these reports would be reflected in observations. To ensure change is seen and not just "felt" the researcher added the component of direct observation so changes in both staff and student behaviour could be seen.

**Can increases in positive praise be achieved through minimal training hours with school staff?**

Again, staff were to be trained for five hours. One of the key components of this training was teaching staff to increase their positive praise. If praise could be increased in a one day of training, and this praise showed impact on student behaviour, then that is

something very replicable that other schools could do to impact their students' behaviour.

### 5.2 Research Design

The research design is a mixed group and single subject design. Group design methods were employed for both checklists and questionnaires. A repeated measures design was used for measures giving the same measures at different time points throughout the study. This was so the measures could be compared at the different times for both the control and experimental group to see if changes could be seen between those receiving intervention, different levels of intervention, and those that were in the control group.

Tier 1 intervention incorporated a pre and post measure design, with no control group. This is due to Tier 1 being a school-wide training intervention. Tier 2 had a control group from Tier 1, who did not receive Tier 2 training, as well as a Tier 2 intervention group. Measures used at Baseline, Tier 1, and post Tier 2 were compared for repeated measures. The measures were also administered to those that participated in Tier 1 and Tier 2 for an additional time point at Tier 3. Tier 3 incorporated a single subject design, showing growth by individual. Each tier of intervention is explained more fully below in Section 5.7.

Additionally direct observation of participants was planned using a single subject design across participants. Single subject design methods are used for a small number of participants and establish a relationship between treatments (Kazdin, 1982). Single-subject research designs use multiple time point measures as opposed to pre and post

measures most often seen in group designs. There is a difference in the analysis of the data; trends are looked at instead of statistical differences (Kazdin, 1982). This allows differences in individual outcomes to be seen as opposed to using all participants as a unit for analysis.

### 5.3 Setting

The setting was a private residential school in England. This school was a residential school for students who were diagnosed with intellectual disabilities and a communication deficit, specialising in students who were deaf. Additionally, the school specialised in working with students who displayed complex needs, including challenging behaviour. This made their student population exceptional in terms of their students' needs. While the school was residential in nature, students could attend daily as any other school; stay weekly, returning home on the weekends; return home once every fortnight; return home monthly; or even return home termly. A minority of students were 52-week boarders, never leaving the school.

### 5.4 Ethical Issues

The University of Kent and Tizard ethical approval was obtained in February 2012. The targeted school is a private school, so no other ethics committee was needed for the research to take place. If at any point in the study, the researcher suspected further intervention was required for a specific participant, the researcher notified the head teacher of the school and appropriate school personnel, who would deal with these issues and ask the participant to withdraw from the study. This included any concern

the researcher had for students in need of Child Protection Services. The ultimate clinical responsibility of the children within the study was that of the school and the school would follow the procedures typically taken when concerns arise. Additionally, a participant could have chosen to withdraw at any point in the study.

Confidentiality was maintained throughout the study by assigning each participant a number. All records relating to information obtained by the study were kept within the Tizard Centre at the University of Kent in a locked file cabinet, in a locked office.

### 5.5 Participant Recruitment

Participants were recruited after the school head teacher agreed to participate in the research study. Ethical approval was obtained from the University of Kent prior to any participant recruitment taking place (Appendix C). A brief presentation was given to the school administrators and the school agreed to participate. Staff were given an information packet that included a description of the study, consent form, as well as contact for the researcher and her supervisor if there were any questions or complaints (Appendix D).

Consent was obtained for all staff and student participants prior to the start of the study. Participants could withdraw consent at any time. All school staff were presented with the information packets prior to the first scheduled training. Staff were given time to read and decide if they wanted to participate. Even if they did not agree to participate in the study, they were still allowed to attend the training. Since 35 staff consented, and

the target was 20, no follow up attempts were made to recruit further staff, as this was deemed a good number to proceed.

Students were recruited through the school and as they were under 16 years of age parental consent was sought. The school agreed to send home parent and student information packets for the researcher (Appendix E). The researcher also offered to attend the school and hold an information session for parents. The school declined this offer. Parents were also invited to not only give consent for their child to enter the study, but also to attend the training themselves. No parent participants agreed to this training opportunity, therefore the parent component will not be discussed in the participant section below.

Consent for students was sought between one and five times due to very poor response rates from parents. The school made follow up phone calls to the students as well as sending additional information packets to the student's home. This was done through the school, in order to keep the anonymity of those students who did not wish to participate in the study. Consent for most students who took part was through a signed consent form. For two students however consent was obtained verbally over the phone. The school followed up this verbal consent with an email confirming the consent. This email was submitted to the ethics committee at the Tizard Centre to ensure the consent was valid for these two students (Appendix F).

### 5.6 Participants

The participants in this study were primary students at a special school in England that specialized in supporting students who were deaf. These students all had a

communication deficits as well as an intellectual disability. These students could reside at the school or could come daily.

School staff also served as participants for the study. The school staff were any members of the faculty including teachers, educational assistants, residential support workers, behaviour support team members, speech and language pathologists, as well as other school staff including the art, physical education, and animal care instructors. The head teacher and school nurse served as a point of contact until the school counsellor assumed the responsibility midway through the study. Therefore, these school staff not only acted as participants, but also as research liaisons.

### 5.7 Intervention Materials

The intervention chosen was a three-tiered model of positive behaviour support implemented within this one special school within England. This intervention consisted of three tiers, further explained below. In all tiers of the intervention, the training was delivered by the researcher, a board certified behaviour analyst to teaching staff within the school.

As the school was operational, the research design was changed due to the school's availability for training, and access to staff and students. For the original research design, please see Appendix G showing what was proposed. Below is the research design actually implemented when the research was undertaken.

### 5.7.1 Tier 1

Prior to the start of the training, participants (school staff) were given a brief overview of the research study. They were then offered consent forms if they had not yet consented, and those were collected, prior to being given a questionnaire pack. Even if the school staff chose not to participate in the research study they were allowed to stay for the training, they just did not complete the questionnaire pack, which contained the Emotional Reactions to Challenging Behaviour and the Self-Injurious Behaviour Questionnaire. For those school staff who had students whose parents had consented, they were also given a Checklist of Challenging Behaviour questionnaire and asked to complete the checklist in relation to the target student. These measures along with the direct observations described below were administered post Tier 1 training over the course of the following month. Baseline included only the written measures described above, but no direct observations were taken prior to Tier 1 for either student or staff (see below for an explanation).

The researcher created a bespoke training curriculum based on the principles of applied behaviour analysis. This training curriculum covered: what challenging behaviour is, the prevalence of challenging behaviour within the United Kingdom, and how to respond to challenging behaviour. Responses to challenging behaviour were broken down into proactive and reactive responses. The proactive section covered what to do when challenging behaviour is not occurring. The reactive responses covered what to do when challenging behaviour is occurring. Teacher feedback to students was also considered, including positive attention, corrective feedback, and negative attention. There were five key messages from this training:

1) Challenging behaviour serves a function (Hanley et al., 2003; Iwata et al., 1982).
2) Behaviour support works best if proactive and positive (Singer & Wang, 2009)
3) Positive behaviour support can address challenging behaviour through positive consequences (Singer & Wang, 2009; Weiss et al., 2009)
4) Replacement skills need to be taught in order to meet the function of challenging behaviour (Anderson & Freeman, 2000; Hanley et al., 2003)
5) Praise students five times more often than offering corrective or negative feedback (Becker, Thomas, & Engelmann, 1975; Hill & Flores, 2014).

The training was conducted by the researcher and school staff were given hand outs to follow along. Additionally, at multiple points during the training the staff were asked to participate both individually and in a group answering questions posed by the researcher and presenting their thoughts to the group. Questions were answered throughout when raised by the participants. The training power points and notes are located in Appendix H for further review.

Below are two tables that show the actual numbers of participants at the baseline and Tier 1 level.

*Table 5.1 Number of Staff Participants for Baseline and Tier 1*

| Phase of Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|
| Baseline | 35 | Not Available |
| Tier 1 | 13 | 10 |

*Table 5.2 Number of Student Participants for Baseline and Tier 1*

| Phase of Intervention | Student Measures Completed | Students Observed |
|---|---|---|
| Baseline | 5 | Not Available |
| Tier 1 | 5 | 6 |

Due to working within an operational school, the researcher had to compromise with the school regarding training dates to ensure research within the school. The school requested Tier 1 training take place ahead of school starting in the 2012 – 2013 school year. This did not leave any ability to conduct baseline observations. Additionally, this left limited time to ensure student consent, as the students would return to school once the training had taken place. Post Tier 1 observations could only be conducted for ten school staff and six students, which was less than the 20 students and staff planned.

Tier 1 comprised of a one day (five hour) large group training to which all 35 staff were invited, and additional staff attended, but chose not to participate in the research measures. These additional staff that chose not to participate, equalled less than 10. Tier 1 was a whole school training, which took place during the pre-school workday, training school staff. Since Tier 1 was whole school training, no control group was possible.

Tier 1 training took place prior to the beginning of school in September 2012, and questionnaires were given to staff within the following month. Questionnaires were collected through November 2012. Questionnaires were distributed to the staff through

a school liaison member (See measures section below). The same measures administered during baseline were also administered following Tier 1. There was a considerable drop in response rate, even with multiple prompts via written notes and emails between Baseline and Tier (see Chapter 6 for further information).

A maximum of ten observations were completed for both staff and students each day. The combination of the staff and student observations depended on which staff and students were in attendance and under a condition targeted for observation. This will be more fully explained in the measures section below. These observations were conducted within the month following training. This break was to allow staff time to implement key messages discussed during the training. Direct observations took place in October of 2012.

### 5.7.2 Tier 2

At this tier, the researcher proposed getting the staff and family carers together for three sessions, covering the functions of behaviour and environmental manipulations to respond to challenging behaviour (See Appendix G). Working within an operational school required compromising with the school. No family carers chose to participate in the study, and the school only agreed to give the staff two-hour sessions over two days. The two days were given one week apart. Therefore, the research planned was altered: Training day one and day two covered the same material as proposed but in more concise overview. Additionally, many of the slides were seen in the previous Tier 1 training, and also during day one of Tier 2 training. Due to the limited number of hours given to train, these items were repeated and reviewed to make an impact.

*Table 5.3 Number of Staff Participants in Tier 2*

| Phase of Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|
| Tier 2 | 13 | 7 |

*Table 5.4 Number of Student Participants in Tier 2*

| Phase of Intervention | Student Measures Completed | Students Observed |
|---|---|---|
| Tier 2 | 3 | 6 |

Tier 2 consisted of two days of two hour trainings after school (refer to Appendix H - L). School staff that worked with any of the target students were invited to attend. In attendance were 10 staff, all of whom attended both days of training except one participant, who only attended one day of training. As this staff member attended at least 50% of the training, the staff member was considered trained. During the training, the staff that had been directly observed following Tier 1 were given feedback on their positive and negative interactions in the form of a ratio. Staff worked with the researcher to create a plan for their target student during the four hours of training.

The researcher again created a bespoke training. Day one gave a review of what challenging behaviour is as well as a review of teacher feedback to students (Appendix I). Additionally the participants were taught about antecedents and consequences to behaviour, including watching four simple videos and having participants decide what the consequences were to the behaviours presented and recording, along with the researcher, on an antecedent behaviour consequence (ABC) data sheet. Participants all

chose one behaviour they considered challenging for their student. This behaviour was refined with the researcher in terms of definition. Day one concluded with the researcher reminding the participants about the target ratio of positive to negative feedback, 5:1(Appendix J).

During the week between training day one and two the participants were told the researcher would come and observe their positive and negative feedback to students. This would then be shared with them at day two of the training. This observation was not counted as data collection for the results, but rather just used as a tool to show participants their feedback behaviour. Additionally, participants were asked to record any instances of the target challenging behaviour on the ABC data sheet that was reviewed by the researcher during the day three training, Observations could only be carried out for five students and seven school staff.

Day two included material on consequences to challenging behaviours. This included introducing replacement behaviours that serve the same function as challenging behaviour. Proactive and reactive strategies were reviewed, as well as reinforcers. Proactive strategies were presented as those that would help prevent the challenging behaviour, where reactive strategies were presented as how to deal with challenging behaviour when it occurs. The day was again summed up with a reminder of keeping the positive feedback five times more frequent than the negative feedback (Appendix K).

A simple behaviour plan was given to each participant. If more than one staff member was present for a target student, they worked together. After the presentation of each item above (antecedent, consequence, function, reinforcement, proactive

strategies, and reactive strategies) the researcher stopped and had the participants fill in the section for their student. They used their ABC data collection sheets to identify the antecedents and consequences seen in the previous week. These helped to identify proactive strategies, as well as a potential function of the challenging behaviour. Reactive strategies were also identified and the reinforcers available. (The plan template and sample plan is available in Appendix L). The researcher gave input to each group regarding their plan prior to the conclusion of the session.

Following Tier 2, 13 staff members were able to complete the questionnaire pack with at least 50% of the measures and subscales completed. One additional new staff member was added, as the teacher for four of the students involved in the research was on medical leave and had been replaced, this new staff member did not take part in the Tier 2 training. Two more members of staff left employment at the school during the post Tier 2 time frame.

After the conclusion of day two training, direct observations were conducted for staff and student behaviour within the month following Tier 2. Additionally, the questionnaire pack was given to the school staff to be completed within the same month post Tier 2. Tier 2 took place in January 2012, and questionnaires were collected up until spring break in March of 2012. Direct observations took place during the month of February 2012.

### 5.7.3 Tier 3

Below are two tables representing the number of staff and student participants in Tier 3 Baseline, and Tier 3. A discussion of the intervention follows.

*Table 5.5 Number of Staff Participants in Tier 3 Baseline and Tier 3*

| Phase of Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|
| Tier 3 Baseline | 6 | 7 |
| Tier 3 | 3 | 2 |

*Table 5.6 Number of Student Participants in Tier 3 Baseline and Tier 3*

| Phase of Intervention | Student Measures Completed | Students Observed |
|---|---|---|
| Tier 3 Baseline | 1 | 5 |
| Tier 3 | 2 | 1 |

Tier 3 involved traditional behaviour analysis services. Due to circumstances within the school and with the researcher, only one participant participated in Tier 3. The student's school staff had already completed Tier 1 and Tier 2 trainings. A simple functional assessment was conducted over two days. The researcher conducted an interview with the staff as well as observations to see what the function of the behaviour was most likely to be. The staff chose non-compliance as the behaviour to target, which was defined as refusal to move to the designated area or participate in the activity. (For the entire plan, see Appendix M.) The same behaviour plan format was used as in Tier 2, to ensure continuity. All staff working with Student 3 were given a copy of the plan and asked to sign stating they had read and understood the intervention. This was done to promote buy in from the staff.

The researcher was available to talk through the plan with any staff. Only one staff member was allowed the time to spend the day (five hours) with the researcher

going through the plan and to receive feedback on implementation. The only difficult issue was Student 3 lacked a lot of secondary reinforcers. The primary reinforcer was food, which the school did not want to use. This left the behaviour plan with few potent reinforcers. The researcher talked to the staff about finding other items that were reinforcing or to readdress why edible reinforcers were not acceptable.

Direct observations were again conducted pre and post Tier 3 implementation. Pre Tier 3, Tier 3 Baseline, observations were conducted as it was a new school year, to ensure challenging behaviour was still exhibited by those students chosen to participate. Observations were carried out for only the one student who participated in Tier 3, and a classmate who served as a comparison. The questionnaire pack was distributed to the school staff that worked with the identified children. This all took place over the month following the implementation of Tier 3 in October of 2013.

### 5.8 Staff Measures

A behavioural questionnaire and a scale to measure the emotional reactions of staff supporting children with challenging behaviour were administered pre-intervention and the month following training at Tiers 1, 2 and 3. The measures were given to all school staff that participated in the study. While measures were given within one week of intervention, receipt of those measures could take as long as three months. Measures were given on three separate occasions as well as followed up with a hand written note and email to complete the measures. All measures completed were included due to the small N. Measures received never crossed time points with another tier of intervention.

### 5.8.1 Emotional Reactions to Challenging Behaviours Scale with Positive Affect Domains

The Emotional Reactions to Challenging Behaviours Scale with Positive Affect Domains (Mitchell & Hastings, 1998) was used to measure the attitudes of the school staff participating in the study. The Emotional Reactions to Challenging Behaviours Scale is a rating scale that was developed on the basis of factor and item analysis (Mitchell & Hastings, 1998). There are two sub scales for the Emotional Reactions to Challenging Behaviours Scale, depression/anger and feelings of fear/anxiety (Mitchell & Hastings, 1998). The school staff were asked to rate the items on a four-point scale with a score of zero to three. Scores could range between zero to 30 for the depression/anger subscale and zero to 15 for the fear/anxiety subscale reactions. The higher scores indicated more negative reactions.

Jones and Hastings added the positive affect domain in 2003. They developed an additional eight items dividing these eight items into two subscales due to the lack of similar psychometric measure available. The items were also the subject of factor analysis and had good internal consistency (cheerful/excited $a = 0.72$ and $a = 0.70$ for the confidence/relaxed scale) (Jones & Hastings, 2003). These subscales were scored the same as the negative subscales described above, on a four point likert scale between zero and three. The scores on this domain could range from zero to 12. The higher the score, the higher the emotional reaction rated by the person. School staff could rate themselves as having feelings of cheerfulness/excitement or feelings of confidence/relaxed. The Emotional Reactions to Challenging Behaviour Scale has good test-retest reliability (depression/anger: $r = 0.74$; fear/anxiety: $r = 0.81$) and high

internal consistency (depression/anger $a$ = 0.83; fear/anxiety: $a$ = 0.85) (Mitchell & Hastings, 1998). On this scale school staff rated themselves as confident/relaxed, depressed/angry, cheerful/excited, or fearful/anxious after reading a vignette describing challenging behaviour (Mitchell & Hastings, 1998). This scale took approximately ten minutes to complete.

This measure was chosen because staff's perspectives and reactions to challenging behaviour affect the way they respond to students who display challenging behaviour. By monitoring their reactions, a change may be seen if the challenging behaviour is reduced, or if they feel more equipped to manage the challenging behaviour post intervention. For a copy of the measure, please refer to Appendix N.

### 5.8.2 Self-Injurious Behaviour Questionnaire

The present study used a portion of Section C from the Staff Experience and Satisfaction Questionnaire (Beadle-Brown, Gifford, & Mansell, 2003). The portion that was used is sixteen multiple-choice questions based on Oliver and colleagues Self-Injurious Behaviour Questionnaire (Oliver, Hall, Hales, & Head, 1996). These sixteen items contain five questions on responding to challenging behaviour (Action subscale) and nine questions on the knowledge of challenging behaviour (Knowledge subscale). The Staff Experience and Satisfaction Questionnaire had taken the original Self-Injurious Behaviour Questionnaire and changed the word self-injury to challenging behaviour. That is why this version was used. This Action subscale has one correct answer and categorizes the other answers as either reinforcing, avoiding, or assigning an internal origination to the challenging behaviour (Oliver et al., 1996). These questions have

shown good reliability ($r$ = 0.88 for the Knowledge subscale) (Mansell, Beadle-Brown, Whelton, Beckett, & Hutchinson, 2008).

This measure was chosen because knowledge of challenging behaviour is something being directly taught during the interventions. This measure was used to measure a change in knowledge of challenging behaviour and was chosen over creating a bespoke measure due to its reliability and use in previous studies regarding challenging behaviour knowledge. This measure took participants approximately 15 minutes to complete. For a copy of the measure, please refer to Appendix O.

### 5.8.3 Direct Observation

The present study directly observed school staff for a minimum of one hour at all points in the study (post Tiers 1, 2, and 3). Twenty staff were proposed to be observed. This hour could include between three and five observations with a minimum of five minutes in duration and a maximum of 20 minutes per observation. The observation period varied due to conducting research within a working school setting. Not all activities were the same length as other activities therefore, making it impossible to ensure observations are the same length. This is why a range was chosen with a minimum and maximum amount of time observed during one activity. The finite number of observations was chosen due to the time constraints of employing all three tiers of intervention within three terms of school. For each of the observations, the following conditions were observed during each time point; one to one work, group work, student lunch, and a student break. This allowed the researcher to be able to see behaviour patterns within different conditions and be able to compare the same variety

of conditions pre and post all levels of intervention. This will ensure more validity to the types of behaviours as the condition could have a major impact on the staff behaviour.

Direct observations were of staff feedback behaviour. Staff feedback was separated into three categories and a frequency count was taken during the observations. All feedback to any student was recorded, not just specific students. Positive attention was defined as praise, both general and specific, "thank you", a smile, tickles, a nod, or a pat on the back *to any student in the classroom.* Negative attention was defined as no, stop, or other forms of attention that does not tell the student what to do; and corrective feedback – telling students what they should be doing at the present time including instructions after they were given once. There was also a category for neutral attention. Neutral attention was defined as commenting on a statement of fact, i.e. "you are wearing black trousers", "it's warm outside" to a student.

The data sheet used frequency recording with tallies for each of the three feedback categories observed. Frequency recording was chosen due to the nature of the behaviour. If the behaviour is occurring, this will be captured to ensure all incidents of the behaviour are represented and not just what occurs during certain intervals within the observations. Refer to Appendix P for the data sheet used.

## 5.9 Student Measures

The following measures were used to capture student behaviour. A brief overview of the measure and its intended purpose is given below.

### 5.9.1 The Checklist of Challenging Behaviour

The Checklist of Challenging Behaviour was used as the behavioural checklist to rate students participating in the study. The Checklist of Challenging Behaviour was developed as a survey by looking at aggressive behaviour amongst people with "learning difficulties" within the United Kingdom (Harris, Humphreys, & Thomson, 1994). The content of the Checklist of Challenging Behaviour was created by reviewing the literature and an analysis of hospital records for violent incidents displayed by those persons with "learning difficulties" (Harris et al., 1994). These behaviours were divided into two checklists, aggressive behaviour, and other types of challenging behaviour including shouting and stereotypic behaviours. These behaviours are rated on a five-point scale for frequency, management difficulty, and severity (Harris et al., 1994). The scale is scored from one to five with five being the highest frequency and most severe. The Checklist of Challenging Behaviour has validity of content (Joyce et al., 2001). This checklist took school staff approximately fifteen minutes to complete.

Staff completed the Checklist of Challenging Behaviour for any student that was participating in the study. Any staff were able to complete the measure, including teachers, educational assistants, and residential support workers. More than one staff was allowed to complete the checklist for the same student. The students were all assigned a number, so the researcher knew when multiple measures for a student were

completed. The questionnaires were scored individually and each subscale was added together and divided by the number of respondents. This gave the average score. The same procedure was followed for the total score, individually scoring each measure, then adding the total scores and dividing by the number of respondents. This measure was chosen, as it was thought the management difficulty scale would be able to show if school staff were more able to manage the challenging behaviour post intervention, even if the challenging behaviour is still present. Just as with the Self-Injurious Behaviour Questionnaire a bespoke measure was not utilized as it was thought a previously used and validated measure would enhance the findings of the current research study. Refer to Appendix Q for a copy of this measure.

### 5.9.2 Direct Observation

The present study proposed observing 20 students for a minimum of one hour at all points in the study (post Tiers 1, 2, and 3). This hour could include between three and five observations with a minimum of five minutes in duration and a maximum of 20 minutes per observation. The finite number of observations was chosen due to the time constraints of employing all three tiers of intervention within three terms of school. For each of the observations, the following conditions were varied during each time point; one to one work, group work, lunch, and a break. This allowed the researcher to be able to see behaviour patterns within different conditions and be able to compare the same variety of conditions pre and post all levels of intervention. This will ensure more validity to the types of behaviours as the condition could have a major impact on the student behaviour. The conditions were not randomized, but these conditions were observed at each time period. The idea was school work would take different forms,

leading to potential different behaviours. Therefore, it was thought necessary to ensure the students were observed in similar conditions over a variety of tasks that would occur daily, and make it possible to observe the same conditions throughout the course of the study.

Momentary time sampling was used to directly observe students. Observation intervals were 10 seconds in length, allowing the researching to observe at the end of the 10 second interval, then record for the remaining seconds. Momentary time sampling was chosen to allow the research to relate student behaviour with staff feedback. A frequency count would not have allowed this to occur. Students were observed for engagement, non-engagement, and disruption, and if there was staff feedback, it was coded as positive, neutral, or negative. The staff feedback definitions are the same as those presented above in the staff direct observation section. The data collection was done on a purposely-designed data sheet and can be viewed in Appendix R. This data collection sheet was modified after piloting observations to ensure ease of data capture for the observers. The student categories are defined in the following paragraph.

Students were observed for engagement. This was defined as looking at the teacher or materials, working on the materials, answering questions, listening, and compliance – follow an instruction, directive or request. Non-engagement was defined as engaging in self-stimulation, sleeping, not looking at the teacher or materials, and non-compliance – not following an instruction, directive, or request. Lastly, disruption was defined as being out of the area, engaging with the materials other than their designed purpose, talking out without permission, or demonstrating an aggressive

action. These definitions were refined when a pilot of data collection was conducted in the school. This allowed to the researcher to see what student behaviour actually looked like and ensure the definitions encompassed all aspects of the student behaviour so the observations would be accurately captured.

### 5.9.3 Beach Center Family Quality of Life Scale

The Beach Center Family Quality of Life Scale was used, asking parents to answer twenty-five questions on the five point likert scale (Appendix S). This scale was used to measure the quality of life for students and their family carers participating in the study. The Beach Center Family Quality of Life Scale was evaluated with families who have children with disabilities (Poston et al., 2003). There are five subscales; family interaction, parenting, emotional well being, physical/material well-being and disability-related support (Park et al., 2003). These subscales were found to be unidimensional and internally consistent (Park et al., 2003).

This measure was chosen to see if a decrease in challenging behaviour would have shown across settings and have an impact on the quality of life for not only the child, but the family as well. As a note to the reader, no results will be reported on this measure as only one parent chose to participate.

## 5.10 Timeline for Implementation

The school was recruited through a contact with the University of Kent, Tizard Centre. The school was met with in the Autumn 2011 term, and again in the summer term of 2012. The school agreed to take part in the study, and consent forms were sent out to their students and staff as of July 2012. Upon obtaining consent from family

carers and school staff, the research began in September 2012, with those that had given consent.

Baseline data and Tier 1 training took place in September 2012. In the autumn term of 2012, direct observations and post Tier 1 measures were taken. Tier 2 Training was conducted in January of 2013. The post Tier 2 measures and direct observations were conducted in the winter term of 2013. Tier 3 was conducted in the autumn term of 2013. The original plan was to conduct all three tiers in one school year, but this was not conducive to the school. The researcher therefore altered the plan to fit the training dates allowed by the school and added a second baseline at the start of 2013 school year, Tier 3 Baseline. This allowed the researcher to assess current levels of challenging behaviour prior to the implementation of Tier 3.

*Table 5.3 Timeline for Research*

| **Phase of Research** | **Time Frame** |
|---|---|
| Baseline | July 2012 – August 2012 |
| Tier 1 | September 2012 – December 2012 |
| Tier 2 | January 2013 – June 2013 |
| Tier 3 Baseline | September 2013 – October 2013 |
| Tier 3 | October 2013 – November 2013 |

## 5.11 Adaptations to Research Design Due to Barriers

Due to staff attrition and low student recruitment, the design was best matched with the output. Group design methods were employed for both checklists and questionnaires. A group design was able to be employed for those staff that participated in Tier 1 and did not participate in Tier 2, and those staff that did receive both Tier 1 and Tier 2 intervention. A repeated measures design was attempted but unable to be fully utilized due to staff attrition. The repeated measures were able to be utilized for the small number staff who participated in Baseline, Tier 1, Tier 2, and Tier 3, as well as other combinations of these phases of the research. The majority of the participants just participated in Baseline and Tier 1, leaving a pre and post measure utilized most consistently throughout the study.

Since only six students participated from Baseline, their corresponding 10 school staff, from Baseline, participated in Tier 1. These same 10 staff were then invited to participate in Tier 2, leaving no control group as originally planned. This was done, as the six students participating all showed challenging behaviour, therefore it was felt Tier 2 would be beneficial for them. Tier 3 was conducted for only one student. This will be further explained in the results Chapter 7.

## 5.12 Inter-Rater Reliability

### 5.12.1 Staff Inter-Rater Reliability

Inter-rater reliability was calculated by number of agreements divided by total agreements and disagreements. Two observers observed nine of the ten staff participants over 32% of sessions. The inter-rater reliability was 82% (averaged across

all staff, on observed behaviours under the conditions observed.) Cohen's Kappa was also calculated, $K = 0.79$, considered good (Coolican, 2014). Another PhD student at the University of Kent, as well as a masters student conducted inter-rater reliability. Both students completed a brief overview of the definitions and two practice observation sessions ahead of recording the data.

### 5.12.2 Student Inter-Rater Reliability

Inter-rater reliability was calculated by number of agreements divided by total agreements and disagreements. Two observers observed five of the six student participants over 25% of sessions. The inter-rater reliability was 91.30% (averaged across all students, on observed behaviours under the conditions observed, including staff feedback behaviour.) Cohen's Kappa was also calculated, $K = 0.89$, considered excellent (Coolican, 2014). Another PhD student at the University of Kent, as well as a masters student conducted inter-rater reliability. Both students completed a brief overview of the definitions and two practice observation sessions ahead of recording the data.

**Conclusion**

The methodology for Study 2 in the thesis is presented above. Group and single subject research designs were utilized. Bespoke training materials were created and evaluated with measures used in previous studies to understand how challenging behaviour impacts staff as well as student behaviour. Direct observations were conducted for both staff feedback and student engagement.

The next two chapters will discuss the outcomes of the study and present the data found, by tier of intervention. The chapters are split between staff outcomes and student outcomes. The thesis will conclude with a discussion of the results.

# Chapter 6 – Study 2: Staff Results

The purpose of this chapter is to provide an overview of the results for staff participants. Both students and staff took part in this intervention (student data will be reported in the next chapter), and data will be reported throughout the five phases of the research study: Baseline, Tier 1, Tier 2, Tier 3 Baseline, and Tier 3. Interventions were provided at Tier 1, Tier 2, and Tier 3. Baseline and Tier 3 Baseline were used for comparison phases. Staff questionnaires and staff behaviour in the form of positive feedback to their students will be reviewed. Student descriptions and data will be reviewed in the next chapter. As a note to the reader, the staff demographics will shift dramatically across the five phases as working within school presented many challenges, one being staff attrition.

## 6.1 Descriptive Statistics of the Participants

Below a brief overview of the staff participants is given. This will help to establish the make up of the staff that participated within the research. Staff were each assigned numbers and will be referred to by the same number throughout the study.

The staff that took part in the study were employed at the school in the 2012 – 2013 school year, as well as the first semester of the 2013-2014 school year. The school was a residential private school located in England and specialized in supporting students with intellectual disabilities, communication difficulties and challenging behaviour. The staff were made up of teachers, educational assistants, residential support workers, a behaviour support team, team leaders, and other various staff positions. During the baseline phase of the intervention, 35 staff signed up to take part

with 56.8% being female, and 40.5% being male. All staff gave their gender except for one. Below is the number and percent of staff by position. During Baseline and Tier 1, staff that participated equalled 35. This dropped to 10 staff participants in Tier 2, and concluded with seven staff participants in Tier 3.

*Table 6.1 Staff Demographics at Baseline*

| Staff Position | Baseline – Frequency (Percent) | Tier 1 | Tier 2 | Tier 3 Baseline | Tier 3 |
|---|---|---|---|---|---|
| Teacher | 3 (8.1%) | 2 (20.0%) | 3 (23.1%) | 2 (33.3%) | 2 (28.6%) |
| Educational Assistant | 7 (18.9%) | 2 (20.0%) | 2 (15.4%) | 2 (33.3%) | 2 (28.6%) |
| Residential Support Worker | 17 (45.9%) | 4 (40.0%) | 6 (46.2%) | 2 (33.3) | 2 (28.6%) |
| Behaviour Support Team | 2 (5.45%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| Team Leader | 4 (10.8%) | 2 (20.0%) | 1 (7.7%) | 0 (0.0%) | 0 (0.0%) |
| Other | 2 (5.4%) | 0 (0.0%) | 1 (7.7%) | 0 (0.0%) | 1 (14.3%) |
| Gender | 21 Female (58.3%) 15 Male (41.7%) | 6 F (60.0%) 4 M(40.0%) | 8 F (61.5%) 3 M(23.1%) | 4 F (66.7%) 2 M(33.3%) | 5 F (71.4%) 2 M(28.6%) |

## 6.2 Baseline Staff Measures

Staff measures are reported in relation to their knowledge of challenging behaviour, their actions, reactions and emotions, related to challenging behaviour. Most measures were conducted at baseline, apart from direct observations, which could not

be conducted at baseline, as Tier 1 training took place prior to the start of the school term, at the school's request. No parent measures are reported throughout due to an extremely low response rate. Each measure is reported separately below. All numbers presented are rounded to the nearest second decimal place throughout the entire chapter.

Due to the changing number in staff throughout the study, a table is presented at the beginning of each phase of intervention with the numbers for all phases of the study. The phase being discussed is in bold font. This is to help the reader follow the changing staff participation. Table 6.2 below details numbers throughout all five phases of the intervention, but Baseline is highlighted. Thirty-five staff completed measures during this phase, and direct observations were unavailable due to school not being in session.

*Table 6.2 Participant Numbers by Phase of Research*

| Phase of Intervention | Staff Participating in Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|---|
| **Baseline** | **Not Applicable** | **35** | **Not Available** |
| Tier 1 | 35 | 13 | 10 |
| Tier 2 | 10 | 13 | 7 |
| Tier 3 Baseline | Not Applicable | 6 | 7 |
| Tier 3 | 1 | 3 | 2 |

### 6.2.1 Emotional Reactions to Challenging Behaviour scale with Positive Affect Domains – Baseline

Staff were asked to rate 15 negative emotions and eight positive emotions using a four point scale from zero to three on both of these emotional rating scales (Jones &

Hastings, 2003) . These ratings were in relation to any of these feelings evoked by a vignette presented at the top of the Emotional Reactions to Challenging Behaviour scale (Appendix L). During baseline, 35 staff completed the measure. Below is a summary of the descriptive statistics for each subscale in relation to the Emotional Reactions to Challenging Behaviour scale with Positive Affect Domains (ERCB). This is presented to give an overall picture of the staff's emotional reactions prior to the start of the intervention.

*Table 6.3 Emotional Reactions to Challenging Behaviour Scale Scores at Baseline for Staff*

| Baseline | ERCB – CR (Confident/Relaxed) *Max Score = 12* | ERCB CE (Cheerful/Excited) *Max Score = 12* | ERCB DA (Depression/Anger) Max Score = 30 | ERCB FA (Fear/Anxiety) Max Score = 15 |
|---|---|---|---|---|
| *N* | *35* | *34* | *35* | *35* |
| Mean (SD) | 6.60 (2.24) | 3.12 (3.32) | 7.20 (4.10) | 4.00 (2.35) |
| Median | 7 | 2 | 7 | 5 |
| Range | 3 – 11 | 0 – 10 | 0 – 19 | 0 – 10 |
| Jones & Hastings 2003 | | | | |
| Attention Maintained Mean (SD) | 2.96 (2.37) | 0.13 (0.39) | 8.08 (6.87) | 2.25 (2.39) |
| Escape Maintained Mean (SD) | 4.10 (2.96) | 0.62 (1.34) | 6.03 (4.67) | 1.79 (1.87) |

For data to be included, participants had to answer at least 50% of the scale. In addition for a subscale to be included, the participant had to answer at least 50% of the subscale. For any missing ratings on a subscale, the mean for that subscale was taken

per participant and entered for the missing value on that subscale. Due to the different number of questions on the Emotional Reactions to Challenging Behaviour Scale, each subscale was divided by the number of questions on the subscale to determine the highest scoring scale. It is reported as intended without this division so it is comparable to other research studies. As can be seen in the above table, all subscales were able to be scored on all 35 participants, except for the Cheerful/Excited subscale, which could only be scored for 34 of the participants. The Depression/Anger subscale had the highest mean (*M* = 7.20) and median (Md = 7) showing staff were more likely to report higher levels of Depression/Anger when presented with the vignette about challenging behaviour. The highest possible score on the Depression/Anger subscale was 30. On the positive affect domain, feelings of Confident/Relaxed were reported more highly than the Cheerful/Excited domain with a mean score of (*M* = 6.60) out of a possible 12.

Below the line in the table comparisons to another study have been given, while not entirely comparable in sample size it gives the reader the an idea of Emotional Reactions to Challenging Behaviour survey scores other research has found. In the Jones and Hastings (2003) study, a video was shown with a man who was described as having an intellectual disability displaying self-injury. The man was made up to look like he had bruising and different conditions were shown, attention maintained and escape maintained self-injury (Jones & Hastings, 2003), hence the separation of scores. The vignette used in the current study described self-injury and physical aggression, but no description of maintaining function was addressed. In both conditions in the Jones and Hastings (2003) study as well as in the present research study, the Depression/Anger subscale was reported as highest on the negative emotion subscale and the

Confident/Relaxed subscale was reported as highest on the positive affect domain. This is the same for the current study. Limited conclusions can be drawn as the sample size and population were different.

A Mann-Whitney U test was run to see if there were differences in reactions between men (N = 14) and women (N = 20). No significant difference in their emotional reactions was seen on any of the four subscales. A Mann-Whitney U test was also run to see if residential support workers differed from other school staff in their responses. Residential support workers were chosen because 45.9% of the staff that participated in the research study served in this role. No significant difference between residential support workers and other staff were found on any subscale on the Emotional Reactions to Challenging Behaviour scale. This can be seen in Appendix T.

### 6.2.2 Self-Injurious Behaviour Questionnaire – Knowledge and Action Subscales

Staff were also asked to complete two sections of the Self-Injurious Behaviour questionnaire (SIBQ), the Knowledge subscale and Action subscale (Oliver et al., 1996). The staff completed the five item Action subscale where staff can answer the question/scenario as correct, reinforcing the challenging behaviour, avoiding the challenging behaviour, or attributing internal organic causes to the challenging behaviour (Oliver et al., 1996). The staff were also asked to complete the 11 item knowledge of challenging behaviour subscale (Oliver et al., 1996). This subscale contained multiple choice items, with four possible answers, but only one answer was correct. This subscale looked to understand if the participants had knowledge of basic

behavioural techniques and processes (Oliver et al., 1996). Below is a summary of the descriptive statistics of the staff responses to the Self-Injurious Behaviour questionnaire.

*Table 6.4 Self-injurious Behaviour Questionnaire Knowledge and Action Scores at Baseline for Staff*

| Baseline | SIBQ Knowledge Correct | SIBQ Knowledge Incorrect | SIBQ Action Correct | SIBQ Action Reinforcing | SIBQ Action Avoidance | SIBQ Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 35 | 35 | 35 | 35 | 35 | 35 |
| Mean (SD) | 45.45 (12.47) | 54.55 (12.48) | 26.29 (18.00) | 52.00 (18.28) | 20.00 (12.83) | 1.71 (7.74) |
| Median | 45.45 | 54.55 | 20.00 | 60.00 | 20.00 | 0.00 |
| Range | 18.18 – 72.73 | 27.27 – 81.82 | 0.00 – 80.00 | 0.00 – 80.00 | 0.00 – 60.00 | 0.00 – 40.00 |

Questionnaires were included if at least 50% of the questionnaire was complete. Additionally, a subscale was included if at least 50% of the subscale was complete. For any missing data on the Knowledge subscale, where the answers were either correct or incorrect, the mode was taken (by participant) and applied to missing questions. If the participant did not have a mode (five questions were marked correct, and five were marked incorrect), the missing questions were marked as wrong. This was done to underestimate the ability of the participants as opposed to overestimating their ability. All 35 participants completed the measure enough to be able to report a score. The mean for correct answers on the knowledge subscale was ($M$ = 45.45%), showing the participants did not have an extensive knowledge of behavioural techniques in relation to challenging behaviour. Comparisons to other research were not possible due to the

fact that only two subscales were used. These two subscales have been used in the research conducted by Mansell and colleagues (2008), but only regression scores were reported (Mansell et al., 2008), making comparison impossible.

A Mann-Whitney U test was conducted to see if there was a difference between genders when answering the questions, no significant difference was seen (Appendix T). A Mann-Whitney U Test was also conducted to see if there was a difference in answers between residential support workers and other staff members (Appendix T). No significant difference was found between residential support workers and other members of staff. The same procedure was repeated for both gender and job roles on the Action subscale, with no significant differences found on any of the possible outcomes, correct, reinforcing, avoidance, or internal organic. These tests were done to see if gender or job role accounted for differences in staff responses, and as reported above there were none.

### 6.2.3 Baseline Staff Direct Observations

Baseline observations could not be conducted due to the school's availability regarding Tier 1 training, prior to the start of the 2012 – 2013 school year. This made it impossible to observe staff within the classroom at baseline, as they had not opened the school for the year.

## 6.3 Tier 1 Staff Measures

Tier 1 comprised of a one day (5 hour) large group training to which all 35 staff were invited, and additional staff attended, but chose not to participate in completing measures. These additional staff that chose not to participate, equalled less than 10.

During this training the key take home messages were that challenging behaviour is a form of communication and positive attention should be given to the students at a ratio of five positive comments to one negative comment. (The training is fully described in Chapter 5 Methodology and also in Appendix F.) The same measures administered during baseline were also administered following Tier 1. Questionnaires were distributed to the staff through a school liaison member. There was a considerable drop in response rate, even with multiple prompts via written notes and emails. Staff attrition was also an issue that affected the number of participants throughout the remainder of the study. In addition to the same two measures reported in baseline, direct observations of staff behaviour were undertaken. The results of the measures and direct observations are given below.

Table 6.5 shows the number of participants for each phase of research. Tier 1 is in bold. During this phase, 35 staff were able to participate and 13 actually completed the measures and ten staff were able to be observed.

*Table 6.5 Participant Numbers by Phase of Research*

| Phase of Intervention | Staff Participating in Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|---|
| Baseline | Not Applicable | 35 | Not Available |
| **Tier 1** | **35** | **13** | **10** |
| Tier 2 | 10 | 13 | 7 |
| Tier 3 Baseline | Not Applicable | 6 | 7 |
| Tier 3 | 1 | 3 | 2 |

### 6.3.1 Emotional Reactions to Challenging Behaviour Scale with Positive Affect Domains – Tier 1

Within a month of completing Tier 1 training, staff were again asked to rate 15 negative emotions and eight positive emotions using a four point scale form zero to three on the Emotional Reactions to Challenging Behaviour scale, as at baseline (Jones & Hastings, 2003) . Thirteen staff members completed the Emotional Reactions to Challenging Behaviour scale with at least 50% of the items rated. For the subscale to be included, again, at least 50% of the subscale items had to be complete. The mean by subscale by participant was used for any missing data. Only the Depression/Anger subscale could not be scored for one participant, leaving the N = 12 for this subscale.

***Table 6.6 Emotional Reactions to Challenging Behaviour Scale Scores Post Tier 1 for Staff***

| Post Tier 1 | ERCB – CR (Confident/Relaxed) *Max Score = 12* | ERCB CE (Cheerful/Excited)*Max Score = 12* | ERCB DA (Depression/Anger) Max Score = 30 | ERCB FA (Fear/Anxiety) Max Score = 15 |
|---|---|---|---|---|
| N | 13 | 13 | 12 | 13 |
| Mean (SD) | 5.96 (2.96) | 3.32 (3.92) | 7.80 (4.20) | 4.10 (2.00) |
| Median | 7 | 2 | 8 | 5 |
| Range | 0 – 11 | 0 – 11 | 1 – 15 | 1– 1 |
| Baseline | | | | |
| N | 35 | 34 | 35 | 35 |
| Mean (SD) | 6.60 (2.24) | 3.12 (3.32) | 7.20 (4.10) | 4.00 (2.35) |
| Median | 7 | 2 | 7 | 5 |

The mean (*M* = 7.80) and median (Md = 8) remained the highest on the Depression/Anger subscale as in baseline and the Confident/Relaxed domain was rated as the highest positive affect domain (M = 5.96). Again, this shows staff were responding with higher feelings of Depression/Anger on the Emotional Reactions to Challenging Behaviour scale. A Wilcoxon Signed Ranks test was run between Baseline and post Tier 1 for staff that completed the Emotional Reactions to Challenging Behaviour Scale at both time points, no significant findings were found (Appendix T). Additionally, a Mann-Whitney U test was run between genders and job roles, no significant findings were found to report (Appendix T).

### 6.3.2 Self-Injurious Behaviour Questionnaire – Knowledge and Action Subscales – Tier 1

Within a month of Tier 1 training, the Self-Injurious Behaviour questionnaire was again administered. Staff were asked to answer questions regarding their actions to challenging behaviour questions/scenarios, and their knowledge of behavioural processes and techniques (Oliver et al., 1996). Only questionnaires that were answered at least 50% complete, with at least 50% on each subscale were included. For any missing data, the mode was used for that question. Below is a table of descriptive statistics for post Tier 1 Self-Injurious Behaviour questionnaire. As seen below, the N dropped from 35 participants to 10. Between baseline and post Tier 1, which was one month, two staff members were signed off as sick and five had left the employment of the primary school for various reasons. The others were non responsive even after additional notes and emails.

*Table 6.7 Self-Injurious Behaviour Questionnaire Knowledge and Action Scores Post Tier 1 for Staff*

| Post Tier 1 | SIBQ T1 Knowledge Correct | SIBQ T1 Knowledge Incorrect | SIBQ T1 Action Correct | SIBQ T1 Action Reinforcing | SIBQ T1 Action Avoidance | SIBQ T1 Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 10 | 10 | 10 | 10 | 10 | 10 |
| Mean (SD) | 43.63 (12.72) | 56.36 (12.72) | 30.00 (28.67) | 50.00 (25.39) | 20.00 (16.33) | 0.00 (0.00) |
| Median | 45.45 | 54.55 | 20.00 | 60.00 | 20.00 | 0.00 |
| Range | 27.27 – 63.64 | 36.36 – 72.73 | 0.00 – 80.00 | 0.00 – 80.00 | 0.00 – 40.00 | 0.00 – 0.00 |
| Baseline | | | | | | |
| N | 35 | 35 | 35 | 35 | 35 | 35 |
| Mean (SD) | 45.45 (12.47) | 54.55 (12.48) | 26.29 (18.00) | 52.00 (18.28) | 20.00 (12.83) | 1.71 (7.74) |
| Median | 45.45 | 54.55 | 20.00 | 60.00 | 20.00 | 0.00 |

The mean on the Knowledge subscale went down from baseline (*M* = 45.45) to (*M* = 43.63). The mean for correct answers on the Action subscale increased from (*M* = 26.29) in baseline to (*M* = 30.00) post Tier 1. A Wilcoxon Signed Ranks test was conducted on the staff that completed both the Baseline and Post Tier 1 questionnaires to see if there was a significant change between baseline and post Tier 1 (Appendix T). No statistically significant changes were seen, and no effect size of medium to large was noted.

A Mann-Whitney U test was run for the Self-injurious Behaviour questionnaire to look at the differences between residential support workers and other school staff. This

was done as over 46% of the participants were residential support workers who responded in this tier.

*Table 6.8 Mann-Whitney U Test Post Tier 1 Self-Injurious Behaviour Questionnaire of Residential Support Workers and All Other School Staff*

| | SIBQ T1 Job Knowledge Correct | SIBQ T1 Job Knowledge Incorrect | SIBQ T1 Job Action Correct | SIBQ T1 Job Action Reinforcing | SIBQ T1 Job Action Avoidance | SIBQ T1 Job Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 10 | 10 | 10 | 10 | 10 | 10 |
| U | 10.00 | 10.00 | 11.00 | 17.50 | 26.00 | 33.00 |
| z | -0.44 | -0.44 | -0.23 | -1.00 | -1.58 | 0.00 |
| p | 0.66 | 0.66 | 0.82 | 0.32 | 0.11 | 1.00 |
| r | 0.14 | 0.14 | 0.07 | 0.32 | 0.50 | 0.00 |

In the Table 6.8 above, a medium effect size (r = 0.50) was reported between residential support workers (n = 4, average ranked score = 7.25) and other school staff (n = 6, average ranked score = 6.25) for the Action subscale of avoidance on the Self-Injurious Behaviour Questionnaire. The effect size is based on Cohen's suggestion for effect sizes, small r = 0.2, medium r = 0.5, and large r = 0.8 (Coolican, 2014). While the p value (p = 0.11) was not statistically significant, it shows there is a difference between the residential support workers and other school staff in how they report to address challenging behaviour by avoidance, at least in this very small sample. Residential support workers (n = 4) reported using avoidance (average rank 7.25) to address challenging behaviour over other school staff (n = 6) with an average rank of 4.33. This

effect size will be referred to throughout the remainder of the phases when running statistical tests.

Another Mann-Whitney U test was run to see if there was a difference between genders on the Self-Injurious Behaviour Questionnaire. Below is a table summarizing the findings.

*Table 6.9 Mann-Whitney U Test for Self-injurious Behaviour Questionnaire Post Tier 1 Between Gender*

| Post Tier 1 | SIBQ T1 Gender Knowledge Correct | SIBQ T1 Gender Knowledge Incorrect | SIBQ T1 Gender Action Correct | SIBQ T1 Gender Action Reinforcing | SIBQ T1 Gender Action Avoidance | SIBQ T1 Gender Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 10 | 10 | 10 | 10 | 10 | 10 |
| U | 11.00 | 11.00 | 11.00 | 7.50 | 5.00 | 12.00 |
| z | -0.22 | -0.22 | -0.23 | -1.00 | -1.58 | 0.00 |
| p | 0.82 | 0.82 | 0.82 | 0.32 | 0.11 | 1.00 |
| r | 0.26 | 0.26 | 0.07 | 0.32 | 0.50 | 0.00 |

As can be seen in Table 6.9 above, the action subscale for avoidance has a medium effect size across gender (U = 11.00, z = -1.58, p = 0.11, and r = 0.50). Even though there is no statistical significance at this small sample size, a medium effect size was still found, suggesting men (n = 4) used avoidance (average ranked score of 7.25) more frequently to address challenging behaviour than women (n = 6) with an average ranked score of 4.33 at the Post Tier 1 time point.

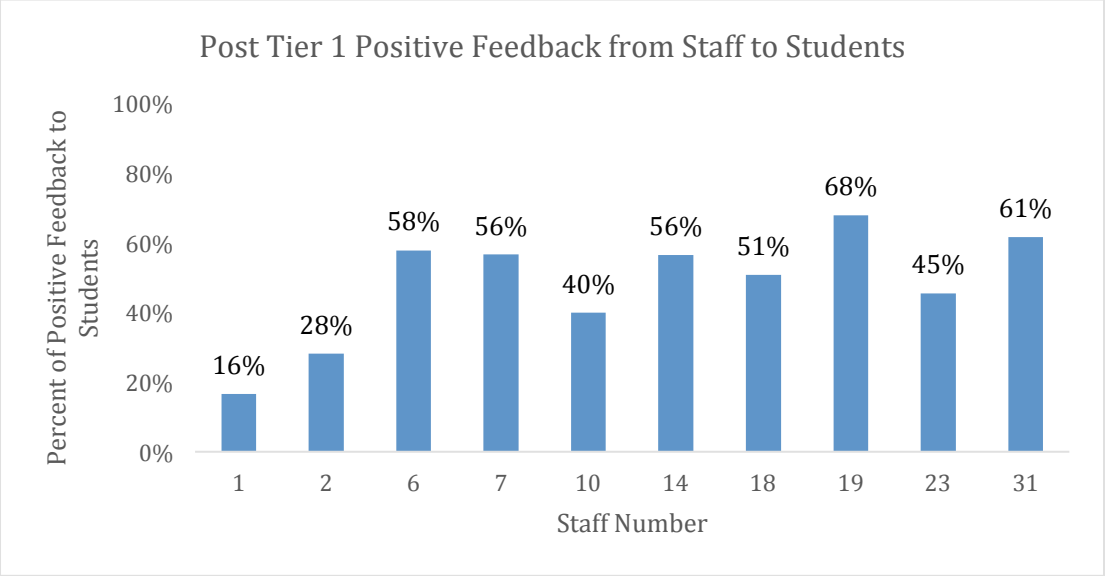
### 6.3.3 Tier 1 Staff Direct Observation Data

After the Tier 1 training intervention, direct observations were conducted within a month with 14 staff. Ten staff could be observed on multiple occasions for the minimum time and conditions. Direct observations included a frequency count of feedback to students. Feedback was counted for any student interaction, not just those targeted for research. The feedback categories were positive, neutral and negative. Each instance was counted even if the staff member said or did any of the above actions more than once.

Ten staff were observed over a variety of conditions that included working one on one with a student, working with a student during a large group activity, working with a student during lunch, or working with a student on a break. These activities were chosen to ensure staff were seen under a variety of conditions. Staff could have up to five observations per tier. An observation was a minimum of five minutes, with a maximum of 20 minutes. For a staff member's data to be included, at least 40 minutes of observations needed to be conducted across at least three conditions in each tier of training. Below are bar graphs representing the behaviour of the staff members after having received Tier 1 training. These graphs represent the totals by percent of all observations taken post Tier 1 training. Percentage was chosen due to the observation conditions lasting different lengths of time. This was calculated by total intervals scored for positive/neutral/negative feedback divided by total intervals for all observations in the tier multiplied by 100.

**Positive Staff Feedback**

*Figure 6.1 Positive Feedback from Staff – Post Tier 1*

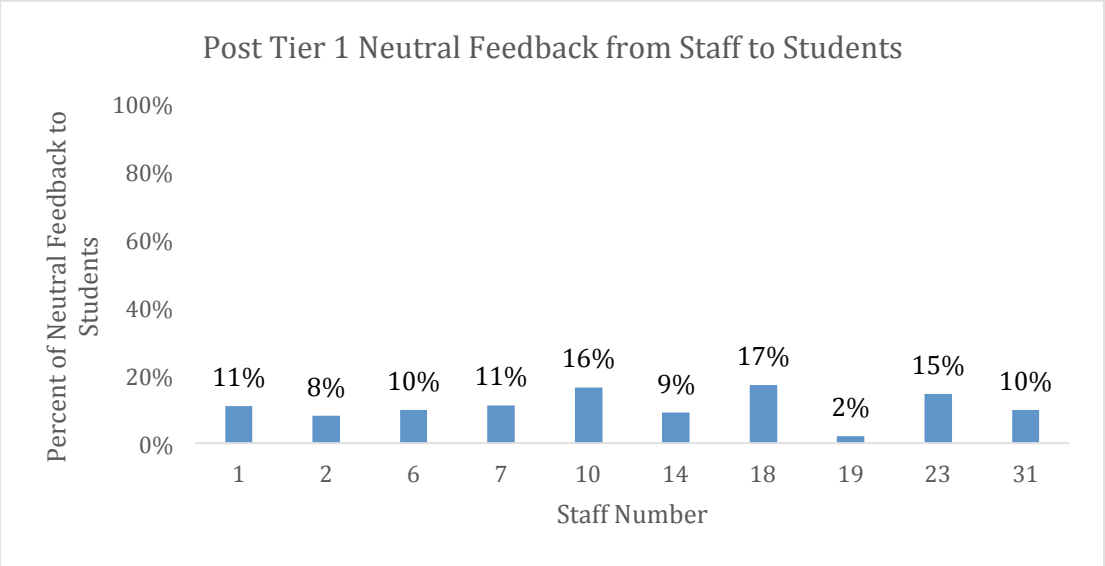



As can be seen in Figure 6.1 above, there were 10 staff observed post Tier 1. The mean of positive feedback to students during this phase of intervention was 48.24%, with a median = 53.40.

**Neutral Staff Feedback**

Neutral feedback was recorded, as it was an interaction with students. There was no expectation of the intervention affecting this data, but as this makes up part of total interactions, the data will be presented.

*Figure 6.2 Neutral Feedback from Staff – Post Tier 1*

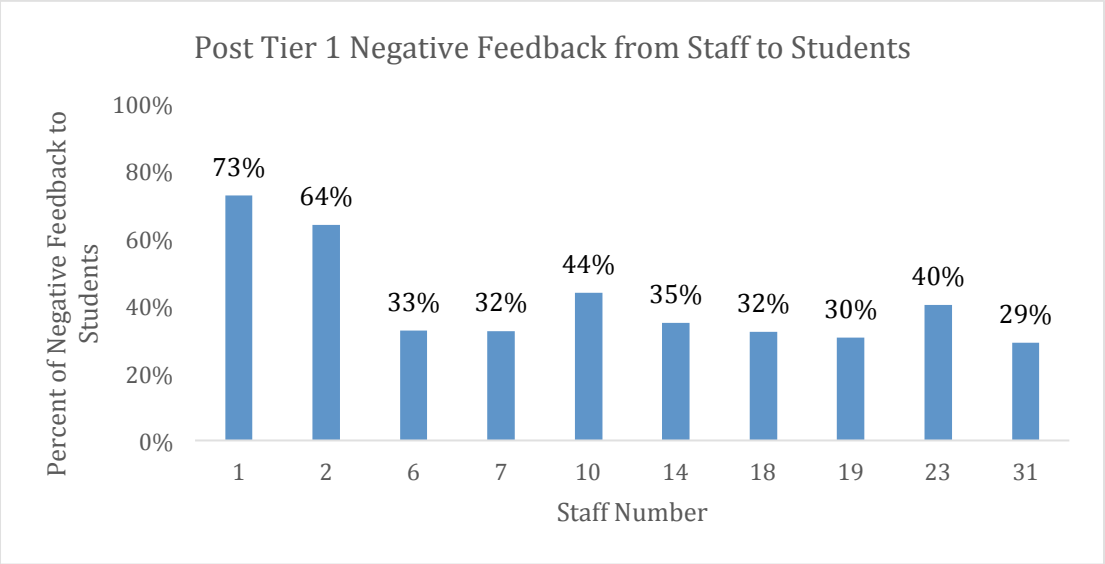



Again, 10 staff members were observed post Tier 1 training. The mean of neutral feedback was 10.99% with a median of 10.37 across all 10 participants.

**Negative Staff Feedback**

Negative feedback was also recorded. A take home message of Tier 1 was to give students five times more positive feedback than negative feedback.

*Figure 6.3 Negative Feedback from Staff – Post Tier 1*




Following Tier 1 intervention the mean of the 10 staff members was 40.7% with a median = 33.72. While this is lower than the positive feedback ($M$ = 48.24), the goal of five times less negative feedback was not reached during this phase of the research. Below Table 6.10 shows the ratio of positive to negative feedback for staff participating in post Tier 1 data collection. The ratios have been rounded to the nearest whole number for ease of comparison.

*Table 6.10 Post Tier 1 Staff Ratio of Positive: Negative Feedback*

| Staff Number | Post Tier 1 Ratio of Positive: Negative Feedback |
|---|---|
| 1 | 1:4 |
| 2 | 1:2 |
| 6 | 2:1 |
| 7 | 2:1 |
| 10 | 1:1 |
| 14 | 2:1 |
| 18 | 2:1 |
| 19 | 2:1 |
| 23 | 1:1 |
| 31 | 2:1 |

As can be seen above, of the 10 staff observed, six were making twice as many positive comments to students as negative. While this is not the 5:1 ratio that was aimed for, the greater number of positive comments is still seen as better than the inverse of making more negative comments. Without baseline for comparison, no conclusion can be drawn in regards to how Tier 1 affected the positive to negative comment ratios for those staff involved. A comparison will be made for those that participated in Tier 2 below.

### 6.4 Tier 2 Staff Measures

Tier 2 consisted of two days of two hour trainings after school (refer to Appendix H - L). School staff that worked with any of the target students were invited to attend.

In attendance were 10 staff, all of whom attended both days of training except one participant, who only attended one day of training. As this staff member attended at least 50% of the training, the staff member was considered trained. During the training, the staff that had been directly observed following Tier 1 were given feedback on their positive and negative interactions in the form of a ratio. Staff worked with the researcher to create a plan for their target student during the four hours of training.

Following Tier 2, 13 staff members were able to complete the questionnaire pack with at least 50% of the measures and subscales completed. One additional new staff member was added, as the teacher for four of the students involved in the research was on medical leave and had been replaced; this new staff member did not take part in the Tier 2 training. Two more members of staff left employment at the school during the post Tier 2 time frame.

Table 6.11 below gives a recap of the numbers leading up to Tier 2 intervention. In bold are the participants for Tier 2. Ten participants took part in the intervention, 13 completed measures, and seven were available for direct observation.

*Table 6.11 Staff Numbers by Phase of Research*

| Phase of Intervention | Staff Participating in Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|---|
| Baseline | Not Applicable | 35 | Not Available |
| Tier 1 | 35 | 13 | 10 |
| **Tier 2** | **10** | **13** | **7** |
| Tier 3 Baseline | Not Applicable | 6 | 7 |
| Tier 3 | 1 | 3 | 2 |

### 6.4.1 Emotional Reactions to Challenging Behaviour scale with Positive Affect Domains – Post Tier 2

Following Tier 2, staff members (N = 13) were again asked to rate their reactions to challenging behaviour on two negative emotion subscales as well as two positive affect domains. This included both those that had been trained i.e. had participated in the Tier 2 interventions, and those that did not. Participant responses on the subscales were included as long as at least 50% of the subscale was complete. For any missing data, the mean for that subscale was used by participant.

*Table 6.12 Emotional Reactions to Challenging Behaviour Scale Scores Post Tier 2 for Staff*

| Post Tier 2 | ERCB – CR (Confident/Relaxed) Max Score = 12 | ERCB CE (Cheerful/Excited) Max Score = 12 | ERCB DA (Depression/Anger) Max Score = 30 | ERCB FA (Fear/Anxiety) Max Score = 15 |
|---|---|---|---|---|
| N | 13 | 13 | 13 | 13 |
| Mean (SD) | 6.40 (2.60) | 2.68 (3.36) | 6.50 (3.70) | 4.15 (3.1) |
| Median | 7 | 1 | 6 | 4 |
| Range | 2 – 11 | 0 – 11 | 1 – 12 | 0 – 12 |
| Baseline | | | | |
| N | 35 | 34 | 35 | 35 |
| Mean (SD) | 6.60 (2.24) | 3.12 (3.32) | 7.20 (4.10) | 4.00 (2.35) |
| Median | 7 | 2 | 7 | 5 |
| Post Tier 1 | | | | |
| N | 13 | 13 | 12 | 13 |
| Mean (SD) | 5.96 (2.96) | 3.32 (3.92) | 7.80 (4.20) | 4.10 (2.00) |
| Median | 7 | 2 | 8 | 5 |

The mean (*M* = 6.40) remains the highest on the Confident/Relaxed positive affect domain; again showing participants rated this scale the highest. On the negative emotion subscales, the Depression/Anger scale was rated the highest with a mean of (*M* = 6.50).

A Mann-Whitney U test was conducted between those participants (N = 5) that received the Tier 2 intervention, and those that did not (N = 8) based on the questionnaires completed post Tier 2 training. Below are the results by subscale.

*Table 6.13 Mann-Whitney U Test Tier 2 Emotional Reactions to Challenging Behaviour Scale Between Post Tier 2 Intervention and Control*

| Post Tier 2 | ERCB – CR T2 Intervention (Confident/Relaxed) | ERCB CE T2 Intervention (Cheerful/Excited) | ERCB DA T2 Intervention (Depression/Anger) | ERCB FA T2 Intervention (Fear/Anxiety) |
|---|---|---|---|---|
| N | 13 | 13 | 13 | 13 |
| U | 16.00 | 20.00 | 7.00 | 18.50 |
| z | -0.59 | 0.00 | -1.91 | -0.22 |
| p | 0.55 | 1.00 | 0.06 | 0.83 |
| r | 0.16 | 0.00 | 0.53 | 0.06 |

A medium effect size was seen on the Emotional Reactions to Challenging Behaviour Depressed/Anger subscale (U= 7.00, z = -1.91, p = 0.06, r = 0.53). The group that had received the training reported higher mean ranked scores (n = 5, average ranked score = 9.60) than those that did not receive the training (n = 8, average ranked score = 5.38). Mann-Whitney U tests were also run for differences between females and males, as well as job roles (residential support workers = 38% of the participants and other staff) (Appendix T). No significant findings were found and these are therefore not reported here.

A Wilcoxon Signed Ranks test was run to see if there were differences between Baseline and post Tier 2, as well as post Tier 1 and post Tier 2 by looking at measures completed by the same staff at each time point. No significant differences were found between Baseline and post Tier 2, therefore this is not reported here. Below Table 6.14 summarizes the findings between post Tier 1 and post Tier 2.

*Table 6.14 Wilcoxon Signed Ranks Test on the Emotional Reactions to Challenging Behaviour Scale Between Post Tier 1 and Post Tier 2*

| | ERCB – CR T1 – T2 (Confident/Relaxed) | ERCB CE T1 – T2 (Cheerful/Excited) | ERCB DA T1 – T2 (Depression/Anger) | ERCB FA T1 – T2 (Fear/Anxiety) |
|---|---|---|---|---|
| N | 8 | 8 | 8 | 8 |
| z | 0.00 | -0.45 | -0.45 | -1.84 |
| p | 1.00 | 0.66 | 0.66 | 0.07 |
| r | 0.00 | 0.16 | 0.16 | 0.65 |

While no statistically significant changes were seen, a medium effect size is reported for the Fear/Anxiety subscale on the Emotional Reactions to Challenging Behaviour Scale (with a mean rank of 4.83 and 7.40 respectively). This shows there was a difference in how participants responded on the Fear/Anxiety Subscale between post Tiers 1 and 2, with scores increasing Post Tier 2. This is the opposite direction from what the researcher intended.

### 6.4.2 Self-Injurious Behaviour Questionnaire – Knowledge and Action Subscales – Post Tier 2

The Self-injurious Behaviour Questionnaire Knowledge and Action subscales were again administered post Tier 2 intervention. For the questionnaire and subscale to be calculated, each participant had to answer at least 50% of the measure. For any missing data on the knowledge portion of the subscale, the mode by participant was used as there were 11 correct or incorrect questions regarding behavioural processes

and techniques. For the Action subscale, the mode by participant was used as well for any missing values. Below is a table of the descriptive statistics for Tier 2.

*Table 6.15 Self-injurious Behaviour Questionnaire Knowledge and Action Scores Post Tier 2 for Staff*

| | SIBQ T2 Knowledge Correct | SIBQ T2 Knowledge Incorrect | SIBQ T2 Action Correct | SIBQ T2 Action Reinforcing | SIBQ T2 Action Avoidance | SIBQ T2 Action Internal Organic |
|---|---|---|---|---|---|---|
| N | | | | | | |
| | 13 | 13 | 13 | 13 | 13 | 13 |
| Mean (SD) | 50.35 (15.13) | 49.65 (15.13) | 27.69 (10.13) | 49.23 (21.00) | 23.08 (22.87) | 0.00 (0.00) |
| Median | 54.55 | 45.45 | 20.00 | 60.00 | 20.00 | 0.00 |
| Range | 27.27 – 72.73 | 27.27 – 72.73 | 20.00 – 40.00 | 20.00 – 80.00 | 0.00 – 600.0 | 0.00 – 0.00 |
| Baseline | | | | | | |
| N | 35 | 35 | 35 | 35 | 35 | 35 |
| Mean (SD) | 45.45 (12.47) | 54.55 (12.48) | 26.29 (18.00) | 52.00 (18.28) | 20.00 (12.83) | 1.71 (7.74) |
| Median | 45.45 | 54.55 | 20.00 | 60.00 | 20.00 | 0.00 |
| Post Tier 1 | | | | | | |
| N | 10 | 10 | 10 | 10 | 10 | 10 |
| Mean (SD) | 43.63 (12.72) | 56.36 (12.72) | 30.00 (28.67) | 50.00 (25.39) | 20.00 (16.33) | 0.00 (0.00) |
| Median | 45.45 | 54.55 | 20.00 | 60.00 | 20.00 | 0.00 |

As can be seen in Table 6.15 above, the mean rose from (*M* = 43.63) post Tier 1, to (*M* = 50.35) post Tier 2 on the correct answers in the Knowledge subscale. This was the intended effect of Tier 2 training. The same was not seen in the correct answers on the Action subscale. The mean dropped from (*M* = 30.00) to (*M* = 27.69). Ten of the 13 members of staff were trained at the Tier 2 level

A Wilcoxon Signed Ranks test was run to see if there was a difference between baseline scores on the Self-Injurious Behaviour Questionnaire and those completed post Tier 2 for staff who completed the measures in both samples (n=13). Only the Action subscale of correct showed a statistically significant difference with a medium effect size (N = 13, z = -2.12, p=0.03, r = 0.59). This shows there is an increase between the Baseline scores and post Tier 2 scores for the action subscale answers correct (mean rank 4.67 and 9.00 respectively). This can seen in Table 6.16 below.

*Table 6.16 Wilcoxon Signed Ranks Test for the Self-Injurious Behaviour Questionnaire Between Baseline and Post Tier 2*

| | SIBQ T2 B – T2 Knowledge Correct | SIBQ T2 B –T2 Knowledge Incorrect | SIBQ T2 B – T2 Action Correct | SIBQ T2 B – T2 Action Reinforcing | SIBQ T2 B – T2 Action Avoidance | SIBQ T2 B – T2 Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 13 | 13 | 13 | 13 | 13 | 13 |
| z | -1.23 | -1.34 | -2.12 | -1.12 | -1.05 | -1.34 |
| p | 0.22 | 0.18 | 0.03 | 0.26 | 0.29 | 0.18 |
| r | 0.34 | 0.37 | 0.59 | 0.31 | 0.29 | 0.37 |

A Mann-Whitney U test was run between female and male staff and job roles (residential support workers 38% and other school staff) to see if there was any difference in the way they answered the post Tier 2 questionnaire (Appendix T). No statistically significant differences were found, and therefore these are not reported here.

An additional Mann-Whitney U test was run to see if there was a difference between those who received Tier 2 intervention and those who did not. Statistical significance and a large effect size were found between the two groups on the Knowledge subscale for both correct (N = 13, U= 0.00, z = -1.72, p 0.03, r = 0.83) and incorrect scales (N = 13, U= 0.00, z = -1.72, p 0.03, r = 0.83), with those receiving the Tier 2 training scoring higher on the Knowledge correct (mean rank score of 11.00 as compared to 4.50 for those not receiving the Tier 2 intervention) and lower on the Knowledge incorrect scale. The findings are reported in table 6.17 below.

*Table 6.17 Mann-Whitney U Test for Tier 2 Self-Injurious Behaviour Questionnaire Between Post Tier 2 Intervention and Control*

| | SIBQ T2 Int Knowledge Correct | SIBQ T2 Int Knowledge Incorrect | SIBQ T2 Int Action Correct | SIBQ T2 Int Action Reinforcing | SIBQ T2 Int Action Avoidance | SIBQ T2 Int Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 13 | 13 | 13 | 13 | 13 | 13 |
| U | 0.00 | 0.00 | 19.50 | 15.00 | 15.50 | 20.00 |
| z | -1.72 | -1.72 | -1.04 | -0.38 | -0.08 | 0.00 |
| p | 0.03 | 0.03 | 0.93 | 0.45 | 0.49 | 1.00 |
| r | 0.83 | 0.83 | 0.02 | 0.21 | 0.19 | 0.00 |

This shows there was a difference between the Self-Injurious Behaviour Questionnaire scores for the group that received Tier 2 intervention (n =  and those who did not.

### 6.4.3 Staff Direct Observation Data – Tier 2

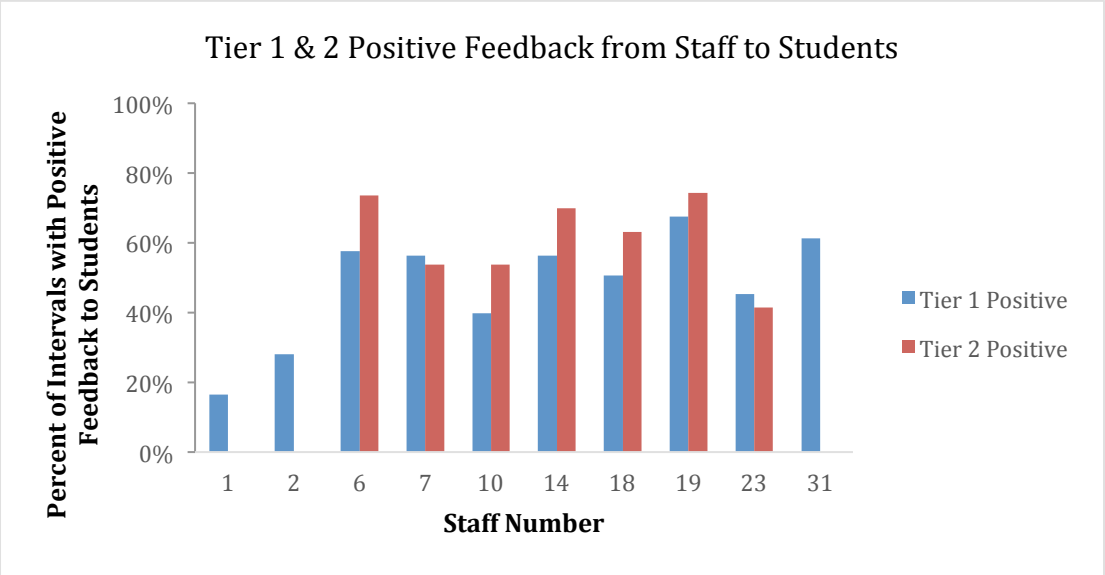
School staff were also observed post Tier 2. Of the previous 10 staff that were observed post Tier 1, seven were also observed post Tier 2. Six of these staff received both Tier 1 and Tier 2 training. Staff 1 and 31, were no longer working in the primary section of the school. Staff 2 was off on medical leave. Staff direct observations included a frequency count of feedback to students. The feedback categories were positive, neutral and negative. Feedback was counted for any student interaction, not just those targeted for research. Each instance was counted even if the staff member said or did any actions more than once.

Staff were observed over a variety of conditions that included working one to one with a student, working with a student during a large group activity, working with a student during lunch, or working with a student on a break. These activities were chosen to ensure staff were seen under a variety of conditions. Staff could have up to five observations per tier. An observation was a minimum of five minutes, with a maximum of 20 minutes. For a staff member's data to be included, at least 40 minutes of observations needed to be conducted across conditions. Below are bar graphs representing the feedback of the staff members at the post Tier 2 time point. These graphs represent the totals by percent for all observations taken after Tier 2 trainings. Percentages were chosen due to the differing lengths of observation conditions. The total number of positive/neutral/negative feedback was taken divided by the total number of intervals for the tier multiplied by 100 to obtain a percentage.

**Positive Staff Feedback**

All staff represented received Tier 2 training except Staff 10. Staff 10 is included for comparison. Feedback was considered positive if it was praise whether general or specific, a "thank you", a smile, tickles, a nod, a pat on the back was shown to any student they interacted with during the observation.

*Figure 6.4 Positive Staff Feedback – Tier 1 and Tier 2*

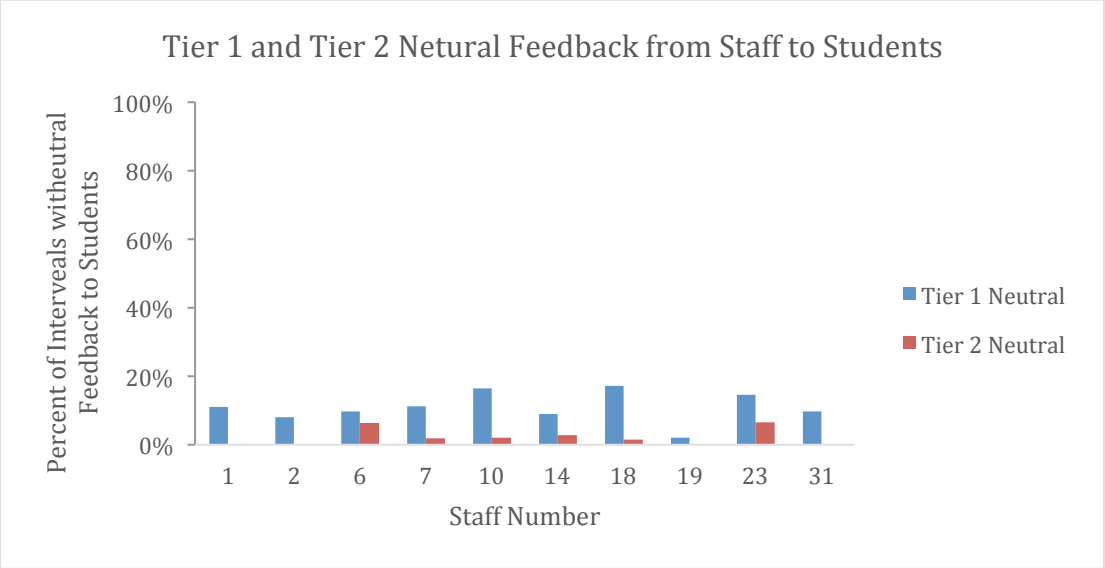



Of the seven staff observed both post Tier 1 and Tier 2, five had increases in positive feedback; this included Staff 10 who did not receive Tier 2 intervention.

**Neutral Staff Feedback**

Neutral feedback was also scored, as this was feedback given to the student. Neutral statements were comments of a statement of fact, e.g. "you are wearing black trousers" directed toward the student. Neither intervention was intended to have an impact on neutral feedback. This is just represented to understand total feedback to the students. In Figure 6.5 below, a bar graph is shown representing neutral feedback after Tier 1 and Tier 2 interventions.

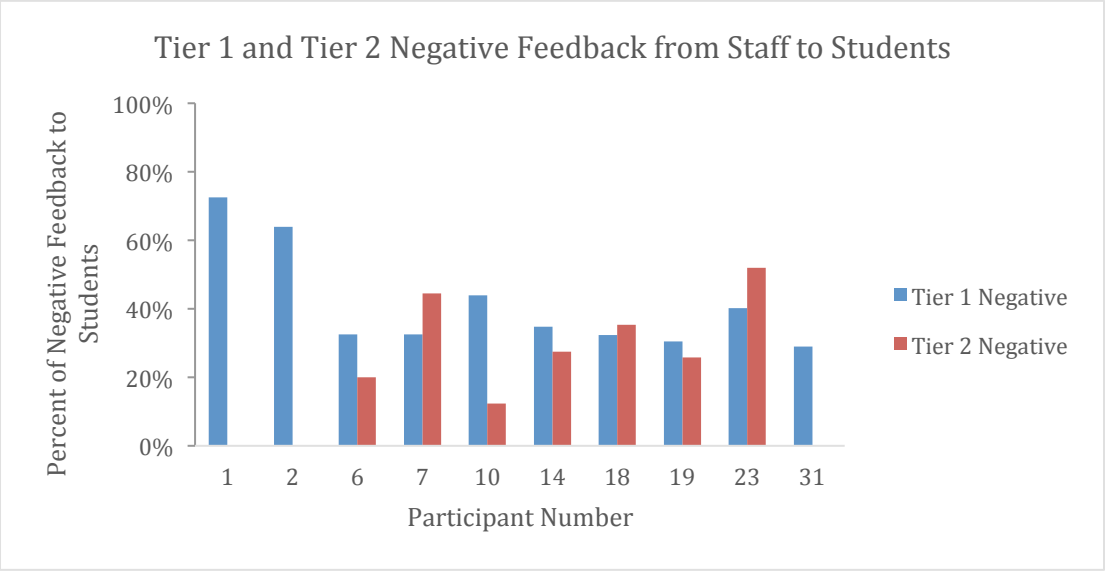
*Figure 6.5 Neutral Staff Feedback – Tier 1 and Tier 2*




**Negative Staff Feedback**

Negative feedback is defined as feedback that includes 'no', 'stop', or other forms of attention that does not tell the student what to do; and corrective feedback, telling the student what they should be doing at the present time. Negative feedback also incorporates instructions if they needed to be repeated more than once. Figure 6.6 below is a bar graph representing negative feedback post Tier 1 and Tier 2 interventions.

*Figure 6.6 Negative Staff Feedback – Tier 1 and Tier 2*




Of the seven staff members observed both post Tier 1 and Tier 2 intervention, four had decreased rates post Tier 2 intervention, including Staff 10 who did not participate in Tier 2. Below is a table summarizing the ratio of positive to negative feedback for the staff members between post Tier 1 and post Tier 2.

*Table 6.18 Post Tier 2 Staff Ratio of Positive: Negative Feedback*

| Staff Number | Post Tier 1 Ratio of Positive: Negative Feedback | Post Tier 2 Ratio of Positive: Negative Feedback |
|---|---|---|
| 1 | 1:4 | Not Observed |
| 2 | 1:2 | Not Observed |
| 6 | 2:1 | 4:1 |
| 7 | 2:1 | 1:1 |
| 10 | 1:1 | 7:1 |
| 14 | 2:1 | 3:1 |
| 18 | 2:1 | 2:1 |
| 19 | 2:1 | 3:1 |
| 23 | 1:1 | 1:1 |
| 31 | 2:1 | Not Observed |

Four of the seven participants observed increased their ratio of feedback. (Staff 10 is included in the increase, even though s/he did not participate in Tier 2 training.) Staff 7 saw a reduction in positive comments, while two staff remained the same despite participating in Tier 2 intervention. The activity or students staff were working with during the post Tier 2 observations could explain the decrease for Staff 7, but this was meant to be minimized by always observing a variety of instructional conditions.

### 6.5 Tier 3 Baseline Staff Measures

Tier 3 Baseline took place in the autumn term of the 2013 – 2014 school year. While not ideal, the research was undertaken in an applied setting and had to be

compatible with the school's needs. For this reason, prior to implementing Tier 3 training, the researcher decided a follow up from the previous school term was needed that could also serve as a baseline for any participants who would participate in Tier 3. As would be expected, staff attrition continued. Staff 23, was out for the term due to medical reasons. This staff member was the teacher for four of the students, introducing a new teacher to the study. In addition, the staff of the student who moved to secondary provision initially signed up to participate but withdrew their participation when the researcher reported an incident to the school and her supervisor[1].

All measures were administered as well as direct observations taken. This was to establish if the students still exhibited challenging behaviour and would be in need of Tier 3 interventions. All staff were contacted through school liaison with follow up notes and emails.

During Tier 3 Baseline, six staff were able to complete the measures and seven could be observed. Please refer to the table 6.19.

[1] The researcher saw the staff member ask the target student to stand in middle of the room in front of other students and staff. The staff member proceeded to yell at the student for what he considered incorrect behaviour. The staff member told the researcher he finds this a form of "punishment". The researcher reported the incident to her supervisor as well as school administration. The administration dealt with the incident.

*Table 6.19 Staff Numbers by Phase of Research*

| Phase of Intervention | Staff Participating in Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|---|
| Baseline | Not Applicable | 35 | Not Available |
| Tier 1 | 35 | 13 | 10 |
| Tier 2 | 10 | 13 | 7 |
| **Tier 3 Baseline** | **Not Applicable** | **6** | **7** |
| Tier 3 | 1 | 3 | 2 |

### 6.5.1 Emotional Reactions to Challenging Behaviour scale with Positive Affect Domains – Tier 3 Baseline

The Emotional Reactions to Challenging Behaviour scale was rated by the participants on the positive affect domains and 15 negative emotions (Jones & Hastings, 2003). All measures were included that were at least 50% complete. For any missing data, the mean by participant by subscale was taken to fill in the missing data. An overview of the descriptive statistics is presented in Table 6.20 below. This included two staff who participated in Tier 1 and Tier 2 intervention and three staff who participated in Tier 1 intervention, and one staff who was new to the school, therefore, participating in neither of the previous interventions.

*Table 6.20 Emotional Reactions to Challenging Behaviour Scale Scores at Tier 3 Baseline for Staff*

| Tier 3 Baseline | ERCB – CR (Confident/Relaxed) *Max Score = 12* | ERCB CE (Cheerful/Excited) *Max Score = 12* | ERCB DA (Depression/Anger) Max Score = 30 | ERCB FA (Fear/Anxiety) Max Score = 15 |
|---|---|---|---|---|
| N | 6 | 5 | 5 | 6 |
| Mean (SD) | 5.96 (3.32) | 2.00 (1.24) | 10.30 (5.40) | 5.9 (3.3) |
| Median | 6.84 | 2 | 10 | 4.50 |
| Range | 0 – 10 | 1 – 4 | 5 – 17 | 3 – 11 |

Participant numbers dropped significantly (N = 6). Even with this dip, the highest positive mean (*M* = 5.96) and median (Md = 6.84) was on the Confident/Relaxed Positive Affect domain, the same domain was also reported highest for Baseline and post Tier 1. The Negative emotion rated the highest was the Depression/Anger subscale (M = 10.30), again the same as in Baseline and post Tier 1. No statistical tests were run due to the low staff response rates. This small N does not allow for conclusive interpretations.

### 6.5.2 Self-Injurious Behaviour Questionnaire – Knowledge and Action Subscales – Tier 3 Baseline

The Self-injurious Behaviour questionnaire Knowledge and Action subscale was administered during Tier 3 Baseline as well. All measures were included that had at least 50% of the subscale answered. The mode was taken by participant by subscale to fill in any missing data. When noting the scores of the Self-injurious Behaviour Questionnaire, two participants had two modes on the Action subscale of the questionnaire. Therefore, the data reported left the final missing question blank as not

to speculate which answer they would be likely to answer. For this reason, their score is based on the questions actually answered.

*Table 6.21 Self-Injurious Behaviour Questionnaire Knowledge and Action Scores at Tier 3 Baseline for Staff*

| Post Tier 3 | SIBQ T3B Knowledge Correct | SIBQ T3B Knowledge Incorrect | SIBQ T3B Action Correct | SIBQ T3B Action Reinforcing | SIBQ T3B Action Avoidance | SIBQ T3B Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 6 | 6 | 6 | 6 | 6 | 6 |
| Mean (SD) | 42.44 (22.73) | 56.06 (19.43) | 26.67 (20.66) | 53.33 (20.66) | 20.00 (12.65) | 0.00 (0.00) |
| Median | 45.45 | 54.55 | 20.00 | 50.00 | 20.00 | 0.00 |
| Range | 0.09 – 63.64 | 36.36 – 90.91 | 0.00 – 60.00 | 20.00 – 80.00 | 0.00 – 40.00 | 0.00 – 0.00 |

The mean dropped from post Tier 2 ($M$ = 50.35) to ($M$ = 42.44) on the Knowledge correct subscale during the Tier 3 Baseline phase. The mean also dropped on the correct answers on the Action subscale from ($M$ = 27.69) to ($M$ = 26.67) in Tier 3 Baseline. This is not unforeseen given the gap of a summer holiday.

Again the N reported for the Self-injurious Behaviour questionnaire was small. Direct observation data was also taken for Tier 3 Baseline to serve as a follow up and ensure the challenging behaviour still existed for any participants who would receive Tier 3 intervention. The results for these direct observations are given below. The reader is reminded no baseline observations were taken right at the start of the project due to the school wanting Tier 1 training prior to the onset of the school year, therefore positive staff feedback had been addressed prior to any observations

### 6.5.3 Staff Direct Observations – Tier 3 Baseline

Tier 3 Baseline measures took place during the autumn term of the 2013 – 2014 school year. Staff were observed over a variety of conditions that included working one to one with a student, working with a student during a large group activity, working with a student during lunch, or working with a student on a break. These activities were chosen to ensure staff were seen under a variety of conditions. Staff could have up to five observations per tier. An observation was a minimum of five minutes, with a maximum of 20 minutes. For a staff member's data to be included, at least 40 minutes of observations needed to be conducted across conditions. Direct observations included a frequency count of feedback to students. Feedback was counted for any student interaction, not just those targeted for research. The feedback categories were positive, neutral and negative. Below line graphs will be presented for any participants observed in Tier 3 Baseline. There is a session by session line graph as well as a totals line graph to give the reader a better view of the data. A phase change line and a lack of connection denote intervention between data points.

The ratio was again calculated for positive to negative feedback. All staff had received Tier 1 training and all but Staff 10 had received Tier 2 training. Of the seven staff observed in the Tier 3 Baseline phase, six staff improved their score and one staff maintained their score. At this phase of the study, all staff were delivering more positive feedback to students than negative feedback.

*Table 6.22 Tier 3 Baseline Staff Ratio of Positive: Negative Feedback*

| Staff Number | Post Tier 1 Ratio of Positive: Negative Feedback | Post Tier 2 Ratio of Positive: Negative Feedback | Tier 3 Baseline Positive: Negative Feedback |
|---|---|---|---|
| 1 | 1:4 | Not Observed | Not Observed |
| 2 | 1:2 | Not Observed | Not Observed |
| 6 | 2:1 | 4:1 | 5:1 |
| 7 | 2:1 | 1:1 | 5:1 |
| 10 | 1:1 | 7:1 | 4:1 |
| 14 | 2:1 | 3:1 | 3:1 |
| 18 | 2:1 | 2:1 | 3:1 |
| 19 | 2:1 | 3:1 | Not Observed |
| 23 | 1:1 | 1:1 | Not observed |
| 31 | 2:1 | Not Observed | 13:1 |

**Staff 6**

Staff 6 is an educational assistant who works in a classroom with four of the six students in Study 2. This classroom had five students, five educational assistants, and one teacher. Participant 6 attended both Tier 1 and Tier 2 training, but only two hours of Tier 2 training. Since this was at least 50% of the training, the data has been included and the participant coded as trained.

*Figure 6.7 Staff 6 Feedback Session by Session – Tier 3 Baseline*

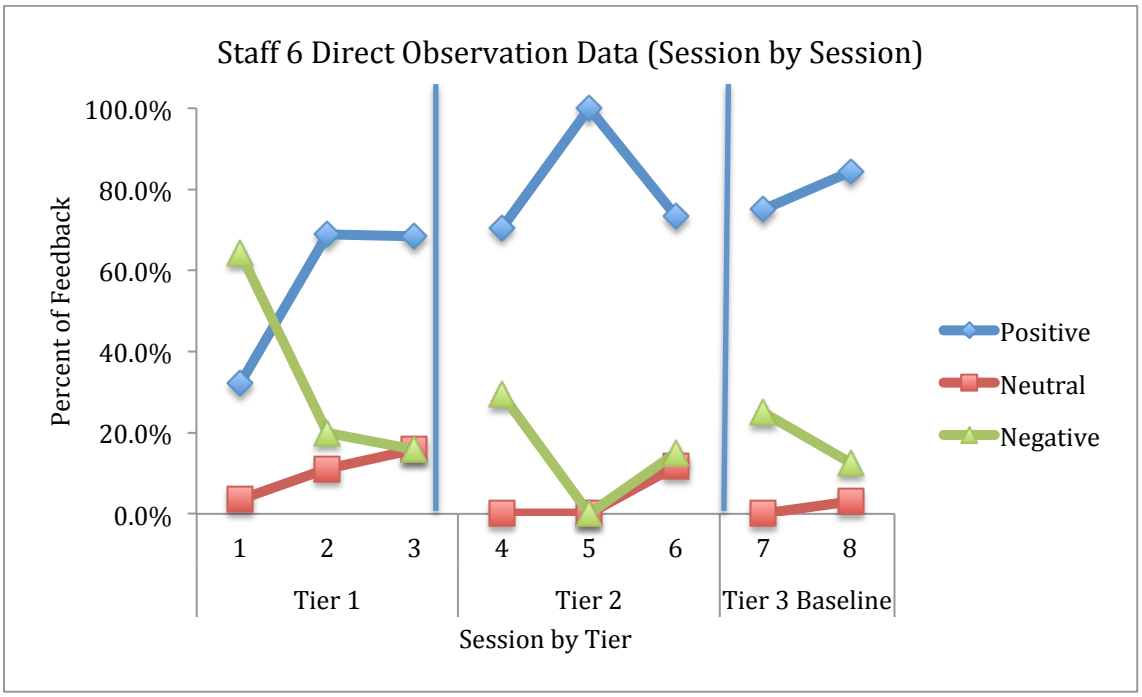
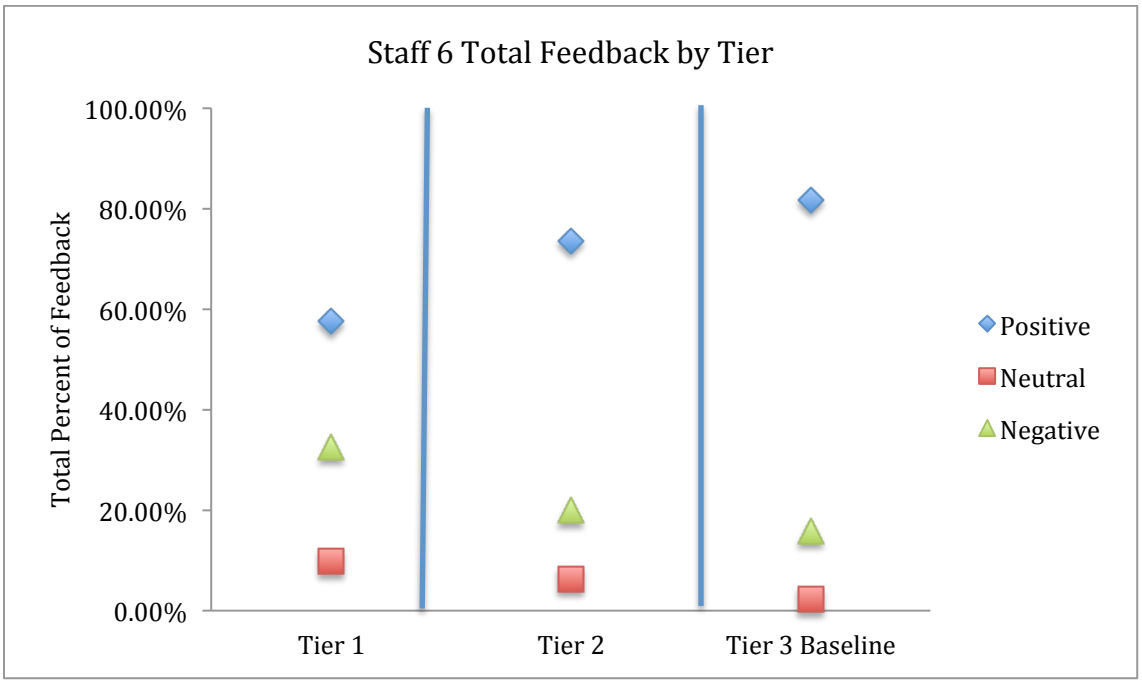



Figure 6.7 shows positive feedback increases slightly in the Tier 3 Baseline condition, with the negative feedback showing a slight decrease. Figure 6.8, below, is a line graph of the totals by tier. This graph shows an increasing trend in positive feedback data and a decreasing trend in the negative feedback data. Neither of these show conclusive evidence the intervention was what caused the change. More sessions in each tier would have allowed for more conclusive results. Due to the nature of taking data in an applied setting, there was no time to have more sessions as the researcher was at the mercy of the school.

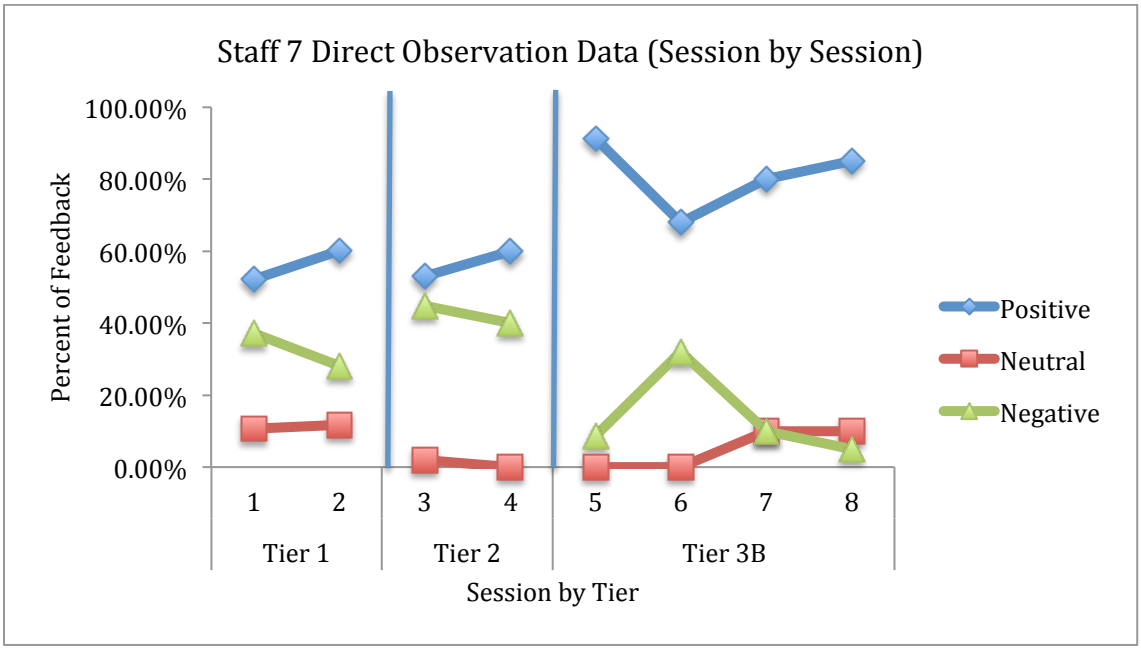
*Figure 6.8 Staff 6 Total Feedback by Tier – Tier 3 Baseline*




**Staff 7**

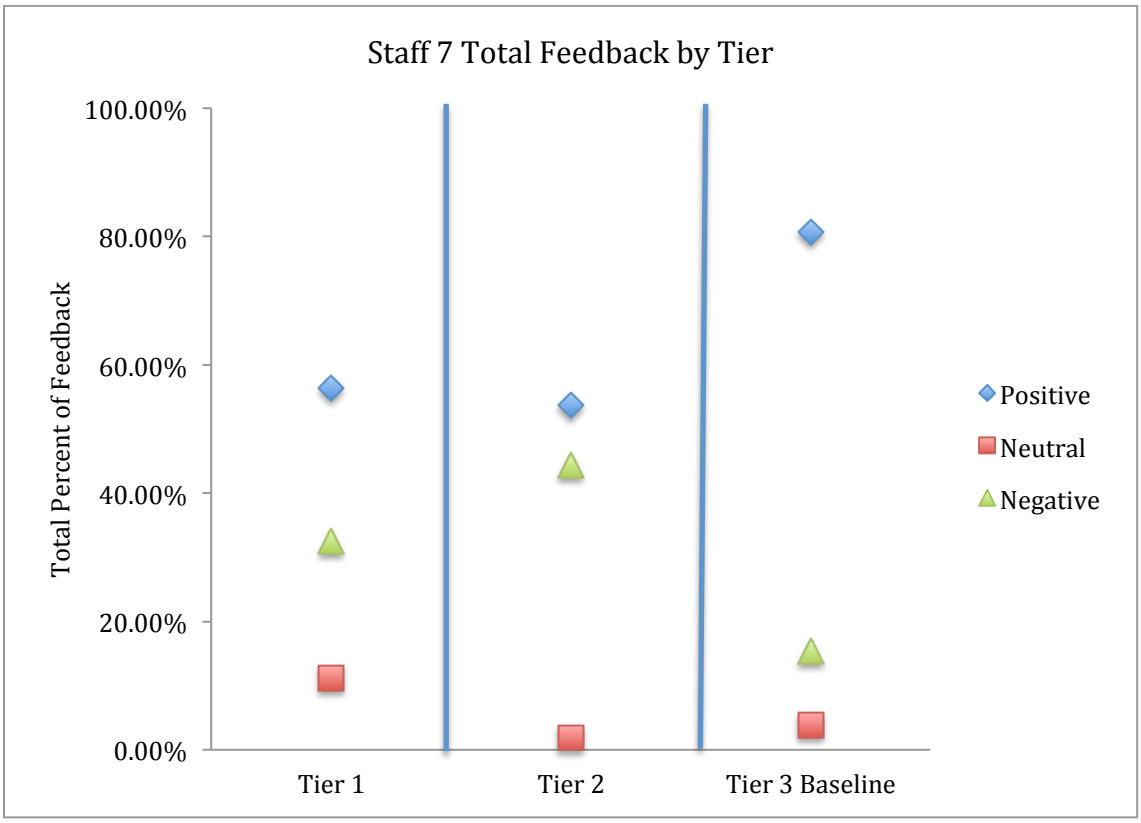
Staff 7 is an educational assistant who works in the classroom with four of the six students taking part within the research. This classroom had five students, five educational assistants, and one teacher. Staff 7 shows an increase from Tier 2, showing the positive feedback levels not only maintained, but also improved since the Tier 2 training. Negative feedback also shows a decrease for this participant from the Tier 2 training. (See Figures 6.9 and 6.10.) Positive feedback was able to be maintained between school years.

*Figure 6.9 Staff 7 Feedback Session by Session – Tier 3 Baseline*




Again, the increasing trend in positive feedback, and decreasing trend in negative feedback can be seen in the totals by tier in Figure 6.10 below.

*Figure 6.10 Staff 7 Total Feedback by Tier – Tier 3 Baseline*




**Staff 14**

Staff 14 is an educational assistant in a classroom with one student participating in the research. This classroom was made up of one teacher and two educational assistants, along with six pupils. Participant 14 maintained a slightly higher level of positive feedback during the Tier 3 Baseline phase, and lower level of negative feedback (see Figures 6.11 and 6.12 below).

*Figure 6.11 Staff 14 Feedback Session by Session – Tier 3 Baseline*

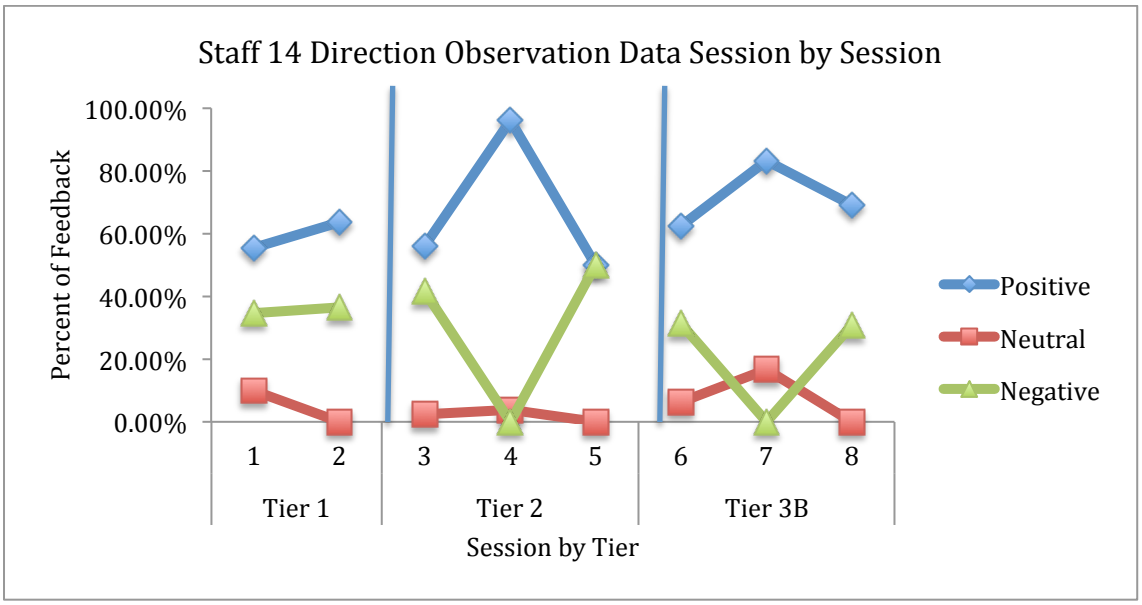
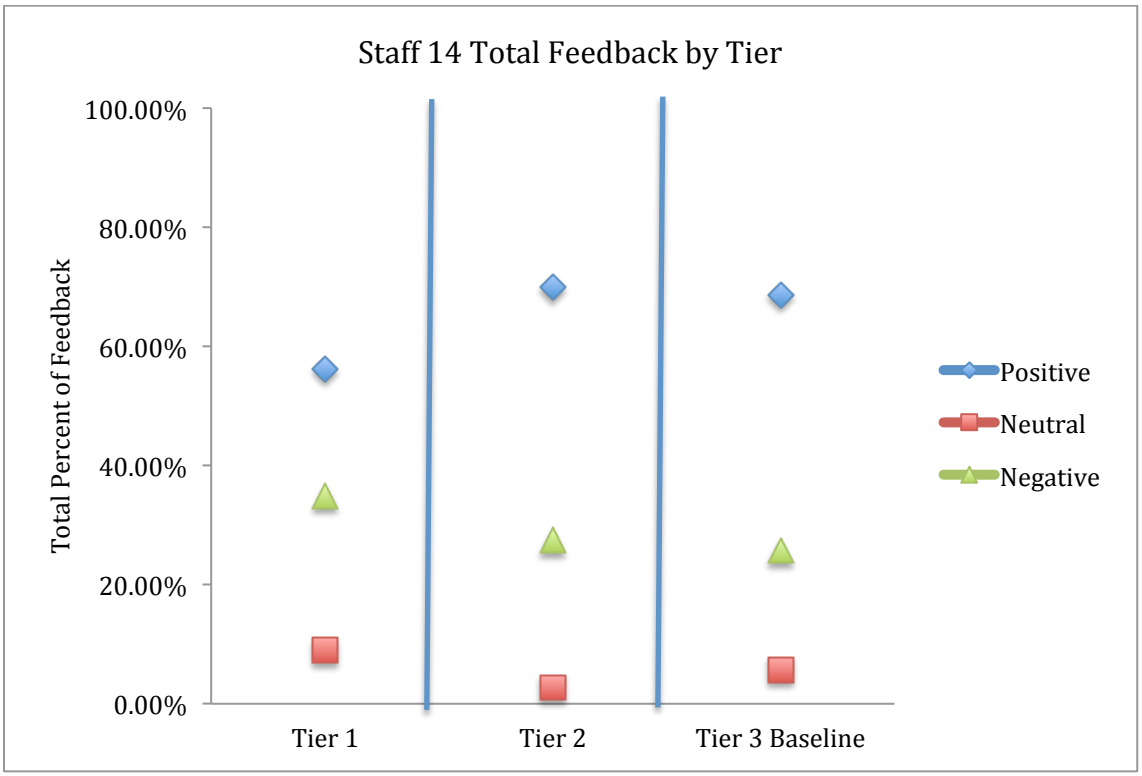



*Figure 6.12 Staff 14 Total Feedback by Tier – Tier 3 Baseline*



**Staff 31**

Staff 31 is an educational assistant in a classroom with one student participating in the research. This classroom was made up of one teacher and two educational assistants, along with six pupils. Staff 31 was unable to be observed in Tier 2 due to no longer working in the primary portion of the school during that time. When Tier 3 Baseline (Autumn 2013 school year) took place, the participant was again able to observed. Tier 3 Baseline observations were taken as a follow up to Tier 1. Overall positive feedback was higher, and negative feedback was lower (see Figure 6.13), but due to the increasing trend on the positive feedback, and decreasing trend on the negative feedback, no conclusive result can be drawn (see Figure 6.13).

*Figure 6.13 Staff 31 Feedback Session by Session – Tier 3 Baseline*

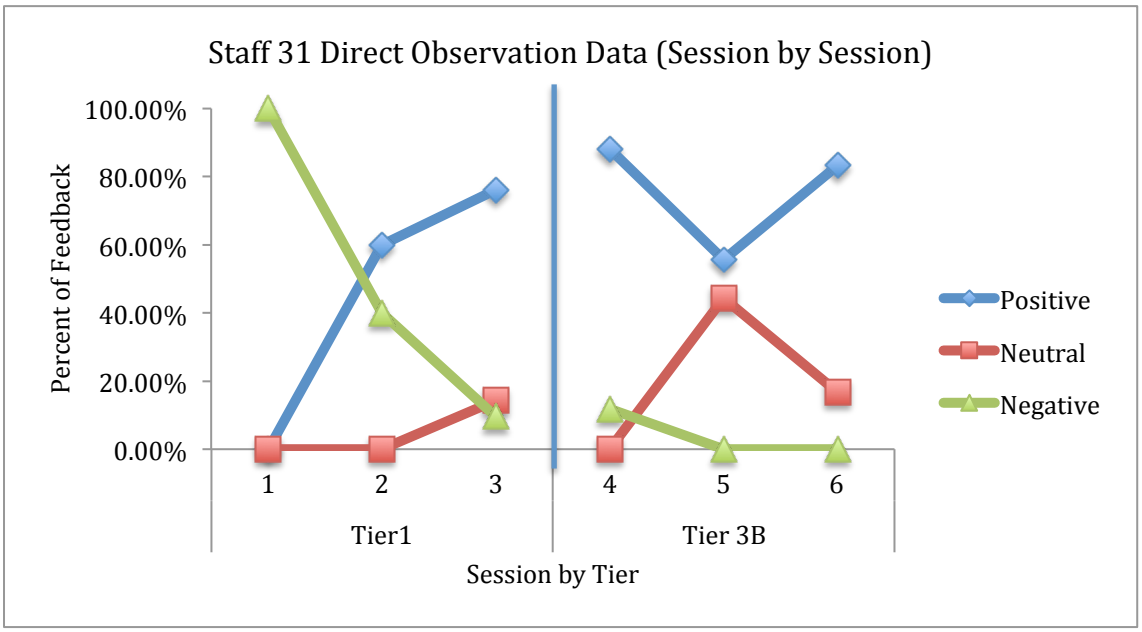
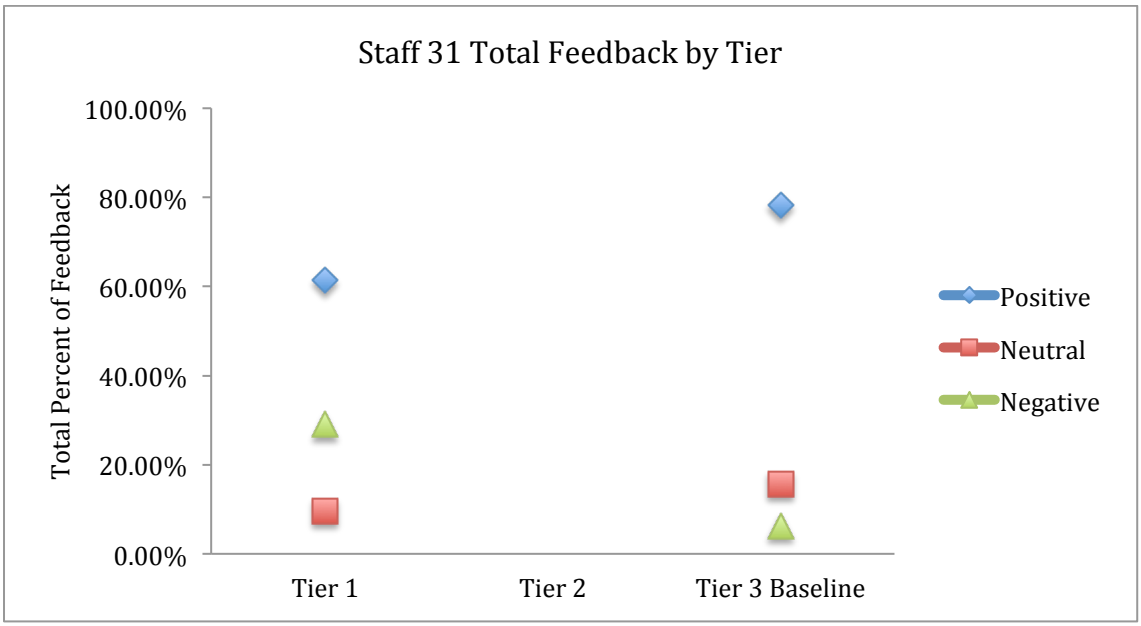


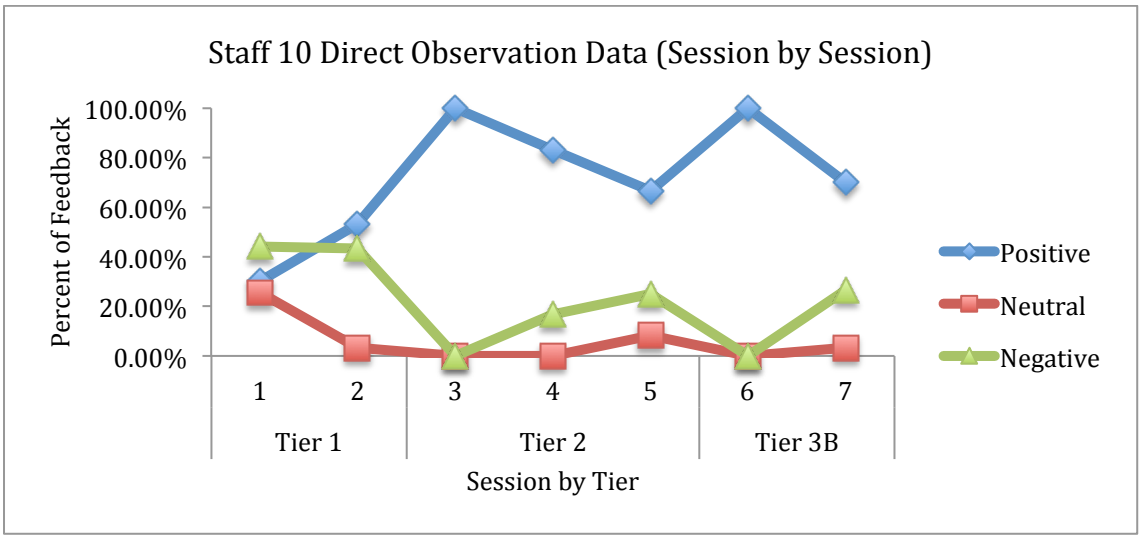
*Figure 6.14 Staff 31 Total Feedback by Tier – Tier 3 Baseline*




**Participant 10**

Participant 10 is an educational assistant in the same classroom as participant 14. This classroom contained six students, with two educational assistants, and one teacher. Only one student in the classroom participated in the research study. Participant 10 received no intervention after Tier 1, hence the absence of phase change lines. As seen in Figure 6.15 below, Participant 10's positive feedback increased across the time frames, and their negative feedback decreased.

*Figure 6.15 Staff 10 Feedback Session by Session – Tier 3 Baseline*




When the direct observations are represented as a group, a mean of *M* = 75.93% was seen for positive feedback, and a mean of *M* = 13.99% was seen for negative feedback. This shows not only maintenance of the previous Tier 2 levels (*M* = 65.95%) for positive feedback, but an increase. Additionally, the negative feedback dropped from *M* = 31.04% in Tier 2 to *M* = 17.99% at the Tier 3 Baseline phase. To sum up the data represented, an overall increase in positive student feedback was seen by all participants observed, as well as a decrease in negative feedback to students, which was the aim of Tier 1 and Tier 2 interventions. This maintained during the Tier 3 Baseline phase despite the gap of a three month summer break.

### 6.6 Tier 3 Staff Measures

During the final phase of the intervention, staff were asked to complete the same measures administered in all previous phases. All measures were included as long as 50% of the measure was complete. A subscale was also included if it was at least 50% complete. Tier 3 only took place with one student and one staff participant (refer to

Appendix K). It consisted of a behaviour plan written by the researcher with one day of modelling the plan for the one staff member in the classroom. All other staff members were solicited as an additional follow up to Tiers 1 and 2.

Table 6.23 below again summarizes the number of staff participants through all phases of research. Tier 3 is highlighted to show one member of staff took part in the intervention, three members of staff were able to complete the measures, and two members of staff were observed during this final phase of intervention.

*Table 6.23 Staff Numbers by Phase of Research*

| Phase of Intervention | Staff Participating in Intervention | Staff Measures Completed | Staff Observed |
|---|---|---|---|
| Baseline | Not Applicable | 35 | Not Available |
| Tier 1 | 35 | 35 | 10 |
| Tier 2 | 10 | 13 | 7 |
| Tier 3 Baseline | Not Applicable | 6 | 7 |
| **Tier 3** | **1** | **3** | **2** |

### 6.6.1 Emotional Reactions to Challenging Behaviour scale with Positive Affect Domains – Tier 3

The Emotional Reactions to Challenging Behaviour scale was administered again, where staff were asked to rate 15 negative emotions and eight positive corresponding emotions. Below is a summary of the descriptive statistics for Tier 3.

*Table 6.24 Emotional Reactions to Challenging Behaviour Scale Scores at Tier 3 for Staff*

| Post Tier 3 | ERCB – CR (Confident/Relaxed) Max Score = 12 | ERCB CE (Cheerful/Excited) Max Score = 12 | ERCB DA (Depression/Anger) Max Score = 30 | ERCB FA (Fear/Anxiety) Max Score = 15 |
|---|---|---|---|---|
| N | 3 | 3 | 3 | 3 |
| Mean (SD) | 2.32 (2.52) | 0.32 (0.56) | 10.20 (5.90) | 5.65 (5.50) |
| Median | 2 | 0 | 7 | 6 |
| Range | 0 – 5 | 0 – 1 | 6 – 17 | 0 – 11 |
| Tier 3 Baseline | | | | |
| N | 6 | 5 | 5 | 6 |
| Mean (SD) | 5.96 (3.32) | 2.00 (1.24) | 10.30 (5.40) | 5.9 (3.3) |
| Median | 6.84 | 2 | 10 | 4.50 |
| Range | 0 – 10 | 1 – 4 | 5 – 17 | 3 – 11 |

Even with an N = 3, the Confident/Relaxed scales was still rated with the highest mean (*M* = 2.32) on the Positive affect Domain and the Depression/Anger is still the highest rated negative emotion with a mean of (*M* = 10.20). This has not changed since Baseline. With the small N of course these results are to be interpreted cautiously. No other statistical tests were run due to the small N.

### 6.6.2 Self-Injurious Behaviour Questionnaire – Knowledge and Action Subscales – Tier 3

The Self-Injurious Behaviour questionnaire was administered again at Tier 3. Participants completed the Knowledge subscale as well as the Action subscale. Table 6.25 of descriptive statistics is presented below to give the reader a picture of the staff responses on this measure.

*Table 6.25 Self-injurious Behaviour Questionnaire Knowledge and Action Scores at Tier 3 for Staff*

| Post Tier 3 | SIBQ T3 Knowledge Correct | SIBQ T3 Knowledge Incorrect | SIBQ T3 Action Correct | SIBQ T3 Action Reinforcing | SIBQ T3 Action Avoidance | SIBQ T3 Action Internal Organic |
|---|---|---|---|---|---|---|
| N | 6 | 6 | 6 | 6 | 6 | 6 |
| Mean (SD) | 42.44 (22.73) | 56.06 (19.43) | 26.67 (20.66) | 53.33 (20.66) | 20.00 (12.65) | 0.00 (0.00) |
| Median | 50.00 | 50.00 | 20.00 | 60.00 | 20.00 | 0.00 |
| Range | 0.09 – 63.55 | 36.36 – 54.55 | 0.00 – 60.00 | 20.00 – 60.00 | 0.00 – 40.00 | 0.00 – 0.00 |
| Tier 3 Baseline | | | | | | |
| N | 6 | 6 | 6 | 6 | 6 | 6 |
| Mean (SD) | 42.44 (22.73) | 56.06 (19.43) | 26.67 (20.66) | 53.33 (20.66) | 20.00 (12.65) | 0.00 (0.00) |
| Median | 45.45 | 54.55 | 20.00 | 50.00 | 20.00 | 0.00 |
| Range | 0.09 – 63.64 | 36.36 – 90.91 | 0.00 – 60.00 | 20.00 – 80.00 | 0.00 – 40.00 | 0.00 – 0.00 |

The means remained the same all the subscales between Tier 3 Baseline and Tier 3, which is not unanticipated given only one member of staff took part in Tier 3 intervention.

### 6.6.3 Staff Direct Observations – Tier 3

Staff Direct Observations were taken in Tier 3 for only those participants who were in the classroom where the single member of staff was trained. Since Tier 3 Baseline served as a follow up to Tier 2 for the other members of staff, no further direct observations were conducted, as only one member of staff took place in Tier 3. Within this classroom only two members of staff were still currently working during the Tier 3 phase. This left one member of staff receiving intervention (Staff 6), and the other not receiving intervention. The Tier 3 intervention consisted of the researcher writing a one page behaviour plan based on a brief functional assessment for one student and giving one day of modelling to one member of staff. More regarding the behaviour plan will be discussed in Chapter 7.

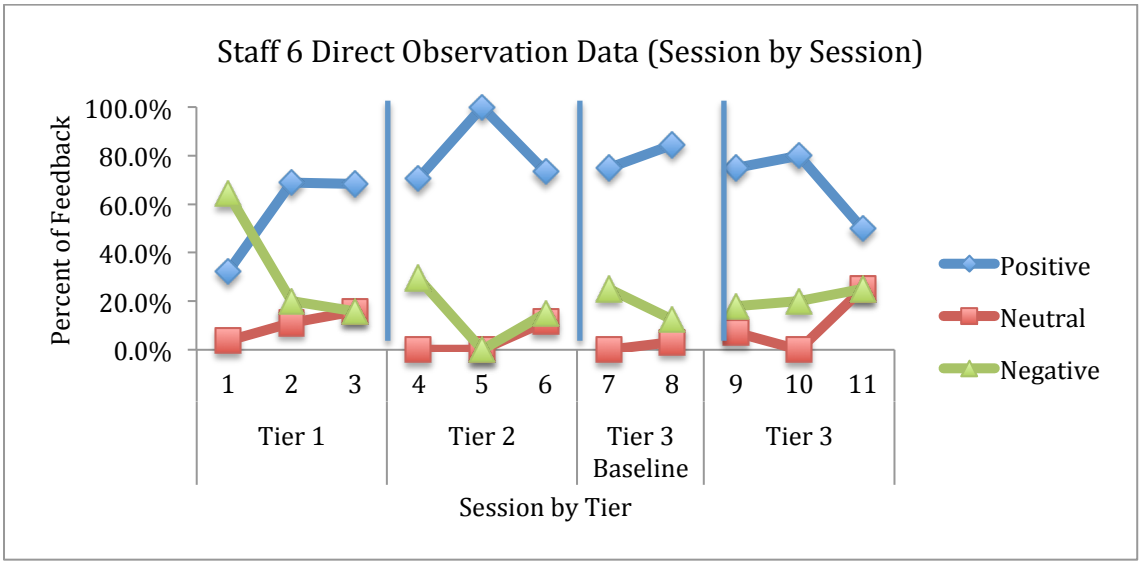
School staff were still observed for feedback given to any student. The feedback was categorized as positive, neutral, or negative. The definitions used in all previous tiers, were the same for the final phase of Tier 3.

**Staff 6**

As can be seen in the Figure 6.16 below, Staff 6 still engaged in higher rates of positive feedback than negative feedback, but did suffer a slight decrease during Tier 3. Staff 6 did speak to the researcher during several Tier 3 observations that were then terminated. Staff 6 was looking for additional guidance on the behaviour plan, which

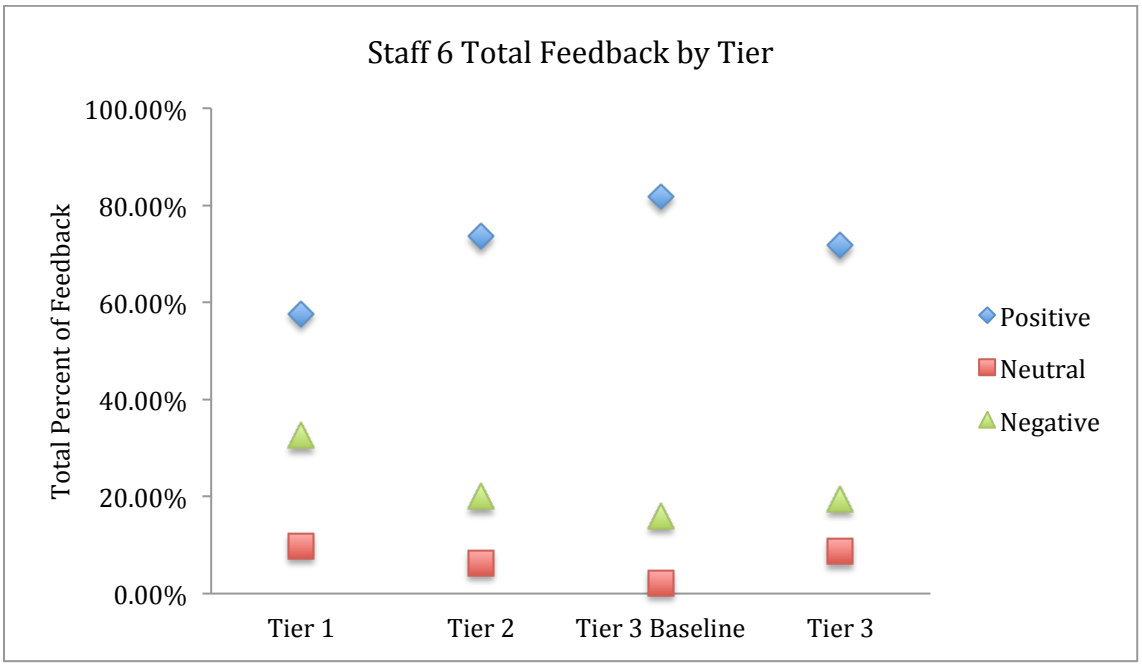
was not part of the research design. The researcher would answer the question, and then remind the participant to carry on to the best of their ability.

*Figure 6.16 Staff 6 Feedback by Session – Tier 3*




As can be seen in Figure 6.17 below, Staff 6 generally had an increasing trend in positive feedback and a decreasing trend in negative feedback. This was the goal of the intervention.

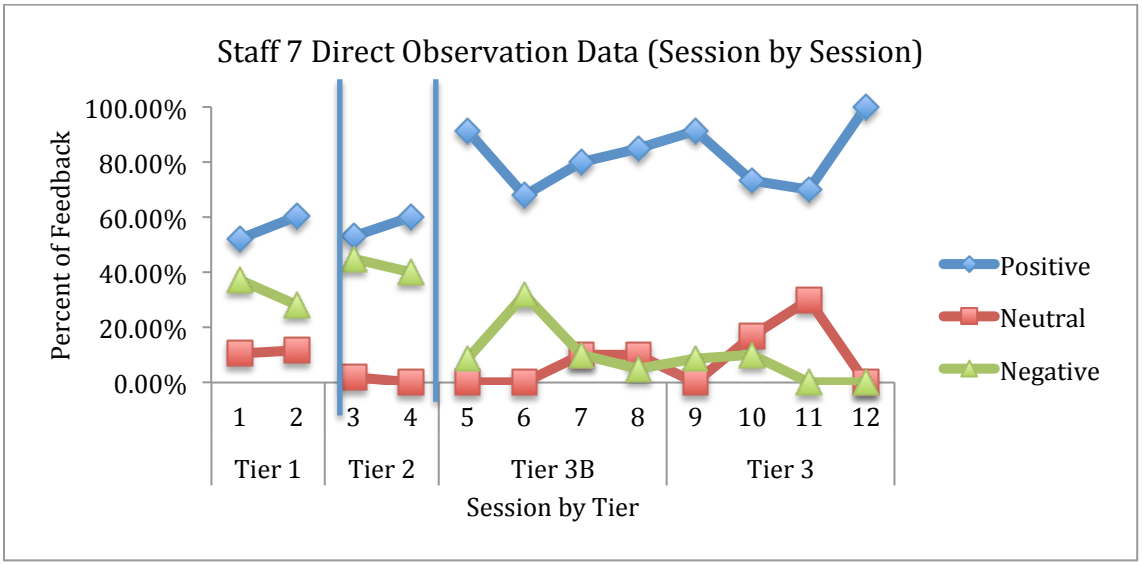
*Figure 6.17 Staff 6 Total Feedback by Tier – Tier 3*




Staff 7 did not participate in Tier 3 intervention. Staff 7 was in the same classroom as Staff 6 who did participate in the intervention and also worked with the target student. Data was taken on this participant to see if there were any noticeable effects.

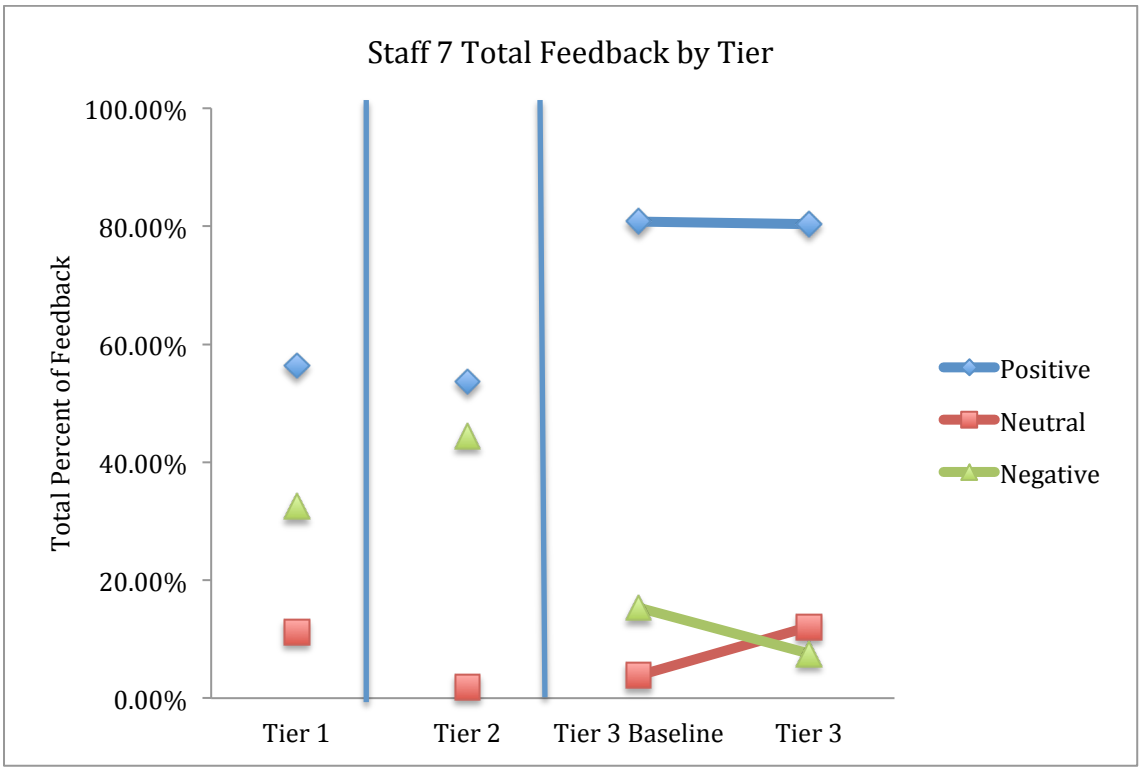
**Staff 7**

*Figure 6.18 Staff 7 Feedback by Session – Tier 3*




Staff 7 had an increased level of positive feedback in the Tier 3 Baseline phase (follow up for Tier 2 intervention), which they did participate in, as well as post Tier 3. Additionally, this participant had a decrease in negative feedback. This was the aim of Tier 1 and Tier 2 interventions.

*Figure 6.19 Staff 7 Total Feedback by Tier – Tier 3*




Below are tables that outline the descriptive statistics for feedback from staff as a group over the tiers. These are presented to help the reader see the changes and understand the overall conclusions drawn. As can be seen in Table 6.26, the overall percent of positive feedback increased across all tiers of intervention.

*Table 6.26 Direct Observation of Staff Positive Feedback Descriptive Statistics*

| | Post Tier 1 | Post Tier 2 | Tier 3 Baseline | Post Tier 3 |
|---|---|---|---|---|
| N | 10 | 7 | 6 | 2 |
| Mean (SD) | 48.24 (16.10) | 65.95 (14.67) | 75.93 (5.68) | 76.02 (6.05) |
| Median | 53.40 | 69.86 | 77.53 | 76.02 |
| Range | 16.44 – 67.55 | 41.46 – 85.71 | 68.57 – 81.82 | 71.74 – 80.30 |

Table 6.27 is presented below to give an entire picture of the staff student neutral feedback. No portion of the research study was meant to influence neutral feedback.

*Table 6.27 Direct Observation of Staff Neutral Feedback Descriptive Statistics*

| | Post Tier 1 | Post Tier 2 | Tier 3 Baseline | Post Tier 3 |
|---|---|---|---|---|
| N | 10 | 7 | 6 | 2 |
| Mean (SD) | 10.99 (4.4.7) | 3.00 (2.48) | 6.08 (4.97) | 10.41(2.42) |
| Median | 10.37 | 2.04 | 4.78 | 10.41 |
| Range | 1.99 – 17.20 | 0.00 – 6.50 | 2.27 – 15.63 | 8.70 – 12.12 |

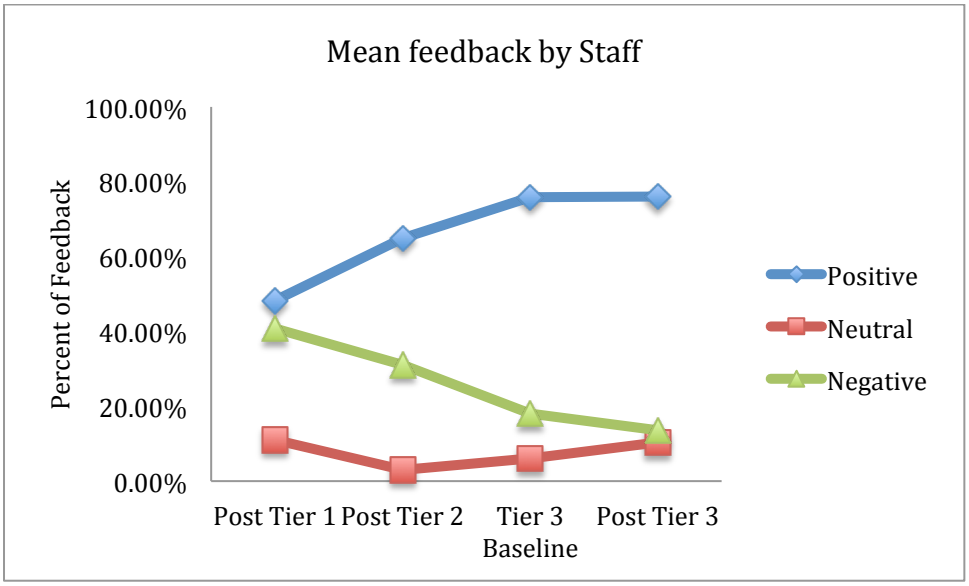
As can be see in Table 6.28, the mean of overall percent of negative feedback decreased across all tiers.

*Table 6.28 Direct Observation of Staff Negative Feedback Descriptive Statistics*

| | Post Tier 1 | Post Tier 2 | Tier 3 Baseline | Post Tier 3 |
|---|---|---|---|---|
| N | 10 | 7 | 6 | 2 |
| Mean (SD) | 40.78 (15.44) | 31.04 (13.88) | 17.99 (7.12) | 13.58 (8.48) |
| Median | 33.72 | 27.40 | 18.21 | 13.58 |
| Range | 27.96 – 72.60 | 12.24 – 52.03 | 6.25 – 25.71 | 7.58 – 19.57 |

This information is also graphically demonstrated below in Figure 6.2.

*Figure 6. 20 Mean Feedback by Staff Across All Phases of Research*




These results are to be taken prudently as the N does consistently decrease across the tiers.

**Conclusion**

The attempt at a school-wide intervention shows some potential results when looking at the limited amount of time give to intervene. Overall, school staff showed an increase in positive feedback to the students and a decrease in negative feedback. As

this was one of the key messages in Tier 1 (five hour intervention) and Tier 2 (two, two hour sessions) interventions (equalling nine hours in total). Without the ability to conduct direct observations during baseline or conduct direct observations until the data is stable, no conclusive statement can be made that nine hours of staff training, made a definite increase in positive staff feedback that is maintained across a three month summer break.

The Emotional Reactions to Challenging Behaviour scale and Self-Injurious Behaviour Questionnaire showed mixed results across the phases of intervention. This leaves no conclusions that can be drawn regarding staff's emotional responses or knowledge of behaviour techniques and process on the nine hours of intervention undertaken. As neither of these were bespoke measures for the training, so there is some question as to whether they were measuring the aims of the training. While challenging behaviour was discussed, the scenarios in the questions on the Self-Injurious Behaviour questionnaire were not the topic of the training. The main focus was on increasing positive feedback with a brief overview of function of behaviour. Additionally, the same vignette was presented on the Emotional Reactions to Challenging Behaviour scale. Participants may have not felt their emotions changed when presented with the same scenario and were not asked how they felt about dealing with the challenging behaviour presented by the students they worked with on a day to day basis.

The applied setting within this intervention allowed no baseline direct observations, as well as shortened intervention and data collection periods from what was proposed, as well as involving difficulty scheduling both the intervention and data

collection. Without these being able to be executed as planned and on a controlled timeline, various gaps could account for the variability in the research results. Further research is needed with more cooperation in the applied setting to try understanding the impact this short intervention could have on staff and student behaviour. A further analysis will be given in Chapter 8, following up from the research questions in Chapter 5.

In the next Chapter, student data will be presented. Student data was separated, as there were different numbers of participants and different measures. The chapter will review all five phases of the research, reporting measures and direct observations at each phase, along with detailing the student participation throughout the research study.

# Chapter 7 – Study 2: Student Results

The purpose of this chapter is to provide an overview of the results for students who took part in the research at a residential school in England. Student behaviour in the form of engagement in the classroom as well as the management difficulty and severity of challenging behaviour were tracked through the five phases of the study: Baseline, Tier 1, Tier 2, Tier 3 Baseline, and Tier 3. As a note to the reader, the student sample size will shift across the five phases and a table will be provided at the beginning of each phase to understand student participation.

## 7.1 Student Demographics

Six students took part in the Baseline phase of the study. These students comprised five boys and one girl. The students had been at the school for at least one term prior to the start of the study. The students had a range of diagnoses, but all were identified with an intellectual disability. The Table 7.1 below gives an overview of the six students who took part in the study. As a note to the reader, the parents did not complete the measures provided to them, therefore not giving birthdates for the students, and the school would not provide this information as they felt it was sensitive information regarding the student. For this reason, the age of the student is not reported. All students were in the primary section of the school, except for participant 6, who was moved to the secondary section of the school at the beginning of the 2013 autumn term.

*Table 7.1 Student demographics*

| Participant # | Gender | Diagnosis | Border Status | Length of time Enrolled | Challenging Behaviour Incidents 2011 – 2012 |
|---|---|---|---|---|---|
| 1 | Male | Attachment disorder<br>Moderate – Severe hearing impairment<br>Myopia<br>Moderate learning difficulties | 38 weeks<br>Home weekly | 1 year | 252 |
| 2 | Male | Autism spectrum disorder<br>Severe-profound hearing impairment | 38 weeks<br>Home termly | 5 months | 16 (prorated as at school<1yr) |
| 3 | Female | Autism spectrum disorder<br>Profound hearing impairment<br>Severe learning difficulties | Day pupil<br>Home daily | 9 years 6 months | 25 |
| 4 | Male | Profound hearing impairment<br>Autism spectrum disorder<br>Registered deaf blind | 38 weeks<br>Home weekly | 1 year | 283 |
| 5 | Male | Dyskinetic congenital hypothyroidism<br>Dystonic cerebral palsy<br>Attention deficit hyperactivity disorder<br>Epilepsy | 38 weeks<br>Home weekly<br>52 weeks (2013) | 3 months | 2 (prorated as at school <1yr) |
| 6 | Male | CHARGE syndrome<br>Moderate hearing impartment | Day pupil<br>Home daily | 7 years | 59 |

For the reader's understanding, a brief profile will be given below. The behavioural data presented is from the school's database of incidents of challenging behaviour the previous school year (2011 – 2012). Incidents were those that school staff felt needed to be documented due to the frequency or severity of their nature. This does not include all incidents of behaviour that could be considered challenging, as it was up to the school staff to document the incident and deem it as one needing this level of documentation, therefore it is subjective. This serves as a baseline profile for each student.

**Student 1**

Student 1 was a male diagnosed with attachment disorder, a moderate-severe hearing impairment, myopia, and a moderate intellectual disability. Student 1 resides at the school on a weekly basis for 38 weeks of the year. Student 1 returns to his family on weekends and during school holidays. He had been attending the school for one year. Student 1 had a total of 252 incidents for the previous school year ranging from physical aggression (biting, grabbing, hitting, kicking, punching, pushing, scratching); self harm, damage to property, disruptive behaviour, and verbal aggression (bullying, swearing, threatening). Of the 252 incidents reported, 39 happened within the residence halls, and four happened on school transport. The remaining 209 happened during the educational time and setting.

Student 1 was educated in a classroom with five other pupils. One teacher and two educational assistants were assigned to the classroom. Student 1 was the only student targeted for research within his classroom. All other students in the classroom were offered the opportunity to participate, but their parents did not consent to the research.

**Student 2**

Student 2 is a male diagnosed with autism spectrum disorder, severe-profound hearing impairment, and severe learning difficulties. Like Student 1, he resides at the school on a weekly basis. He returns home to his family on weekends and school holidays. He has been attending the school for five months. In the five months of attendance in this school in the previous school year (prior to the research commencing), this student was involved in 16 incidents documented by the school that ranged from physical aggression (biting, grabbing, punching, scratching, throwing objects) to refusal to cooperate. Of these incidents, four took place in the residence, and one took place on school transportation. The remaining 11 incidents were within the school setting.

Student 2 was in a classroom with four other pupils. This classroom was made up of one teacher and five educational assistants. Student 2 had a dedicated educational assistant assigned to him at all times. This was due to a past history of challenging behaviour. Student 2 shared a classroom with Student 3, Student 5, and Student 6.

**Student 3**

Student 3 is a female diagnosed with autism spectrum disorder and a profound hearing impairment. She attends the school, and returns home each night to be with her family. She has been attending the school for over nine years. During the school year prior to the intervention trialled in this thesis, Student 3 had 25 incidents that were documented within the school database of challenging behaviour. These incidents included physical aggression (biting, head butting, hitting, kicking, pinching, punching, scratching, throwing objects) and refusal to cooperate. For this student, refusal to

cooperate would entail laying herself down on the floor and refusing to move or participate in activities. Of the 25 documented incidents, two took place on school transportation, with the remainder happening within the classroom.

Student 3 shared a classroom with Student 2, Student 5, and Student 6. Student 3 was educated in a classroom with five other pupils. Her classroom contained five educational assistants and one classroom teacher. Student 3 had an educational assistant assigned to her at all times. Student 3's mother also worked on the campus as a therapist. Student 3 was the one included for tier 3 intervention, for reasons explained later.

**Student 4**

Student 4 is a male diagnosed with a profound hearing impairment, autism spectrum disorder, and registered deaf blind. He has attended the school for one year and resides there for 38 weeks out of the year. He returns home on weekends and during school holidays. During the 2011 – 2012 school year, prior to the intervention described within this thesis, Student 4 had 283 incidents of challenging behaviour documented. These included physical aggression (biting, grabbing, pulling, head butting, kicking, punching, poking, pushing, scratching, spitting, throwing objects); property damage; exposure of himself; verbal aggression in the form of allegations, threats, and swearing; and elopement. Of these 283 incidents, 58 took place in the residence, with the remainder happening within the school setting.

Student 4 was in his own classroom with at least two members of staff at all times. When instruction was taking place, three members of staff were present. This was due to his history of violence and injuring others previously at the school.

**Student 5**

Student 5 is a male diagnosed with dyskinetic congenital hypothyroidism, dystonic cerebral palsy, attention-deficit hyperactivity disorder, and epilepsy. He had attended the school for 3 months, and resided there on weekly basis when the intervention began. He returned home on weekends and school holidays. In the 2011 – 2012 school year, prior to any intervention, the student engaged in 2 incidents of challenging behaviour, which were hair pulling and hitting in the three months of attendance the previous school year. Both of these incidents took place within the residence.

Student 5 was educated in a classroom with five educational assistants and one classroom teacher. Student 5 had two educational assistants assigned to him at all times. Student 5 also used a walker and wore a helmet as safety measures for his epilepsy. Student 5 shared a classroom with Student 2, Student 3, and Student 6.

**Student 6**

Student 6 is a male who has attended the school for seven years. He is a day pupil, meaning he returns home to his family every night. Student 6 has been diagnosed with CHARGE syndrome and a moderate hearing impairment. CHARGE syndrome affects multiple parts of the body. CHARGE stands for coloboma heart defect, atresia choanae, retarded growth and development, genital abnormality, and ear abnormality. During the school year prior to any intervention taking place, Student 6 engaged in 59 incidents of challenging behaviour as documented by the school. These included physical aggression (head butting, hitting, kicking, punching, pinching, pushing,

scratching, spitting, stomping on feet, and throwing objects), property damage, and threatening behaviour. All 59 of the incidents took place within the school setting.

Student 2, 3, 5, and 6 were all in the same classroom. Student 6 was in a classroom with five educational assistants and one classroom teacher. Student 6 had a dedicated educational assistant to himself. Student 6 needed instructions repeatedly loudly by the educational assistant due to hearing loss.

In the next section, measures used will be explained along with the scores and analysis presented by phase of the research.

### 7.2 Baseline Student Measures

Some student measures were taken at every phase. The student measures consisted of staff rating the student on the Checklist of Challenging Behaviour, taken at every phase and direct observations. Direct observations of students were not completed at baseline because the school requested Tier 1 training take place ahead of the school year. This did not allow for baseline observations as staff were trained ahead of students being present on the school campus. Direct observations will be reported in all other phases of the research study.

Throughout the five phases of research the same table presented in the previous chapter detailing staff participation is presented within this chapter detailing student participation. Each phase will be highlighted to help the reader understand student participation in each phase of the research.

*Table 7.2 Student Numbers by Phase of Intervention*

| Phase of Intervention | Students Participating in Intervention | Student Measures Completed | Students Observed |
|---|---|---|---|
| **Baseline** | **Not Applicable** | **5** | **Not Available** |
| Tier 1 | Not Applicable | 5 | 6 |
| Tier 2 | Not Applicable | 3 | 6 |
| Tier 3 Baseline | Not Applicable | 1 | 5 |
| Tier 3 | 1 (Student 3) | 2 | 1 |

### 7.2.1 Checklist of Challenging Behaviour

Staff who had knowledge of the students who were participating in this research were asked to complete the Checklist of Challenging Behaviour. Staff rated their student participants on a five point likert scale in relation to frequency, management difficulty and intensity (Harris et al., 1994). These scales are rated for aggressive behaviours as well as other behaviours that challenge that do not fall within the aggressive behaviour subscale (Harris et al., 1994). A higher score indicates a higher frequency or higher rate of management difficulty (Harris et al., 1994). Two staff rated Student 1; their scores were averaged to show the score below. Other students were rated by one staff member only. A summary of the score by student is given below in Table 7.3.

*Table 7.3 Checklist of Challenging Behaviour – Baseline*

| Student | Aggression Frequency | Other Frequency | Aggression Man Diff | Other Man Diff |
|---|---|---|---|---|
| 1 | 2.19 | 2.22 | 1.92 | 2.12 |
| 3 | 3.86 | Not Complete | 3.08 | Not Complete |
| 4 | 4.09 | 3.79 | Not Complete | Not Complete |
| 5 | 2.54 | 2.00 | 2.00 | 1.14 |
| 6 | 2.69 | 2.31 | 1.62 | 1.57 |
| Grey & McClean (2007) | 3.6 Control<br>2.5 Post Intervention | | 3 Control<br>1.6 Post Intervention | |

The information is presented for the subscales of frequency and management difficulty so that comparison is possible between aggression and other behaviours that are considered challenging on the questionnaire. The highest possible score on this measure would be a five, as these two aspects were both rated on a five point likert scale. The frequency scale is scored from 1 – never to 5 – daily or more often. The management difficulty is scored from 1 – no problem to 5 – I cannot mange this situation without help. Additionally, it was thought frequency or management difficulty could be affected by the study. Note Student 2 did not have any data, therefore is omitted from the table. The gaps on the table show scales that were not completed at least 50% and therefore unable to be scored and reported.

The Grey McClean (2007) study was included for comparison. No baseline data was reported, and the results are total mean score of all participants. This study did

look at positive behaviour support, and no comparison can be drawn given the group and post intervention score.

### 7.3 Tier 1 Student Measures

Student measures were also conducted post Tier 1 training. During the Tier 1 phase, no intervention was directly conducted with the students. Tier 1 was large group training for staff, and the student data presented below serves as a dependent variable.

Table 7.4 below shows the numbers for students participating post Tier 1. Student data was taken to see if change in staff behaviour resulted in a change in student behaviour. Five students had measures completed regarding their behaviour and all six students consenting to take part in the study were observed.

*Table 7.4 Student Numbers by Phase of Research*

| Phase of Intervention | Students Participating in Intervention | Student Measures Completed | Students Observed |
|---|---|---|---|
| Baseline | Not Applicable | 5 | Not Available |
| **Tier 1** | **Not Applicable** | **5** | **6** |
| Tier 2 | Not Applicable | 3 | 6 |
| Tier 3 Baseline | Not Applicable | 1 | 5 |
| Tier 3 | 1 | 2 | 1 |

### 7.3.1 Checklist of Challenging Behaviour – Tier 1

The Checklist of Challenging Behaviour (Harris et al., 1994) was re-administered in the month following Tier 1. Staff again rated the students targeted on both the frequency and management difficulty domains of the aggressive and other behaviour subscales. School staff members rating the students do differ from tier to tier, but staff are treated as one entity and the scores are presented below by student rated. This limits the conclusions able to be drawn from the data, as the staff members were not consistent as raters, so change could indicate just a different perception from one staff member to another, rather than change in student behaviour. The score was achieved using the five point scale, with more frequent or difficult behaviours rated nearer 5. Scores by participant from both Baseline and post Tier 1 scores are given in Table 7.5 below.

*Table 7.5 Checklist Challenging Behaviour Frequency Domain Baseline – Post Tier 1*

| Student | Aggression Frequency **Baseline** | Aggression Frequency **Tier 1** | Other Frequency **Baseline** | Other Frequency **Tier 1** |
|---|---|---|---|---|
| 1 | 2.19 | 1.69 | 2.22 | 1.69 |
| 3 | 3.86 | 2.30 | 3.08 | 2.60 |
| 4 | 4.09 | 3.00 | Not Complete | 3.31 |
| 5 | 2.54 | 3.55 | 2.00 | 3.73 |
| 6 | 2.69 | 2.78 | 1.62 | 2.56 |

The frequency was reported to be less for three of the five students for the aggression and two of the five students on the other domains between Baseline and post Tier 1. Again, subscales were not scored unless at least 50% was complete.

*Table 7.6 Checklist of Challenging Behaviour Management Difficulty Doman Baseline – Post Tier 1*

| Student | Aggression Man Diff **Baseline** | Aggression Man Diff **Tier 1** | Other Man Dif **Baseline** | Other Man Dif **Tier 1** |
|---|---|---|---|---|
| 1 | 1.92 | 1.46 | 2.12 | 1.00 |
| 3 | 3.08 | 2.60 | Not Complete | 3.63 |
| 4 | Not Complete | 3.31 | Not Complete | 2.92 |
| 5 | 2.00 | 3.73 | 1.14 | 2.75 |
| 6 | 1.62 | 2.56 | 1.57 | 2.63 |

Management difficulty was reported to drop for two students on the aggression scale and one student on the other scale (Student 1) in the Tier 1 follow up measures.

### 7.3.2 Student Direct Observation Data – Tier 1

Within a month after Tier 1 training direct observations were conducted with the same six students as discussed in the Baseline section above. Baseline observations could not be conducted due to the school's availability before Tier 1 training, prior to the start of the 2012 – 2013 school year. Students were observed using momentary time sampling. Students were marked as either engaged, not engaged, or disruptive every 10 seconds, at the end of the 10 second interval.

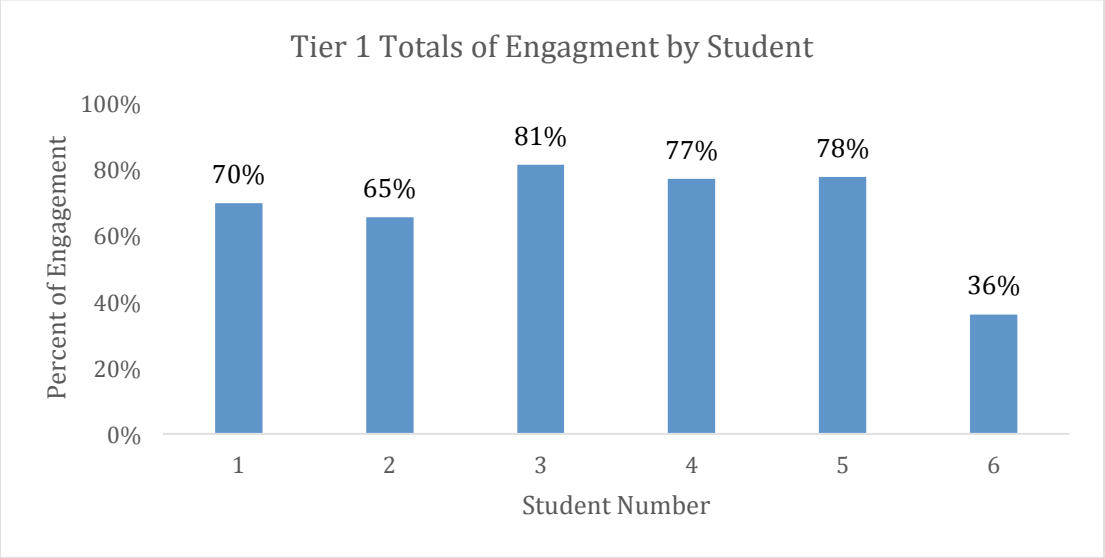
Direct observations also included feedback received by students. The feedback categories were positive, neutral and negative, the same as noted above in the staff direct observation section. Feedback was not coded at every interval, as staff had to be interacting with the student, therefore there is a large majority of no interaction for student observations.

Students were observed over a variety of conditions that included working one to one, a large group activity, lunch, or a break. These activities were chosen to ensure students were seen under a variety of conditions. Students could have up to five observations per tier. An observation was a minimum of five minutes, with a maximum of 20 minutes. For a student's data to be included, at least 40 minutes of observations needed to be conducted across conditions.

Below are bar graphs representing engagement, disruption, as well as feedback received by the student. These graphs represent the totals by percent for all observations taken after Tier 1 training. Percentages were calculated by totalling the number of intervals the student was engaged/disruptive/receving feedback, divided by the total number of intervals for the tier multiplied by 100. Percentages were chosen due to the differing lengths of observation conditions lending themselves to different frequencies.

**Student Engagement**

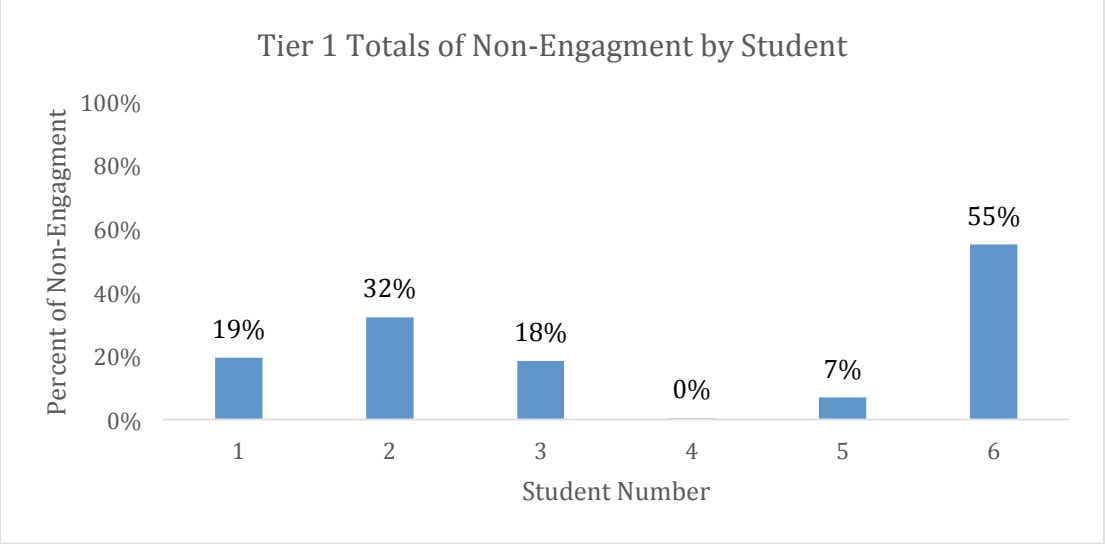
*Figure 7.1 Engagement by Student Post Tier 1*




Engagement varied between 36% and 81% across the six students.

**Student Non-Engagement**

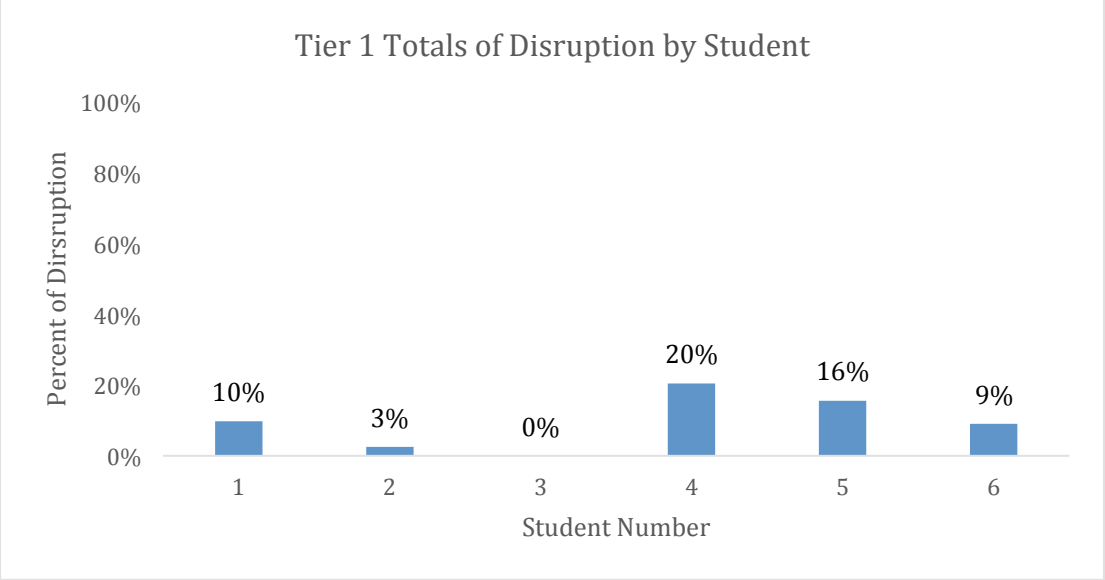
*Figure 7.2 Non-Engagement by Student Post Tier 1*



Non-Engagement varied between 0% and 55% across the 6 students during the post Tier 1 observations.

**Student Disruption**

*Figure 7.3 Disruption by Student Post Tier 1*



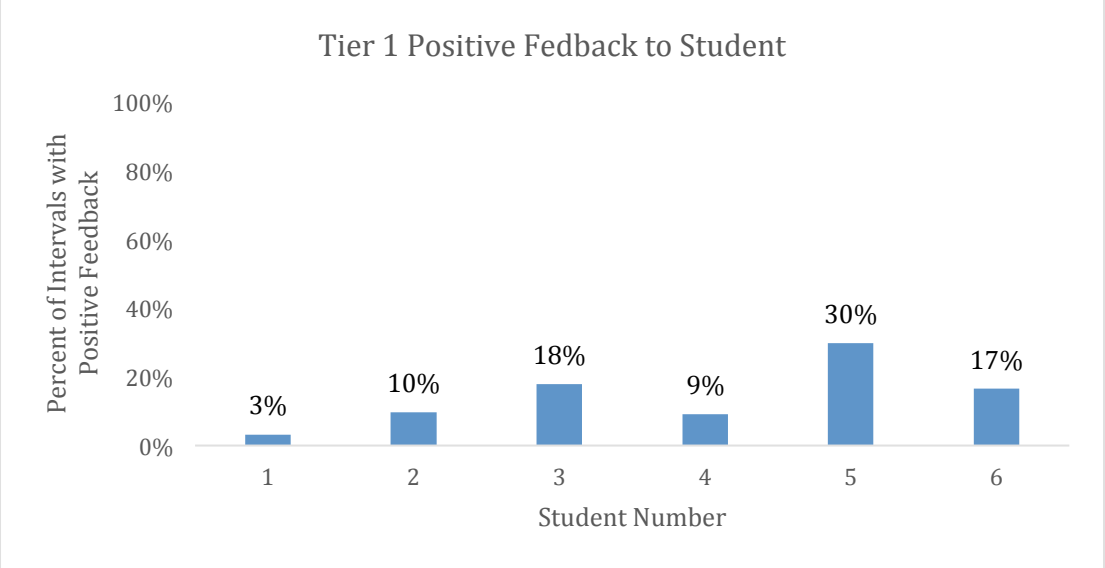

Disruption was observed between 0% and 20% across the six students during the post Tier 1 observations. Five of the six students had higher levels of engagement than non-engagement or disruption. Student 6 had a higher level of non-engagement. Without baseline observations, a conclusion cannot be drawn that the engagement levels were affected by the Tier 1 intervention.

Feedback received by students is represented below. These bar graphs show total feedback received in the form of percentages. Percentages were obtained by totalling the amount of positive/neutral/negative feedback divided by the toal number of intervals in the tier, multiplied by 100. These percentages will not equal 100% due to the fact that each interval did not include feedback to the student. The largest

percentage was no feedback delivered by the staff. Staff were also treated as a whole, any staff member that interacted with the student was coded, not just one staff member.

**Positive Feedback to Students**

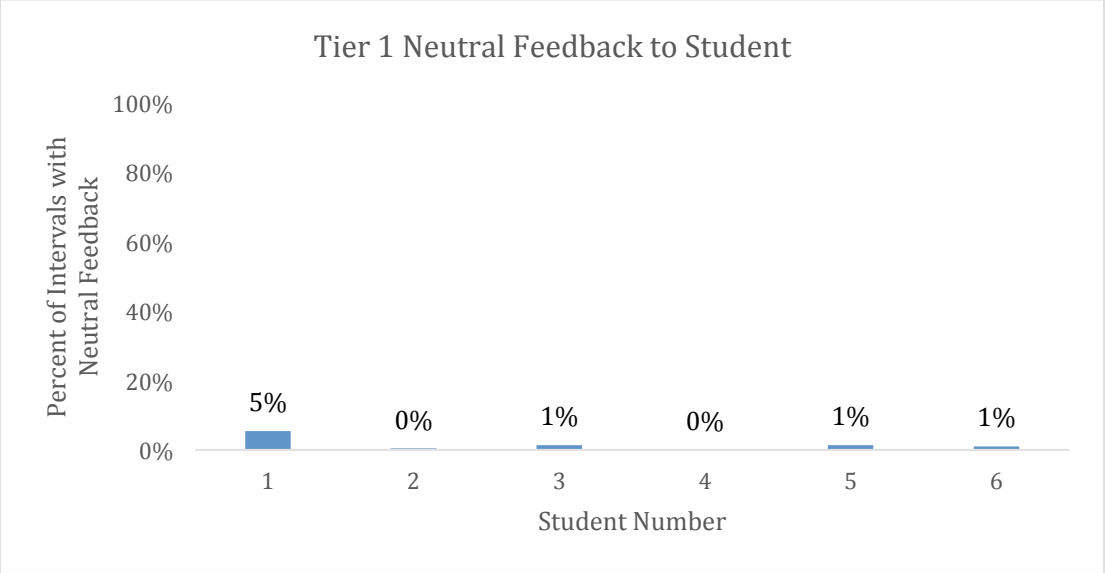
*Figure 7.4 Positive Feedback to Students Post Tier 1*




Positive feedback received by the six students ranged from 3% to 30% of intervals observed in the post Tier 1 training phase.

**Neutral Feedback to Students**

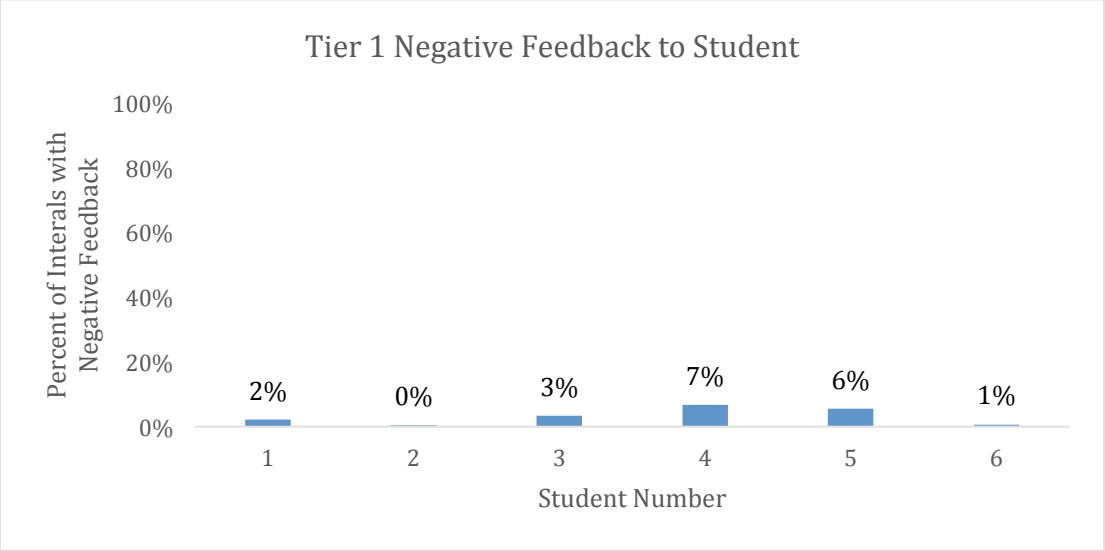
*Figure 7.5 Neutral Feedback to Student Post Tier 1*




The six students who participated in the research received 5% or less neutral feedback during the observations following Tier 1.

**Negative Feedback to Students**

*Figure 7.6 Negative Feedback to Students Post Tier 1*




Students received 7% or less negative feedback, which shows the majority of feedback received, was positive. For all six students more positive feedback than negative feedback was received, an outcome that was aim of the intervention being tested . Again, while this is positive, no definitive conclusion can be draw due to the lack of baseline observations.

**7.4 Tier 2**

Student data was again taken following Tier 2. This included having staff rate the students on the Checklist of Challenging Behaviour as well as direct observations. The direct observations were the same format as those conducted following Tier 1. The results of these measures are presented below. Table 7.7 below details the student participation for the reader.

*Table 7.7 Student Numbers by Phase of Research*

| Phase of Intervention | Students Participating in Intervention | Student Measures Completed | Students Observed |
|---|---|---|---|
| Baseline | Not Applicable | 5 | Not Available |
| Tier 1 | Not Applicable | 5 | 6 |
| **Tier 2** | **Not Applicable** | **3** | **6** |
| Tier 3 Baseline | Not Applicable | 1 | 5 |
| Tier 3 | 1 | 2 | 1 |

### 7.4.1 Checklist of Challenging Behaviour – Tier 2

The Checklist of Challenging Behaviour was administered post Tier 2 training. Staff were asked to rate all the six students previously described in Baseline and Tier 1, but only three students were again rated on a five point likert scale for frequency of aggressive behaviour and other behaviours (Harris et al., 1994). This was due to low staff response rate, not responding for all six students. All raters were involved in Tier 1 intervention and had previously rated the student. All three students' staff had participated in Tier 2 training. In addition management difficulty was rated for the students. The higher scores indicate higher frequencies or higher levels of management difficulties. Below are Tables 7.8 and 7.9 showing the post Tier 2 scores along with the previous phases of Baseline and post Tier 1.

*Table 7.8 Checklist of Challenging Behaviour Frequency Domain Baseline – Tier 2*

| Student | Aggression Frequency **Baseline** | Aggression Frequency **Tier 1** | Aggression Frequency **Tier 2** | Other Frequency **Baseline** | Other Frequency **Tier 1** | Other Frequency **Tier 2** |
|---|---|---|---|---|---|---|
| 1 | 2.19 | 1.69 | 1.33 | 2.22 | 1.69 | 1.79 |
| 3 | 3.86 | 2.30 | 2.88 | Not Complete | 3.63 | Not Complete |
| 5 | 2.54 | 3.55 | 2.45 | 2.00 | 2.88 | 3.29 |

All three students rated, were rated as having a lower aggression frequency score than in Baseline. Even though Student 5 had an increase post Tier 1 training, a decrease from baseline was seen post Tier 2 training. Again, given the small number of participants no definitive conclusions can be drawn. The other three students did not have staff complete measures to score, and therefore are not included.

*Table 7.9 Checklist of Challenging Behaviour Management Difficulty Domain Baseline – Tier 2*

| Student | Aggression Man Diff **Baseline** | Aggression Mann Diff **Tier 1** | Aggression Man Diff **Tier 2** | Other Man Diff **Baseline** | Other Man Diff **Tier 1** | Other Man Diff **Tier 2** |
|---|---|---|---|---|---|---|
| 1 | 1.92 | 1.46 | 2.57 | 2.12 | 1.00 | 2.20 |
| 3 | 3.08 | 2.60 | 3.13 | Not Complete | 3.63 | Not Complete |
| 5 | 2.00 | 3.73 | 2.20 | 1.14 | 2.75 | Not Complete |

All three students rated had higher scores on the management difficulty domain of the Aggression subscale.

### 7.4.2 Student Direct Observations – Tier 2

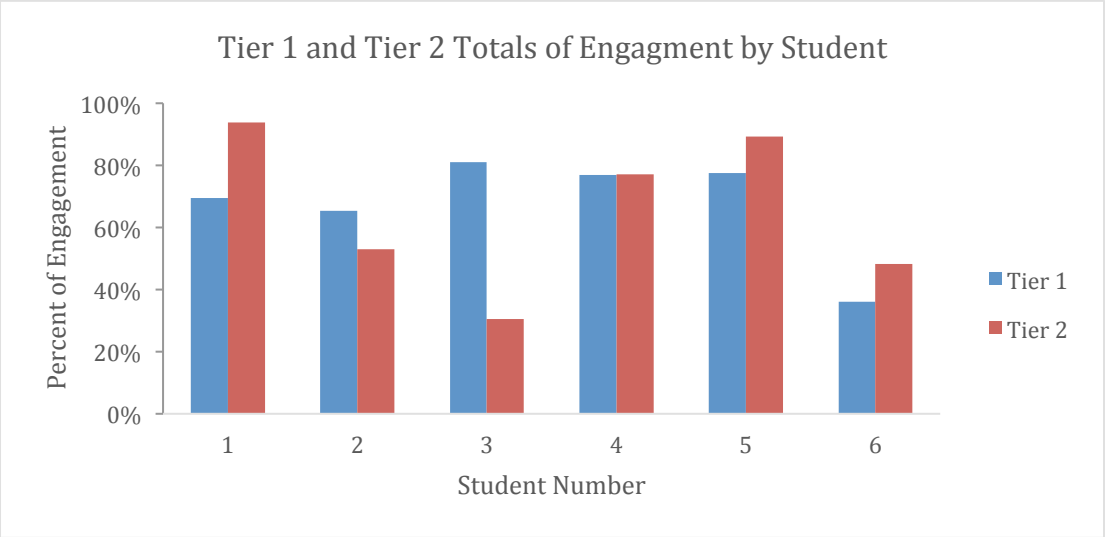
Students were observed using momentary time sampling, as before. Students were marked as either engaged, not engaged, or disruptive every 10 seconds. Students were observed over a variety of conditions that included working one to one, in a large group activity, lunch, or a break. These activities were chosen to ensure students were seen under a variety of conditions. Students could have up to five observations per tier. An observation across conditions was a minimum of five minutes, with a maximum of 20 minutes. For a student's data to be included, at least 40 minutes of observation was needed. During the Tier 2 four hour training, staff created a basic behaviour plan for the students targeted. All six students had a staff member in attendance at the Tier 2 training for at least two hours. One staff member only attended one of the two hour training sessions. Since half the training was attended, that staff member was considered to have taken part in the intervention.

Below are bar graphs representing engagement, disruption, as well as, feedback received by the student. These graphs represent the percentages of intervals across all observations taken after Tier 1 and Tier 2 training. Percentages were chosen due to the differing lengths of observation conditions.

**Engagement**

Engagement was defined as looking at the teacher or materials, working on materials, answering questions, listening, compliance – following an instruction, directive, or request. Engagement was not a direct target of the Tier 1 intervention or the Tier 2 behaviour plan. Engagement was measured to see if focusing on positive feedback would have an impact on engagement.

*Figure 7.7 Engagement by Student Post Tier 2*

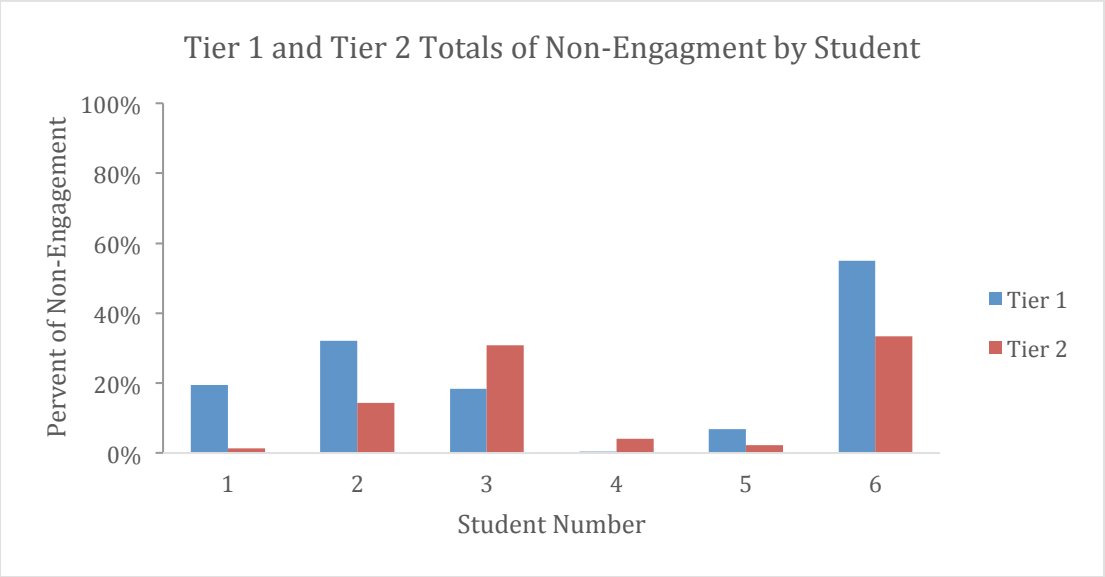



Of the six students, only 50% (N = 3) had an increase in engagement between post Tier 1 and post Tier 2 data points. One student remained the same (Student 4), two students had a decrease (Student 2 and 3). Students 2 and Student 3 were in the same class.

**Non-Engagement**

Non-engagement was defined as engaging in self stimulation, sleeping, not looking at the teacher or materials, non-compliance – not following an instruction, directive, or request.

*Figure 7.8 Non-Engagement by Student Post Tier 2*

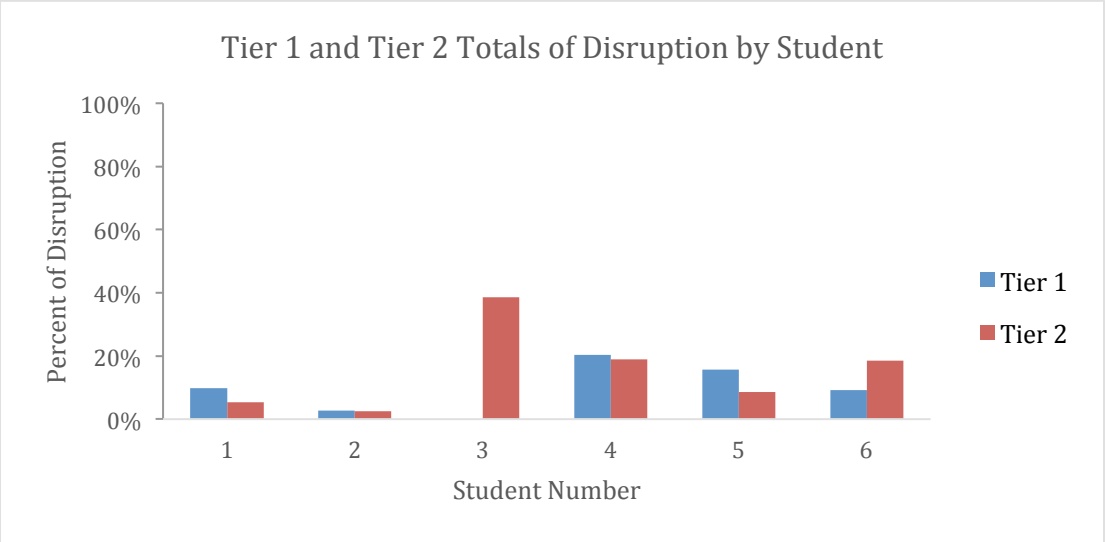



Non-engagement decreased for four students, and increased for two students after Tier 2 intervention. All students' level of non-engagement was below 35% at both post Tier 1 and post Tier 2 observations.

**Disruption**

Disruption was defined as being out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action.

*Figure 7.9 Disruption by Student Post Tier 2*

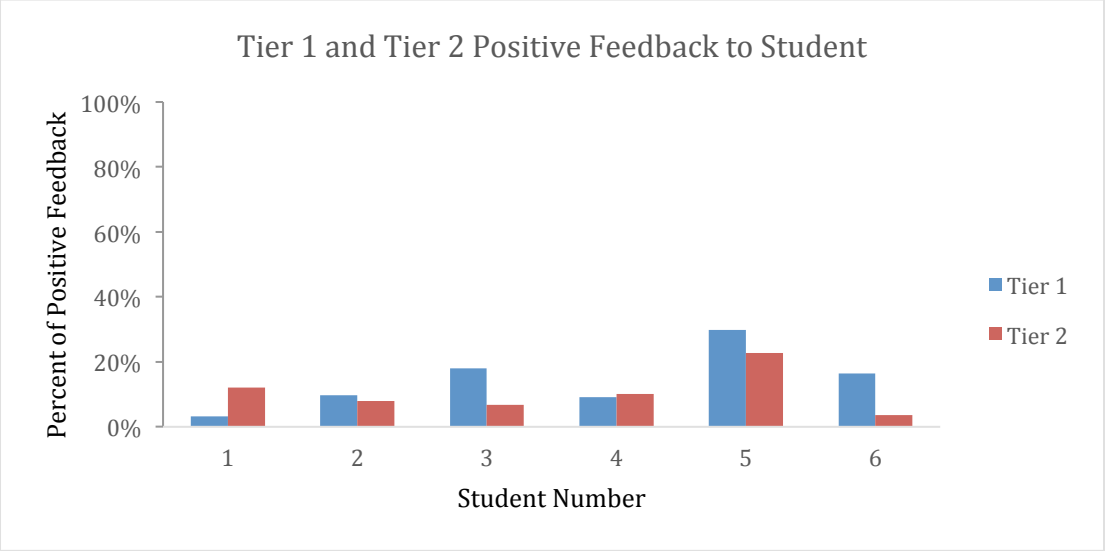



Disruption dropped for three students, maintained for one student (Student 2), and increased for Student 3 and Student 6. Levels of disruption were less than 40% for all students at both post Tier 1 and post Tier 2 time points.

Direct observations also included feedback to students. The feedback categories were positive, neutral and negative, the same as noted above in the staff direct observation section. Feedback was considered positive if it was praise whether general or specific, a "thank you", a smile, tickles, a nod, or a pat during the observation. Feedback was not coded at every interval, as staff had to be interacting with the student, therefore there is a majority of no interaction for student observations.

**Positive Feedback to Students**

*Figure 7.10 Positive Feedback to Student Post Tier 1 and Tier 2*

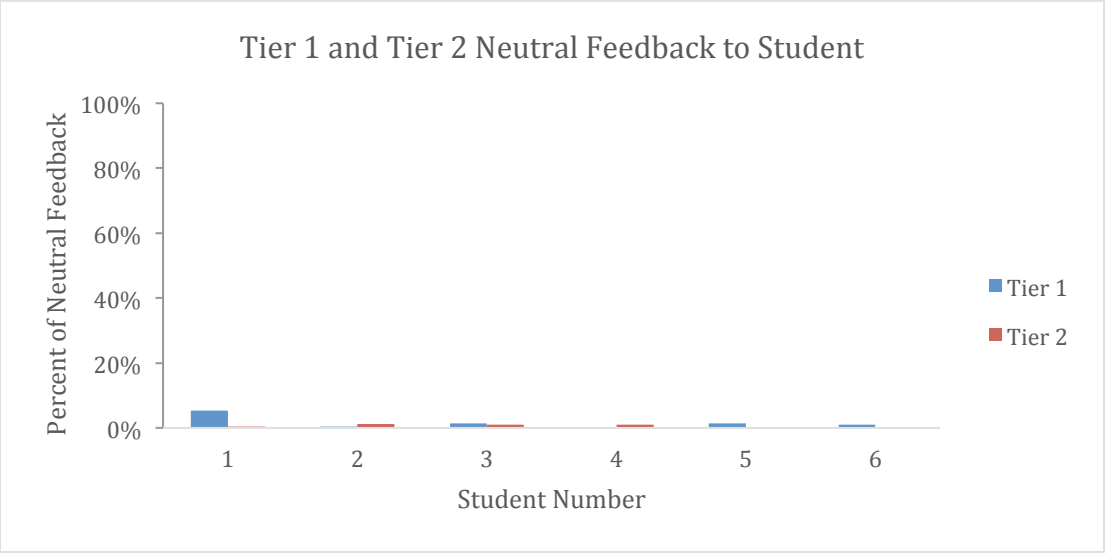



As can be seen in Figure 7.10, levels of positive feedback only increased for two students (Student 1 and Student 4).

**Neutral Feedback to Students**

Neutral statements were comments of a statement of fact, e.g. “you are wearing black trousers” directed toward the student.

*Figure 7.11 Neutral Feedback to Students Post Tier 1 and Tier 2*

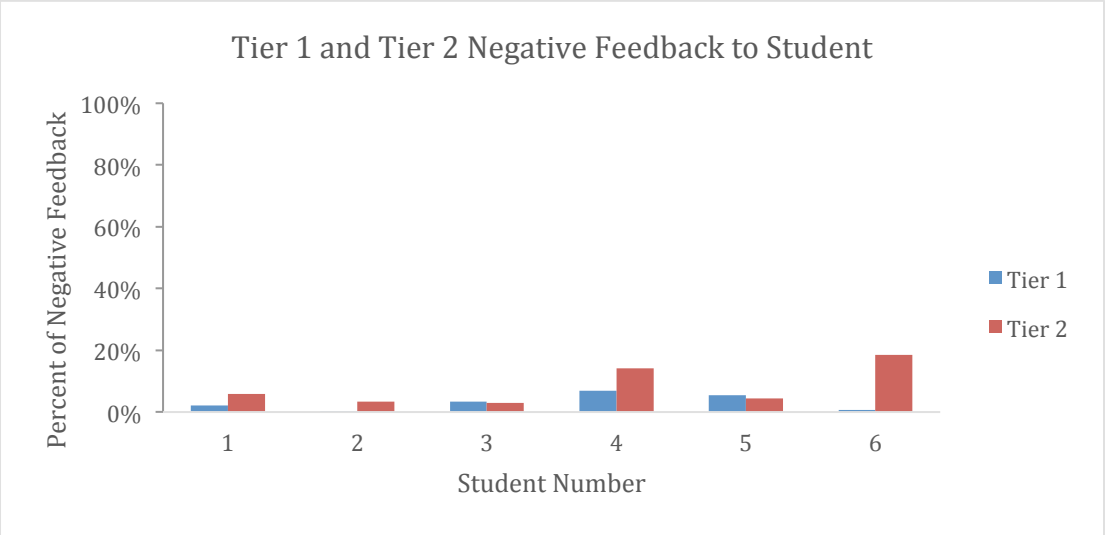



Neutral feedback was below 10% for both Tier 1 and Tier 2. Neutral feedback was not a dependent variable in the research, but a component of feedback as a whole, so it was captured to give an entire picture of student and staff interaction.

**Negative Feedback to Students**

Negative feedback is defined as feedback that includes "no", "stop", or other forms of attention that does not tell the student what to do; and corrective feedback, telling the student what they should be doing at the present time. Negative feedback also incorporated instructions if they needed to be repeated more than once.

*Figure 7.12 Negative Feedback to Student – Tier 1 and Tier 2*




Negative feedback increased for four of the six students post Tier 2.

## 7.5 Tier 3 Baseline Student Measures

Tier 3 Baseline included student measures as well. Students were again rated by staff on the Checklist of Challenging Behaviour and observed. This was to see if challenging behaviour was still an issue for any student, serving as a baseline measure for the next phase, Tier 3. Additionally, student incident data of challenging behaviour was reviewed from the school as was done during Baseline.

Student participation changed during the Tier 3 Baseline and Tier 3 phases of the study. Student 6 was moved to the secondary school setting (in the same school, but a different wing), and therefore, with all new school staff. Participant 5 had been dropped off at the school by his family and left as a 52 week border, meaning no returns to home.

### 7.5.1 Checklist of Challenging Behaviour – Tier 3 Baseline

The Checklist of Challenging Behaviour was administered again at Tier 3 Baseline. Only one staff member responded with information regarding Student 1. (This staff member had previously participated in Tier 1 and Tier 2 interventions.) The staff member rated the student on a five point likert scale for the frequency and management difficulty of challenging behaviours categorized as aggressive or other (P. Harris et al., 1994). The higher the score, the more frequent or more difficult the behaviour was to manage. Student 1 received a 1.00 score on the Tier 3 Baseline measure of frequency of aggressive behaviour. This shows a decreasing trend from Baseline (2.19) to Tier 1 (1.69) to Tier 2 (1.33). The student also received a score of 1.00 for the frequency of other behaviours. This was lower than all three previous phases of the research study. The management difficulty showed an increasing trend for aggressive behaviours since baseline (1.92) to Tier 1 (1.46) to Tier 2 (2.57), to the current Tier 3 Baseline (3.50). The score for the other behaviour management difficulty was a 2.20, higher than Baseline and Tier 1, but lower than Tier 2 (2.78).

### 7.5.2 Student Direct Observations – Tier 3 Baseline

During Tier 3 Baseline, the researcher was no longer allowed to work with Student 4. The researcher was pregnant, and it was considered a risk by the school as Participant 4 had previously targeted pregnant members of staff. This left the student observations for only five students. Session by session data is presented for student engagement and feedback received from staff. This is provided to give the clearest picture of the data.

Students were observed using momentary time sampling. Students were marked as either engaged, not engaged, or disruptive every 10 seconds. Students were observed over a variety of conditions that included working one to one, in a large group activity, during lunch, or a break. These activities were chosen to ensure students were seen under a variety of conditions. Students could have up to five observations per tier. An observation was a minimum of five minutes, with a maximum of 20 minutes. In addition any feedback received by any member of staff was also recorded as positive, neutral, or negative. The same definitions that were used in post Tier 1 and Tier 2 observations were also used for Tier 3 Baseline observations.

**Student 1**

Student 1's incidents of challenging behaviour were reviewed during Tier 3 Baseline, as it was the start of the 2013 school year. Therefore, a comparison could be made between the baseline data from the 2011 – 2012 school year and the 2012 – 2013 school year where Tier 1 and Tier 2 interventions took place. Student 1 dropped from 252 incidents of challenging behaviour to 30 incidents. Three of these incidents took place within the residence and one incident took place on transportation, leaving 26 remaining incidents within school setting. The nature of the incidents still covered physical aggression, disruptive behaviour, and swearing. No change in topography of behaviour was seen, but a significant drop in incidents from the previous school year was seen.

Student 1 was in a classroom with five other pupils, two educational assistants, and a teacher. As can be seen in Figure 7.13 below, a slight increase was seen in engagement post Tier 2, and maintained at a higher level during Tier 3 Baseline. Across

the three phases a total percentage of 69.54% was reported for post Tier 1 engagement, 93.75% post Tier 2 and 85.28% in Tier 3 Baseline. Non-engagement also dropped across the Tiers with a total percentage of 19.41% at post Tier 1, 1.25% at post Tier 2, and 1.02% at Tier 3 Baseline. The total percent was obtained by combining all session data for each category, engagement, non-engagement, and disruption and dividing by the total number of intervals observed.

*Figure 7.13 Student 1 Engagement by Session – Tier 3 Baseline*

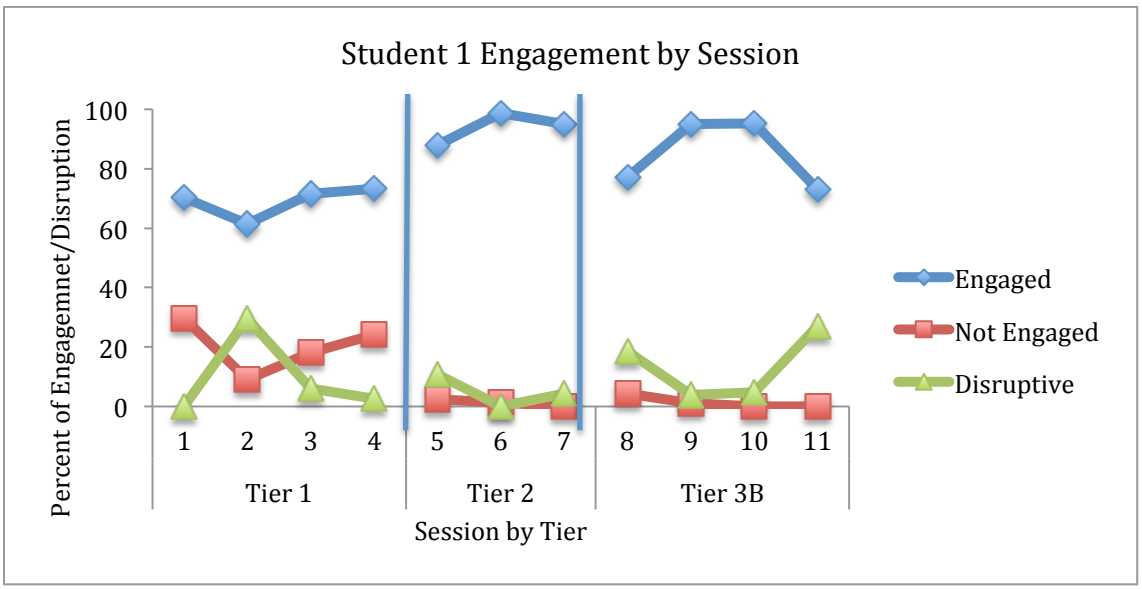


*Figure 7.14 Student 1 Feedback by Session – Tier 3 Baseline*

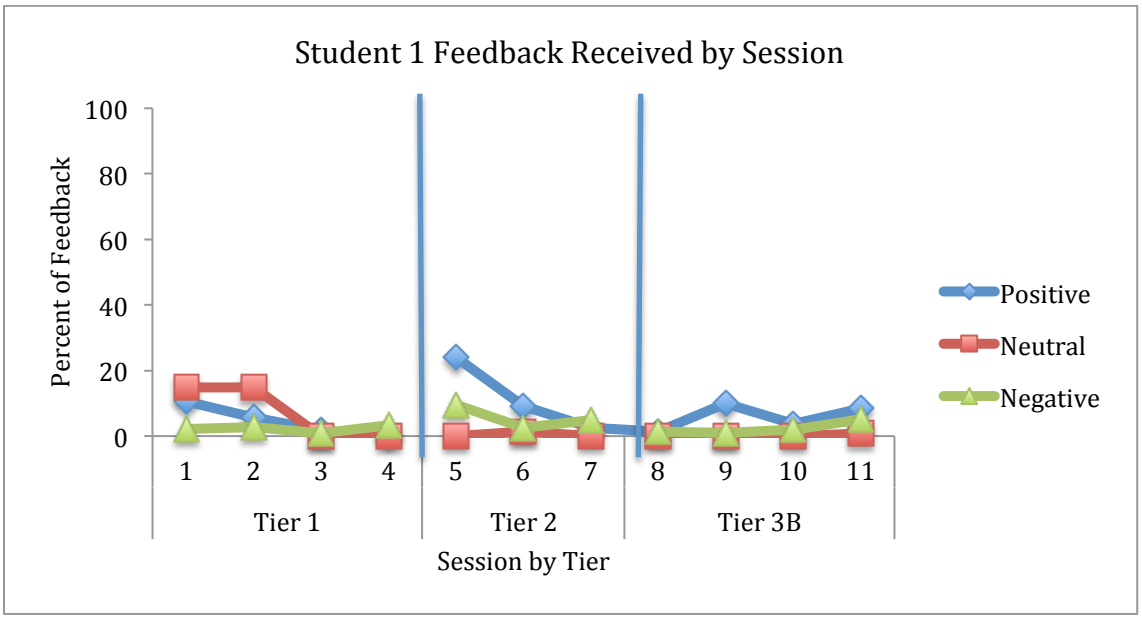



Figure 7.14 shows no changes in staff feedback data to Student 1.

**Student 2**

Student 2 went from 16 incidents in five months (prorated to 32 incidents for the entire year) to 19 incidents of challenging behaviour between the school years. Three of these incidents took place within the residence, leaving only 16 incidents within the school. The student still engaged in acts of physical aggression and refusal to cooperate, but was also engaged in disruptive behaviour. This shows the potential for improvement in incidents of challenging behaviour post Tier 1 and Tier 2. No definitive conclusions can be drawn as the incidents from the previous school year were prorated.

Student 2 levels of engagement and disruption fluctuated. There are no conclusive findings for this participant (see Figure 7.15 below).

*Figure 7.15 Student 2 Engagement by Session – Tier 3 Baseline*

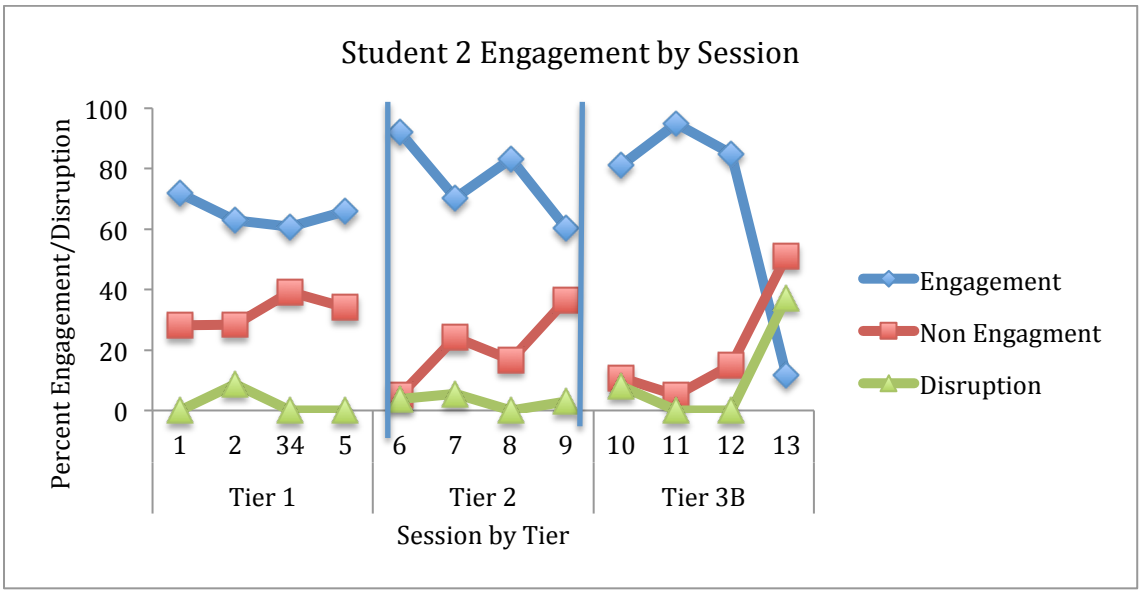



*Figure 7.16 Student 2 Feedback by Session – Tier 3 Baseline*

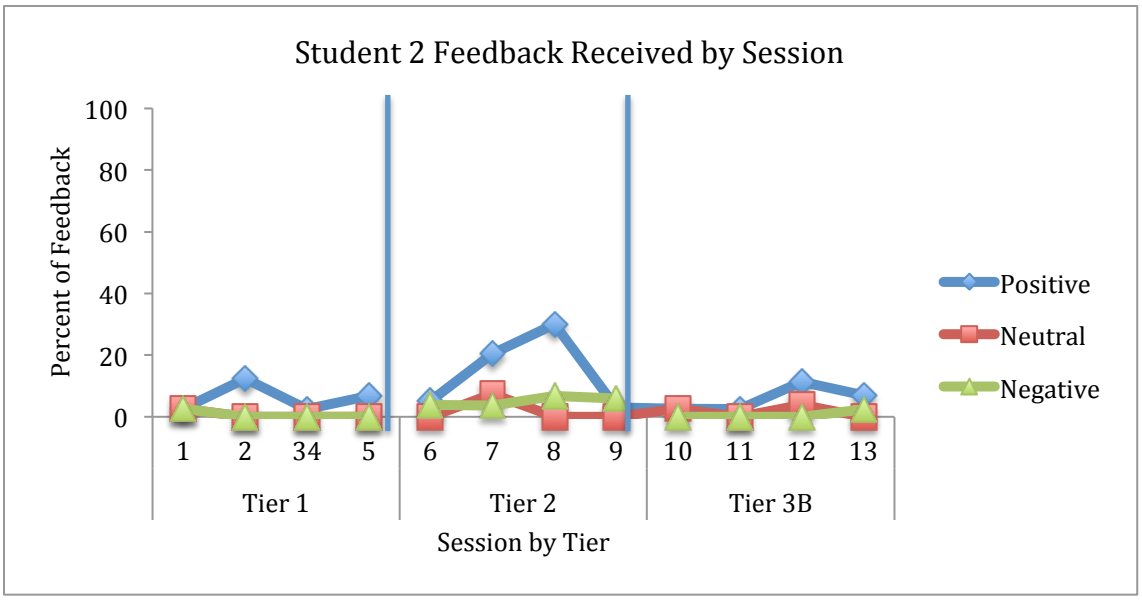



Figure 7.16 shows no change in student feedback across the tiers of intervention.

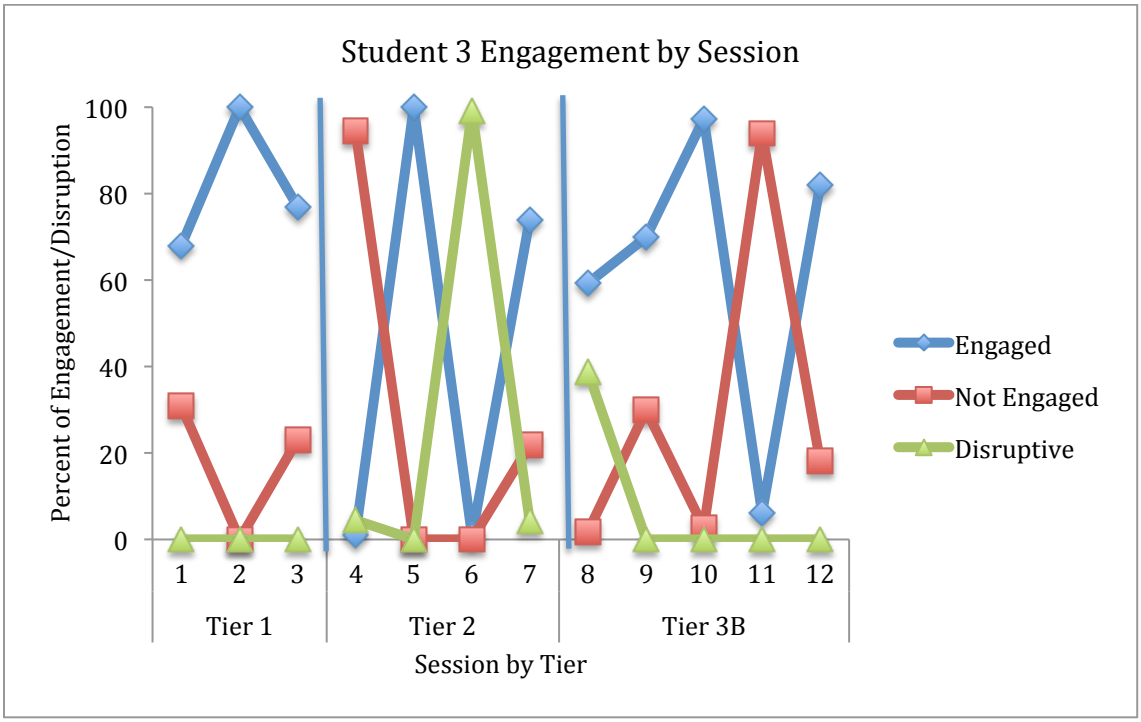
**Student 3**

Student 3 showed an increase in challenging behaviour incidents between the 2011 – 2012 school year and the 2012 – 2013 school year. This student's incidents rose

from 25 incidents to 58. The topography of the behaviour remained the same, physical aggression and threatening behaviour.

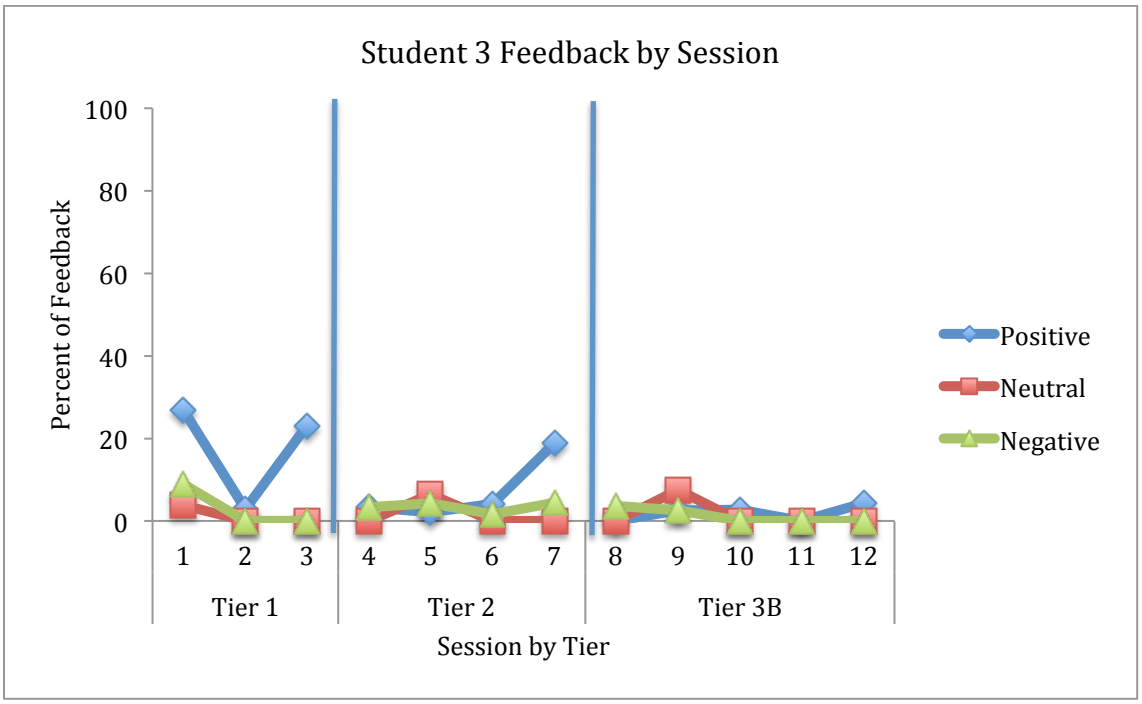
Student 3's levels of engagement and disruption fluctuated. No definitive conclusions can be drawn for this participant regarding student engagement.

*Figure 7.17 Engagement by Session – Tier 3 Baseline*




As can bee seen in Figure 7.18 below, no change was seen in feedback to Student 3 between the three phases currently reported.

*Figure 7.18 Student 3 Feedback by Session – Tier 3 Baseline*




**Student 4**

While student 4 was not allowed to be observed by the researcher in Tier 3, the school incident data was still available to the researcher. Student 4 went from 283 incidents in the school year prior to the interventions of Tier 1 and Tier 2 to 170 incidents during the year Tier 1 and Tier 2 interventions were implemented. This number is further reduced by 14 incidents happening within the residence and three happening on transportation. This leaves 153 incidents in the 2012 – 2013 school year. This was a decrease by 130 incidents, a significant decrease.

**Student 5**

Student 5 had an increase in challenging behaviour incidents from the 2011 – 2012 school year prior to intervention and the 2012 – 2013 school year when Tiers 1 and 2 were implemented. The student rose from two incidents in three months

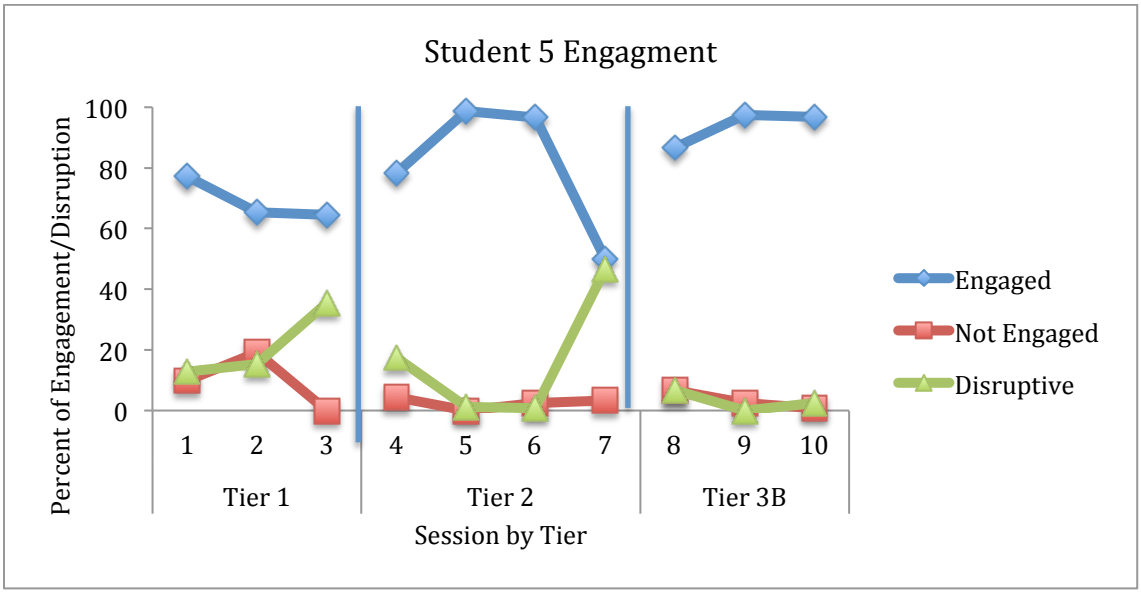
(prorated to nine incidents over the entire school year), to 39 incidents. Of these 39 incidents, six took place within the residence or offsite, and one took place on transportation. This leaves 32 incidents within the school setting. This dramatic increase in incidents of challenging behaviour could have been due to the fact that during baseline, the student was still in the "honeymoon" or "settling in" period that often occurs when students begin a new school.

Student 5 had increasing levels of engagement, as well as decreasing levels of non-engagement and disruption. This can be seen in Figure 7.19 below as well as in Table 7.10 represented by the total percentages for each Tier. Combining all the observations together and dividing by the total number of intervals, by tier, found total percentages.

*Table 7.10 Student 5 Engagement by Tier*

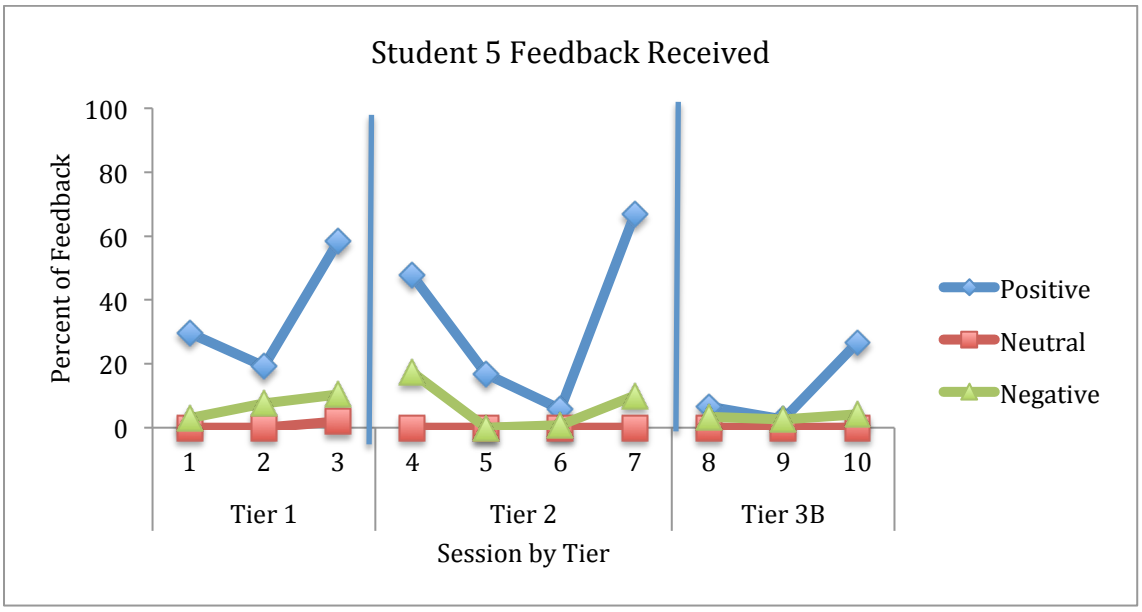
| | Tier 1 | Tier 2 | Tier 3 Baseline |
|---|---|---|---|
| Engaged | 77.52% | 89.21% | 94.06% |
| Not Engaged | 6.88% | 2.16% | 2.74% |
| Disruptive | 15.60% | 8.63% | 3.20% |

*Figure 7.19 Student 5 Engagement by Session – Tier 3 Baseline*




As reported for the previous students, no differences were seen in the positive feedback. Negative feedback was seen to slightly reduce over the three phases. The total percentage of negative feedback was 5.50% for post Tier 1, 4.32% for post Tier 2, and 3.65% for Tier 3 Baseline. This can be seen in Figure 7.20 below. While this reduction is positive, given it is not consistent across students, no generalizations can be made.

*Figure 7.20 Student 5 Feedback by Session – Tier 3 Baseline*




**Student 6**

Student 6 incident data between the 2011 – 2012 school year and 2012 – 2013 school year, showed a slight decrease. Fifty-nine incidents were reported in the school year prior to intervention, with 56 being reported during the year of Tier 1 and Tier 2 interventions. Of these incidents, one took place within the residence and one on transportation. This leaves 54 occurring within the school setting.

Student 6 was moved to the secondary setting in Tier 2, and not allowed to be observed after one observation due to a complaint about the staff by the researcher. During Tier 3 Baseline, the student was with staff that would allow the researcher in for observations. Each tier has a varied level of observations, and variability among those observations on both the engagement and staff feedback (see Figures 7.21 and 7.22). Therefore, there are no conclusive findings for this participant.

*Figure 7.21 Student 6 Engagement by Session – Tier 3 Baseline*

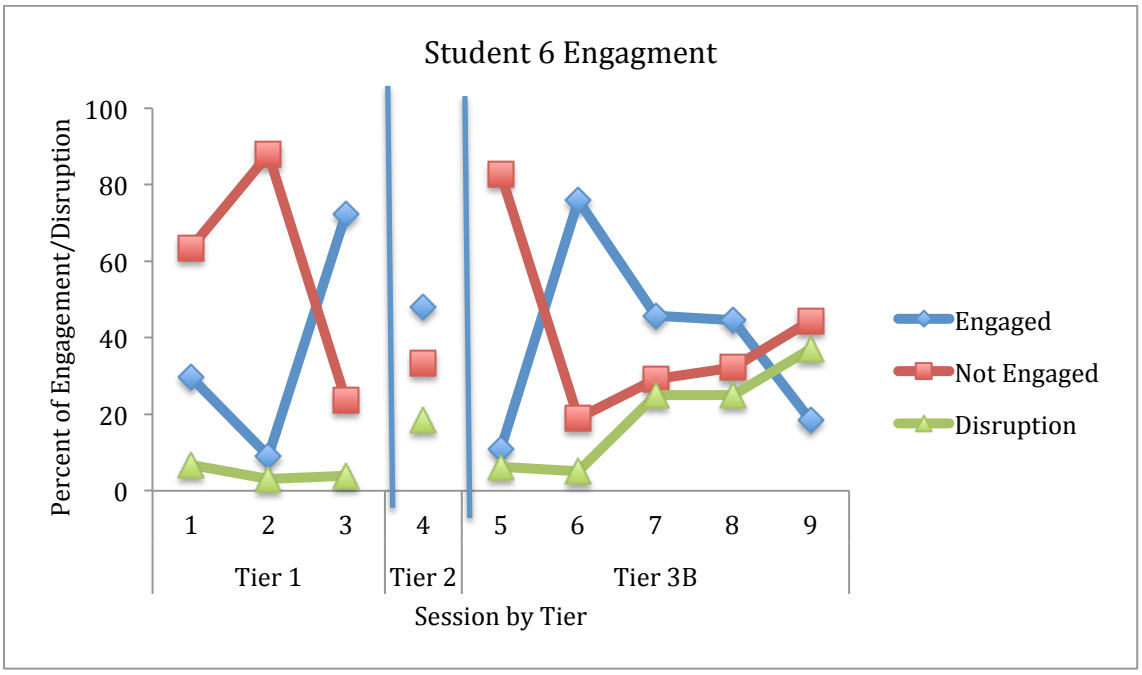
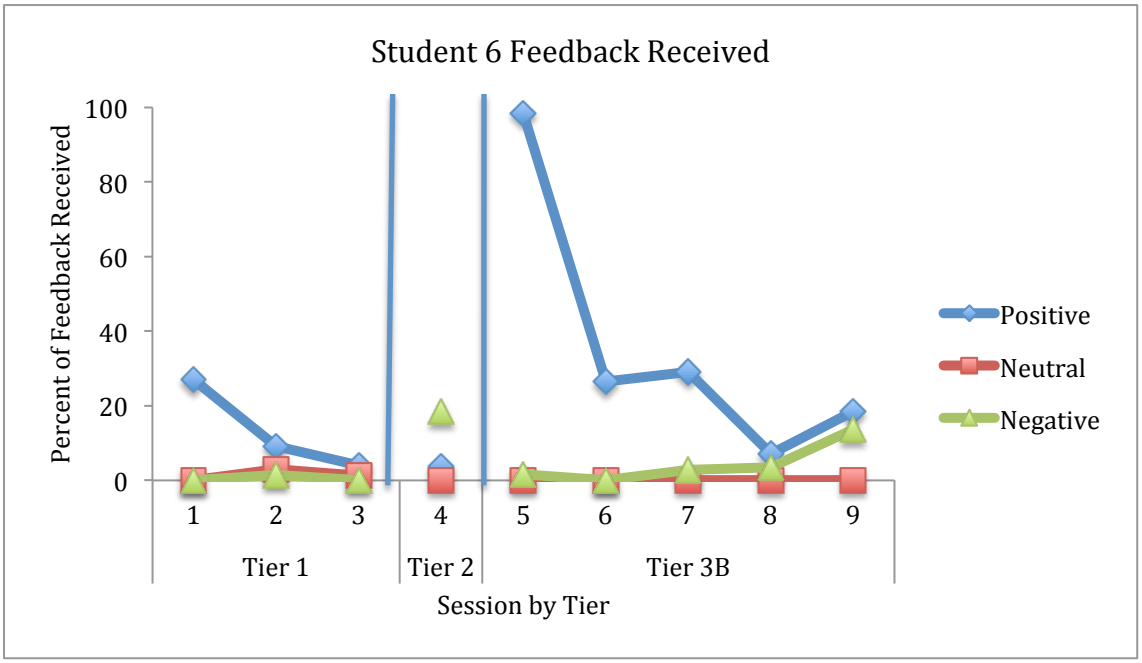



*Figure 7.22 Student 6 Feedback by Session – Tier 3 Baseline*




During the follow up phase of Tier 3 Baseline, no effect was seen on staff feedback across any of the tiers. Student engagement did not correspond to more

positive staff feedback on observations. Levels of engagement were seen to be affected for only one student, therefore leaving the researcher to conclude the interventions conducted with staff in Tier 1 and Tier 2 had extremely limited impact on student engagement. Engagement was not directly targeted in any portion of the intervention, but was used as a dependent measure to see if changing staff behaviour in the form of increased positive feedback would have an impact on student engagement.

Below is the fifth and final phase of the research study, Tier 3. Student results for the final phase of the intervention are reported below.

## 7.6 Post Tier 3 Student Measures

Only one student was able to participate in Tier 3 intervention. The Checklist of Challenging Behaviour was sent to all staff working with the six participating students, regardless of their involvement in the Tier 3 intervention. Direct observations only took place for the one student who participated in the Tier 3 intervention.

### 7.6.1 Checklist of Challenging Behaviour – Tier 3

The Checklist of Challenging Behaviour was again administered at Tier 3. Only two staff responded, for Student 1 and Student 4, not the students targeted for intervention. Student 1 had an increase in the aggression frequency from the Tier 3 Baseline of 1.00 to 3.92, an all time high score. The same was seen for the "other" frequency with a score of 3.69, again higher than all the other tiers. No scores were reported for management difficulty for Tier 3. Given Tier 3 took place during a new school year, this could account for changes within the classroom environment including staff that could contribute to the increase in frequency scores.

Student 4 received a score of 3.50 on the aggression frequency scale, higher than the post Tier 1 score of 3.00, but lower than the Baseline score of 4.09. The "other" frequency score was 4.18, higher than the two other reported phases of Baseline and post Tier 1. Management difficulty was reported for only Tier 1 and Tier 3. The aggression management difficulty domain was slightly lower 3.2 than the 3.31 from Tier 1. The other management difficulty domain was higher 3.45 than the 2.92 reported during Tier 1. With the variability reported for both frequency and management difficulty, no conclusions regarding these aspects of the students' behaviour can be surmised.

### 7.6.2 Post Tier 3 Student Direct Observations

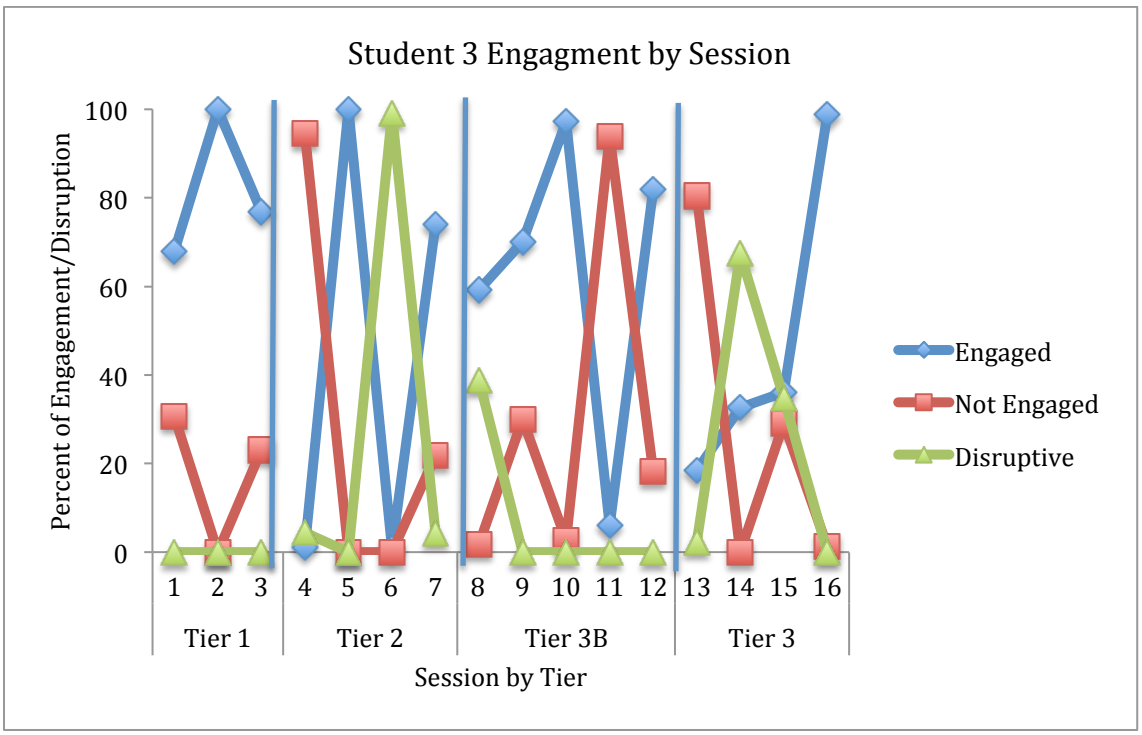
Post Tier 3 observations consisted of the same observation categories as in the previous tiers. The student was observed using momentary time sampling. The student was marked as either engaged, not engaged, or disruptive every 10 seconds. The student was observed over a variety of conditions that included working one on one, a large group activity, lunch, or a break. These activities were chosen to ensure the student was seen under a variety of conditions. In addition any feedback received by any member of staff was also recorded as positive, neutral, or negative. The same definitions that were used in Tier 1 and Tier 2 were used for Tier 3. Tier 3 observations took place after the Tier 3 intervention was implemented.

**Student 3**

As can be seen below, Student 3 had rather erratic data when entering Tier 3. When just looking at the Tier 3 data, an increasing trend is seen in engagement. Data did vary by session condition, but engagement was lower in group, break, and one to one

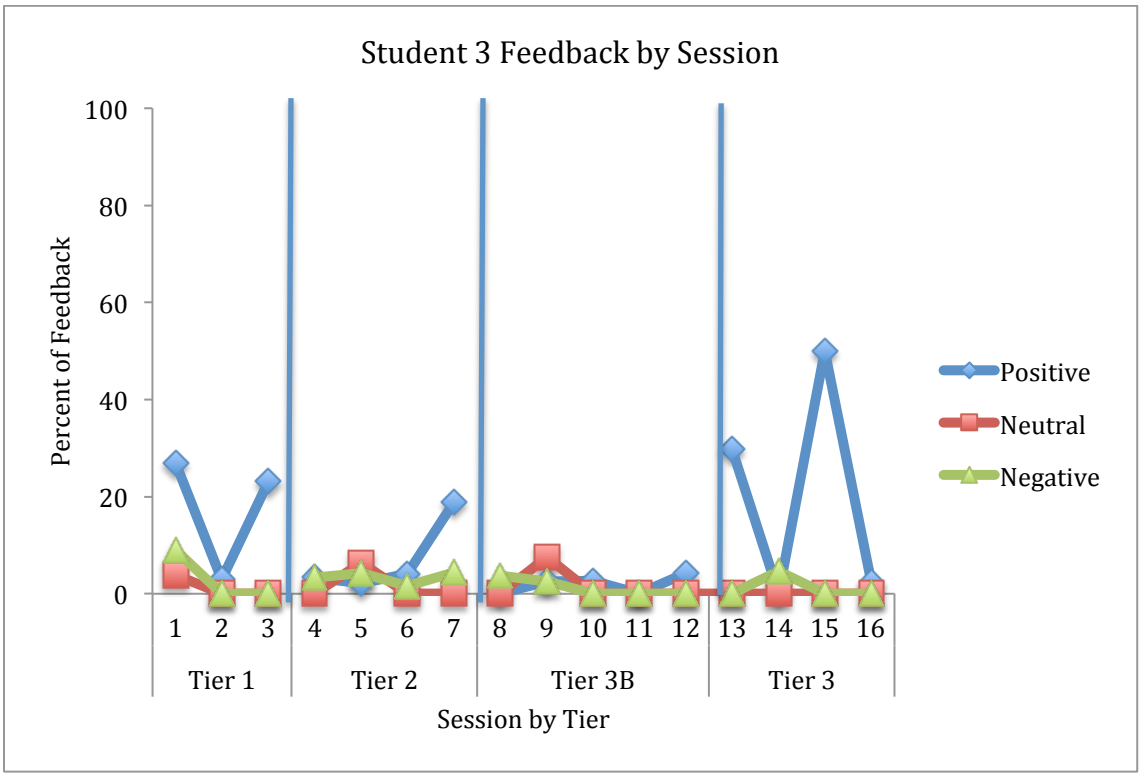
conditions, leaving no conclusions able to be drawn due to condition. This student also dealt with an extended holiday during the Tier 3 phase, as well as staff change during Tier 2. (This staff change included no classroom teacher for half a term, just teaching assistants covering, followed by a new classroom teacher.) Given the nature of the previous data, without follow up it is unknown whether this trend continued or maintained.

*Figure 7.23 Student 3 Engagement by Session – Tier 3*




As with the previous observations in Tier 3, no changes were seen specifically during post Tier 3 feedback to Student 3. It was variable as in the previous tiers. See Figure 7.24 below.

*Figure 7.24 Student 3 Feedback by Session – Tier 3*




### 7.6.3 Student Incident Data

Incident data was obtained from the school regarding incidents of challenging behaviour during the autumn term of the 2013 school year. This was September to December 2013, during the Tier 3 phase of the research study. While Tier 3 was done prior to the end of term, incident data was looked at as a whole for the term. Student incidents are reported below. While this does show a decrease in challenging behaviour by incidents reported, it does not match the direct observations reported above, showing no trend in student engagement. Therefore, this outcome is not entirely conclusive as to what caused the decrease in school incident data.

**Student 1**

Student 1 had only two incidents of challenging behaviour for the entire term. The school was unable to provide a breakdown of settings and topographies for the term; therefore just a count is given. Given this time frame is one third of the school year, even prorated to six for the entire year, this student again showed a reduction in challenging behaviour compared to 30 incidents the previous school year (during Tier 1 and Tier 2 intervention), and 252 incidents the year prior to Tier 1 and Tier 2 intervention. This was a significant factor in why this student was not chosen to participate in Tier 3.

**Student 2**

Student 2 engaged in only four incidents of challenging behaviour. Given this time frame was a third of the school year, if the trend continued a decrease would have been seen in challenging behaviour compared to 19 incidents the year before. Even with the behaviour prorated, 12 incidents of challenging behaviour would still be less than the 19 seen the year prior. Again, this low number of incidents played into the decision by the school and researcher to not implement Tier 3 intervention for this student.

**Student 3**

Student 3 engaged in 10 incidents of challenging behaviour during the autumn term of 2013. Given this was a third of the school year, if this trend continued there would have been a decrease in the number of incidents from the previous school year (58). The 58 incidents from the 2012 – 2013 school year during which Tier 1 and Tier 2 were implemented was an increase from the previous school year of 25 incidents. This

student **was** chosen to participate in the Tier 3 training, based on this rise of incidents during the 2012 – 2013 school year when the previous interventions were implemented.

**Student 4**

Student 4 engaged in 33 incidents of challenging behaviour during the autumn term of the 2013 school year. The researcher was not allowed to work with this student due to being pregnant and considered a likely target of aggression. This student would have been chosen for Tier 3 based on the high number of incidents in the previous two school years (283 in the year prior to Tier 1 and Tier 2 training, and 170 during the Tier 1 and Tier 2 implementation year), even though there was a significant reduction in the number of incidents.

**Student 5**

Student 5 engaged in 13 incidents of challenging behaviours during the autumn term of 2013. This student would have been chosen for Tier 3 intervention due to the number of incidents of challenging behaviour equalling the previous years number of incidents, but was experiencing health and safety needs at the time. The student had been left at the school with no funding as a 52 week border. The school took charge to sort care for the student, and it was decided with the family abandonment the welfare of this child his social care needed to be sorted prior to any further intervention. The researcher was in complete agreement.

**Student 6**

Student 6 engaged in 11 incidents of challenging behaviour during the 2013 autumn term. Due to the higher number of incidents in the previous two school years (59 and 56 respectively), and the fact that there was no change seen in the number of

incidents with Tier 1 and Tier 2 interventions, Student 6 would have been chosen to participate in Tier 3. Unfortunately, the staff that was teaching Student 6 would not allow the researcher into the classroom and withdrew their consent to participate.

**Discussion**

Student data was looked at as a dependent measure. No direct intervention was conducted with students until Tier 3. The hypothesis was that changing staff feedback would result in a change in student engagement. The variability between students and levels of engagement did not allow the researcher the ability to draw any definitive conclusions based on the interventions implemented. More than staff feedback or student challenging behaviour could affect engagement. Engagement could be linked to type of activity and student's ability and interest in the activity presented. This could also account for the lack of increase in student engagement.

While staff positive feedback overall rose, staff feedback in conjunction with the students observed showed no change throughout the intervention phases. This could be due in part to the fact that while staff feedback behaviour changed, those students who were displaying high levels of challenging behaviour were not receiving positive feedback. Staff could have directed their positive feedback to those students who were easier to praise, thus increasing their positive feedback. In this scenario both outcomes discovered in this research study could be obtained, an increase in staff positive feedback overall, but not an increase in positive feedback to students who displayed challenging behaviour.

Lastly, even the Tier 3 intervention for Student 3 could not be determined to be a success, due to the variability in the data. Unfortunately, one of the biggest barriers was

the inability to use a potent reinforcer of food. This left the researcher limited ways to reinforce the student for displaying appropriate behaviour. Another limitation was the lack of time to ensure stability of data before implementing Tier 3. Without having a clear picture of stable data, no definite conclusions can be drawn about the interventions effectiveness. Staff change continued to happen and for this student, a change in staff could have also resulted in the variability in the data.

Chapter 8 will summarize the research and answer the research questions presented in Chapter 5. Further limitations and barriers will be discussed regarding the research study. Future areas of research will conclude the thesis with a brief overview of the entire thesis.

# Chapter 8 – Study 2 Discussion

## Overview

The purpose of Study 2 was to evaluate school wide training in positive behaviour support in a special school in England. Additionally, the current study looked at what could be accomplished through minimal hours of training, in respect of both teacher feedback behaviour and student engagement. Many studies have been conducted in positive behaviour support and there is a growing evidence base for schoolwide positive behaviour support (Bradshaw et al., 2008; Bradshaw et al., 2009; Horner et al., 2009; Solomon et al., 2012). However, through a systematic review, only two group-based studies were found where the majority of students had an intellectual disability (Hetzroni, 2003; Hill & Flores, 2014). This is despite the fact that positive behaviour support is referred to in policy and law in the United States (Individuals with disabilities education act (IDEA) amendments, 1997; Individuals with disabilities education act, 2004).

While the training used here was not identical to the traditional schoolwide positive behaviour support training, which usually involves deciding on schoolwide rules and consequences, positive behaviour support was still implemented in Study 2. Staff were taught to focus on the positive behaviour of their students and a small group of staff were taught how to determine function of challenging behaviour. This extends the literature, as only two previous studies have looked at positive behaviour support within a school for those students who are diagnosed with intellectual disabilities. One school in Israel, used assistive and augmentative communication, and the second school

in the United states used schoolwide rules and expectations for the teaching staff (Hetzroni, 2003; Hill & Flores, 2014). This is the first study in England to evaluate student and staff behaviour through credible measures and with the use of direct observations.

The remainder of this chapter will return to the research questions asked in Chapter 5, methodology. These questions will be answered and compared to other studies to explore how the findings of this study compare. Additionally, barriers, limitations will be discussed, and implications for future research will conclude the chapter.

## 8.1 Limitations

This research had a number of limitations. The sample size of the study was small, especially with the attrition throughout the study. The small sample was even more limited with changing groups at each Tier of intervention. Additionally, staff report was a large part of the measures, which in itself is a limitation. Staff reports may not be consistent with actual change in the environment. This has been seen within the literature in Miller and Mount's 2001 study having participants self report change and then send in video evidence of change. Less was seen in the observation of the video evidence than in the staff report (Miller & Mount, 2001).

The application of positive behaviour support in a school for students with intellectual disabilities was an under researched area. While studies existed as to how to implement positive behaviour support within a general education school, there was no road map for navigating a special school. The school recruited was especially

different, as it was a residential school that accepted boarders. This limited parent contact for some students and created further training requirements, for residential staff. As some students would spend their entire week on campus, not only did school staff need to be on board, but also so did the residential staff. This could also be seen as an asset. Students would receive positive praise not only in the school environment, but in the residential setting as well. This left the researcher to create bespoke materials and use measures not purpose built. These two things have had an impact on the data presented. The training has never been trialled with other participants before, and the measures utilized were not matched with the training materials, therefore the learning outcomes may not have been as accurately measured as they would have been if bespoke measures were created.

Direct observations presented their own set of limitations. The researcher was asked to schedule direct observations with the school liaison person. This was not always passed on to the actual participants, and some days there were uncommon activities such as autumn festivals, etc. that did not allow for data collection. Additionally, the nature of observing feedback has its own limitations. If the researcher was unable to hear what was spoken, nothing could be recorded. It is possible feedback was given that was not captured within the data collected. Not only did the researcher potentially miss feedback, the students could have missed the feedback as well. If the student was hearing impaired, they could not have heard the feedback, which could have been exacerbated by a hearing loss. Additionally, if the student was not looking at the staff when sign was used, the feedback would not be seen. This could have implications for student behaviour, and the feedback showing little student behaviour change. As

noted in the methods section, a finite number of direct observations had to be chosen in order to be able to accomplish the observations within the time given and not make the staff feel scrutinized. The staff did report the observations as being intrusive, and time did not allow for data to always stabilize between phases of intervention.

The fact that some of the participants were deaf also posed additional challenges. The staff would all speak and sign as the students were a mixture of hearing and deaf within the school, which helped to ensure the researcher understood any sign used. The researcher and her observers were not fluent in British sign language, therefore, a sign may have been used they did not recognize as a form of feedback. Additionally, if the staff were faced away from the observer when giving a sign, it may not have been captured during the observation. In order to respect the staff and try to remain unobtrusive, the researcher would not follow staff around the room; rather she picked a place and tried to remain there for the majority of the observation. All of these limitations had implications for the data presented. Using a permanent record of the observations, such as videotaping could have allowed for some of these limitations to be minimized. The school did not allow this; therefore, in vivo observations were conducted.

A large number of the staff members trained were residential support workers. Some of these residential support workers did support students within the school, but some only worked within the residence. Observations within the residences were outside the scope of the research. Therefore, there could have been changes in staff and student behaviour within the residence that was not accounted for in the classroom observations.

Functional assessment was not used until Tier 3, and then with only one student. If the function of a student's behaviour was not maintained by social attention, then the interventions conducted would likely not have showed behaviour change. This would be due to the fact that the main intervention was on increasing positive attention to students, which would not be considered to be reinforcing the challenging behaviour if it was maintained by escape or another function. Moreover the great variability in some student's behaviour across the different class activities may have been accounted for through the function of their behaviour, but this was not measured and therefore was not apparent to the researcher. Therefore, without knowing the function of all the students' challenging behaviours, it is not known if this contributed to the lack of behaviour change across all the student participants.

Lastly, school incident data appeared to show a reduction in challenging behaviour for the majority of the students. Unfortunately, as this was staff report, there was no way to have reliability checks on this data. One staff member may have been more apt to write an incident report than another, and just a mere change in staff could have accounted for the change in student incident data. All staff within the school were able to report an incident, not jut the classroom teacher. Not all students changed classroom staff between the school years, but some did, furthering the limitations with the student incident data.

The school chosen for research was not familiar with research, positive behaviour support, therefor creating additional barriers to the research. This also led to staff not completing measures, turning in incomplete measures, and being not fully committed to the research study. This is expanded upon in section 8.6 below. Given the

barriers, limitations and changing participation, the study is unable to make sweeping generalizations about positive behaviour support training for special schools in England.

### 8.2 Can increases in student engagement be achieved through minimal training hours with school staff?

Student engagement was selected in the current study as a dependent variable, though no direct mention of student engagement or direct work with student engagement, such as active support or active student responding, was conducted over the course of the study. By increasing positive praise and paying attention to behaviours that were appropriate within the classroom setting, it was hypothesised that engagement would have increased while challenging behaviour reduced (Horner et al., 2009). Student engagement was directly measured through momentary time sampling direct observations. Student engagement increased for only two of the six students directly observed. This led the researcher to conclude engagement was not affected by the intervention. While this is a successful result for two students, less than half the students were affected, leading to the conclusion that as a whole, the students were not affected.

Previous research in positive behaviour support has measured student engagement through time in class, by examining office discipline referrals. For all the office discipline referrals, 45 minutes is deducted from time in class (Horner, Sugai, Todd, & Lewis-Palmer, 2005). While this number of minutes recouped has served as a measure of engagement in the past, this is not a direct measure so it is hard to know if this additional time in class is actually having the students engaged with the work. For

the current study, for five of the six students directly observed there were decreases in their student incidents. Using student incident data as a measure, the students would have been considered to be more engaged, but this was not seen through the direct observation, so therefore the researcher considers engagement not affected by the present study.

Engagement has also been measured in other studies by academic achievement. Horner and colleagues purport using schoolwide positive behaviour support to increase the amount of time students are in school, increase engagement in the classroom and increase engagement during instruction (Horner et al., 2009). An increase in academic performance is assuming students are spending more time engaged. Horner and colleagues did report an increase in reading performance, but again this is an indirect measure (Horner et al., 2009). Since a direct measure was chosen here, engagement was considered unaffected by the research.

### 8.3 Will improvements in the student's engagement lead to school staff being better able to manage the students?

Since the previous question showed no improvement in student engagement, this question has essentially become irrelevant. A discussion regarding how management difficulty was measured and the results will follow. As this was part of the study, this discussion will look at the management difficulty outcomes. Management difficulty was measured through the use of the Checklist of Challenging Behaviour for those students targeted in the intervention.

After the first round of intervention, Tier 1, management difficulty was reported to drop for two of the four students rated. After the second round of intervention, Tier 2, management difficulty was reported to increase for the three students rated. This was the opposite of the hypothesis. Since challenging behaviour decreased, management difficulty would be expected to decrease as well. Even with two students showing improvement, the researcher considers this outcome unsuccessful.

Previous research that has utilized the Checklist of Challenging Behaviour has not been reported for school staff; therefore comparative findings could not be presented. The checklist of challenging behaviour has been utilized to study community settings (Joyce et al., 2001b), psychotropic medication (Grey & McClean, 2007), staff attributions (Jenkins, Rose, & Lovell, 1997). It is felt these are irrelevant to the management difficulty experienced by school staff. Additionally, the Checklist of Challenging Behaviour was used to describe single subjects here, therefore comparing an individual result with an unlike group does not seem to help make comparisons. It only makes sense to conduct pre-post comparisons.

### 8.4 Will school staff report the changes that are observed within the classroom setting?

Staff were asked on the 4 + 1 tool (Helen Sanderson Associates, 2016) to tell the researcher what they tried, learned, were pleased about, concerned about, and what they would do next (Appendix U). The 4 + 1 tool comes from person centred planning, which is a component of positive behaviour support (Horner, 1998). The results of this

social validity measure will be reported here. This was used to see if staff felt there was a change, and overall what they perceived about the positive behaviour support training.

All staff reported they tried to focus on more positive behaviour, and even thought about rephrasing their commands/requests in a more positive manner. The staff reported being pleased about the improvement in pupils' behaviour, and felt they could see an improvement in the students' behaviour. Staff also reported they would continue to use the strategies taught, specifically focusing on the positive feedback and would seek additional training in the future.

For the researcher, this was considered insightful. Staff did report noticing a change in their students' behaviour. This could be seen in the lower number of student incidents reported by the school, but not conclusively in the measure of behaviour change. One quote in particular sums up the goal of focusing on positive feedback, "I have learned that a more positive attitude has beneficial effects on the way students respond." The researcher feels this was achieved through the increase in positive feedback, and the fact that the staff noticed the change in their teaching environment.

Participants were asked to rate their emotional reactions to challenging behaviour prior to any training, and at three to four additional time points in the training. These emotional reactions were rated on the Emotional Reactions the Challenging Behaviour scale, and no significant differences were found. The positive and negative emotions were consistent throughout the phases of research. This could be due to the fact that a vignette was presented upon which staff were to rate their emotions. Since the vignette did not change, their emotions could have stayed the same. A

different result could have been concluded if staff were asked to use the rating scale in relation to the challenging behaviour they were experiencing within the classroom.

Staff knowledge of challenging behaviour was also measured. The Self-Injurious Behaviour Questionnaire subscales of Knowledge and Action were used to determine the knowledge of challenging behaviour. The mean on the knowledge correct subscale went down from baseline to post Tier 1 training, the opposite effect from what was desired. The mean for correct answers on the action subscale increased from in baseline to Tier 1. The mean rose from post Tier 1, to post Tier 2 on the correct answers in the Knowledge subscale. This was the intended effect of Tier 2 training. The same was not seen in the correct answers on the Action subscale, where the mean dropped from post Tier 1 to post Tier 2. This shows, their knowledge of challenging behaviour did not increase from the five hour Tier 1 training, but did increase from the four hour Tier 2 training as measured by the Self-Injurious Behaviour Questionnaire.

This lack of increase from the post Tier 1 training could be due to the fact that while challenging behaviour was covered, it was covered briefly. The focus on looking for functions of behaviour was enhanced in the Tier 2 training. This included videos with actors portraying very clear cut instances of challenging behaviour. The videos were explained as well as used for data collection training, as part of the Tier 2 training. As questions focused on function and a behavioural perspective of dealing with challenging behaviour this could account for the difference in scores. Additionally, the Tier 2 training was conducted in a small group setting, which could change the learning environment and knowledge gained from the participants.

### 8.5 Can increases in positive praise be achieved through minimal training hours with school staff?

Increases in positive praise were seen for the school staff. For five of the seven staff observed, increases in positive praise were seen post Tier 2 intervention. Since there was no baseline condition, these conclusions cannot be drawn about Tier 1. However, within four hours of tier 2 training staff were able to increase their rates of praise. Additionally, when asked about the intervention, and what was learned, all staff remarked on the positive praise, showing the training was impactful.

Of the seven staff directly observed after Tier 2 intervention, five increased their positive feedback. Five out of six students showed decreases in student incident data. No change was seen to student engagement, but this was never specifically taught. While no increase was seen in student engagement, no increase was seen for positive feedback from staff to the targeted students . These two could still be linked, if positive feedback were increased for the targeted students exhibiting challenging behaviour, engagement could have increased as well. This is something that would need to be investigated in further research.

In the study by Hill and Flores (2014), a ratio of five positive comments to one negative comment was also targeted, as in the current thesis. Direct observations of staff were conducted, also with no baseline measure, as in the current thesis. Their findings were a mean of total comments of 11:1 positive:negative comments, with a range of 0 – 22 positive comments, and 0 -1 negative comment for the first data collection and 16:1 with a range of 3 – 26 positive comments and a range of 0 – 4 negative comments for the second round of data collection (Hill & Flores, 2014). This

current study shows the ability of positive behaviour support to be implemented in a special school in England.

### 8.6 Barriers

Working within a functional school was a barrier, as the environment could not be controlled by the researcher. The first big barrier was time. Due to the fact that this research was conducted as part of a PhD project, time was an inherent issue from the start. There was not an endless period of being able to wait for participants to sign up, for research to move forward, or for the study to be replicated in another school. After approaching the school that did take part in the main study, student recruitment was minimal and this was mainly due to the need for parental consent, which was often not forthcoming. This may have refelected the fact that families were struggling with multiple stressors and were unable to give their minds to the possibilitiy of research benefitting their child. This was discussed between the researcher and her supervisors, and given the commitment of the school and the slot they had allocated to the pre school year training, it was decided the research should go forward. An attempt was made to recruit a second school to help strengthen the research. The second school agreed, ethical approval was obtained, but as with the first school recruitment was low. The researcher set a date with her supervisors and the school along with a minimum recruitment target for proceeding. This target was never reached, and therefore the second school was never taken on board for research.

The time allocated for training was also a huge barrier. The researcher had approached the school for several days of training after the school year had begun. This

would also have ensured the collection of baseline direct observations before the training had been delivered. This was not granted, and the researcher was only given five hours prior to the start of school to train the staff. This did not allow for the researcher to recruit staff buy in as done in schoolwide positive behaviours support, as the training was scheduled during the break between the summer and autumn term. Therefore, the researcher decided to create a bespoke curriculum and focus on aspects of positive behaviour support that she felt could be implemented within the time frame given. This limitation carried over to training for Tier 2 and Tier 3. Again, working within a busy school required the researcher to shorten the proposed hours and content of the training.

Lastly, staff attrition was a major factor in this study. Staff turnover was more than is expected. Schoolwide PBS requires 80% buy in from the staff before beginning within the school, and years for implementation (Handler et al., 2007). This is due to the level of organizational change that is needed to support such a schoolwide philosophy. The idea to condense this message within the time scope of a year was an additional barrier. This could be related to the fact that the school was closed the year following this study and allegations of abuse by residential support staff were reported. This could have created a climate that was not conducive to positive behaviour support or training staff, unbeknownst to the researcher. Without the same staff members present at the beginning and end of the study, barriers with the data and its interpretations were inevitable.

## 8.7 Implications for Future Research

The current research undertaken has added to the positive behaviour support literature by not only looking at a school wide application within England, but also within a special needs school. As was discussed in Chapter 3, this kind of study has only been published twice before where the majority of the school population were students with intellectual disabilities (Hetzroni, 2003b; Hill & Flores, 2014).

From the previous research, positive behaviour support has been shown to be effective at an individual level for students with intellectual disabilities (Goh & Bambara, 2012), but if effectiveness can be shown at a school wide level, this will have implications in resources for schools. Schools would be able to implement a small amount of training and receive the results of decreased challenging behaviour, which would in turn be likely to provide increased academic achievement. Academic achievement of course is the ultimate goal of any school.

This research has added to the literature by not only showing what a few schools in the southeast of England are receiving in terms of behaviour support through the survey, but by also attempting a school wide or systems level intervention. No generalized conclusions can be drawn from the study, due to the limitations and barriers presented.

Future research needs to focus on ensuring a working relationship with a school, but having tighter control of the data. This includes ensuring baseline observations can conducted, proposed training hours are adhered to, and data is able to be collected until stability is seen. Additionally, working with a school that has a stable staff and student population would help to draw definitive conclusions about the research. Future

research should also take the time to go through a presentation to the entire staff and carers if possible, so as to get 'buy in', so that the staff and carers are committed to the study and understand the importance of not only implementing strategies learned, but completing research materials to help with advancement of the field. As this was another study implemented with primary age students, research could also be expanded to secondary students, where again research is lacking.

Research needs to be conducted to continue to build the evidence base and provide a pathway for systems change for not only general education students, but for those students with intellectual disabilities. The ability to make changes at this level would allow schools to cut down on individualized assessments and interventions which would help resources of time and expense to stretch further. This is something definitely needed in the ever changing economic climate to help burdened teachers. Lastly, this change would bring more fulfilment to school staff who would then want to continue teaching and perfect their craft.

### 8.8 Conclusion

Many barriers and limitations were encountered along the way. Time, participation, and working within the applied setting were some of the biggest. Future research is still needed in school wide positive behaviour support, particularly involving students with intellectual disabilities and those of secondary school age. Research could further validate what can be done with systems change and help schools to know how to best use their limited resources. Considering all these limitations and barriers, it is impossible to generalise the findings from this thesis to any population or setting

explored within the research. The school was not a stable environment in terms of offering the time, staff and students to the research. This made conducting research in an applied setting an additional challenge.

Additionally, some preliminary work has been done on readiness for a school or a school district before beginning to implement schoolwide PBS (Horner et al., 2004). This includes having administrator support, team training agreeing with school wide rules, reinforcement systems, and school discipline procedures that allow who? to understand what behaviour is happening in what setting (Handler et al., 2007). Schools that implement Schoolwide PBS also have a team that meets on a monthly basis to discuss training, review data of reinforcement and discipline, and ensure any staff who are struggling or are new receive additional help in the implementation of Schoolwide PBS (Handler et al., 2007).

None of these items were in place, outside from administrator support in the thesis. Due to that fact, the researcher chose to just train staff to say more positive than negative things to their students. This did not require the researcher to impose schoolwide systems of rules, reinforcers, or consequences on the school. This learning from the research shows even for a smaller scale intervention, the system must be willing to support the intervention in order for the intervention to work. Therefore, this could serve as another reason for the instability of the school staff and their lack of interaction with the researcher.

# Chapter 9

## 9.1 Review of Background

This thesis has given an overview of individuals with intellectual disabilities who display challenging behaviour. This is thought to be 10% - 15% of the population (Emerson & Einfeld, 2011). Challenging behaviour was defined as any behaviour that puts the person or others in harm's way, or inhibits their quality of life (Emerson & Einfeld, 2011). This encapsulates a lot of behaviour as well as puts the focus on the behaviour being challenging to services, not placing it within the individual. Challenging behaviour is also known to be persistent. Once challenging behaviour is displayed, without intervention, there is a high likelihood that individual will engage in that behaviour for years (Emerson et al., 2001; Taylor et al., 2011).

There are approximately 40,00 students with intellectual disabilities within the United Kingdom that also engage in challenging behaviour (Emerson et al., 2014). This shows there is a need to find interventions that are effective to work with this population. The social model of disability was explained, and can be seen as an important factor in the research undertaken. The social model of disability looks at barriers within the environment that can disable persons further (Barnes, 2012). For a student within a school, this could include a lack of consistent staff, which is a huge limitation to the study undertaken within this research.

Applied behaviour analysis and positive behaviour support were presented to show how challenging behaviour has been addressed since the early 1900s until the present. Applied behaviour analysis was defined as using scientific rigor to define and

measure behaviour that was socially significant for the individual (Cooper et al., 2007). Applied behaviour analysis came to be a recognized field within psychology in the 1960s (Baer et al, 1968). While applied behaviour analysis has made great strides in working with individuals with intellectual disabilities (Matson & Coe, 1992; Azrin & Foxx, 1971; Lovaas, 1977), there was controversy over the use of aversive procedures (Brown et al., 2008). It is through this controversy and the political movements of normalisation and person centred planning, that positive behaviour support developed.

Positive behaviour support looked at more contextual fit within the environment and using non-aversive procedures with individuals to create behaviour change (APBs, 2012). By working with stakeholders, including the individual who displays the challenging behaviour, positive behaviour support is putting the individuals needs and goals first (Gore et al, 2013). Positive behaviour support is a framework within which applied behaviour analysis should be applied. This ensures effective humane treatment for individuals while focusing on the behaviour change.

This was further explained through the use of schoolwide positive behaviour support and a systematic review was conducted for schoolwide positive behaviour support in schools with the majority of the students being diagnosed with an intellectual disability. Only two studies were found (Hetzroni, 2003b; Hill & Flores, 2014). Schoolwide positive behaviour support has a growing body of research, in which schools adopt schoolwide rules, consequences, and reinforcers for behaviour (Hawken & O'Neill, 2006; Solomon et al, 2012). The school works as a whole to reinforce appropriate behaviour, monitor this through data collection, and even provide consistent training regarding behaviour to all staff and students (Solomon et al., 2012). Schoolwide positive

behaviour support works across a three tiered system (PBIS, 2017). This system encompasses Tier 1, universal supports for all members of the school. Tier 1 is given to everyone, just by being a part of the school, the schoolwide reinforcement system (PBIS, 2017). Tier 2 is small group support, given to those individuals who are not successful with the schoolwide intervention (PBIS, 2017). Lastly, Tier 3, or individualized supports are given to those students who have not been successful at the Tier 1 and Tier 2 level (PBIS, 2017). Tier 3 usually encompasses a functional behaviour assessment and an individualized behaviour intervention plan.

While research within schoolwide positive behaviour support has been completed, most of this research focuses on the primary school age. There is limited research regarding schoolwide implementation for secondary age students and students with intellectual disabilities. Most of the research within schoolwide positive behaviour support and individuals with intellectual disabilities is done at the Tier 3 or individual level (Gresham et al., 2004; Goh & Bambura, 2012). This thesis sought to apply universal or Tier 1 supports to an entire school with students who were also diagnosed with an intellectual disability. When the systematic review of the literature was undertaken, only two studies were found to have done a Tier 1 intervention within a school with the majority of the population with an intellectual disability (Hetzroni, 2003b; Hill & Flores, 2014). One took place in Israel and the other in America (Hetzroni, 2003b; Hill & Flores, 2014).

## 9.2 Review of Study 1

The purpose of Study 1 was to estimate the prevalence of students with intellectual disabilities and challenging behaviour in the southeast of England. Due to the limited number of responses (less than 100), this could not be done. Study 1 was a bespoke survey that was sent electronically to the schools. If the school decided to participate, they were then sent an email, and each staff was requested to complete the survey for each of their students.

This was an attempt at adding to the research regarding the prevalence of challenging behaviour in students with intellectual disabilities. An additional aim of the study was to understand how frequently staff were dealing with challenging behaviour and if they were receiving support for educating students who display challenging behaviour. Even with the limited number of responses it was shown challenging behaviour had a significant impact for those that responded, being at least a weekly problem. This shows challenging behaviour is an important issue for staff and should continue to be addressed.

There were several barriers in Study 1, one being a low response rate, even within the schools that completed the survey. This could be altered in the future by requiring a day with the researcher on campus floating from classroom to classroom and encouraging the teachers to complete the survey during their planning time. This could have significantly enhanced response rates, but was not part of the research design.

Even though staff responses were limited, the vast majority of staff reported that they were receiving training for challenging behaviour. While challenging behaviour training was being received, nothing is known about the quality or type of training, and

again something that would have enhanced the research had these questions been asked. Regardless, staff are still dealing with challenging behaviour frequently and could benefit from anything that reduces challenging behaviour within the classroom.

### 9.3 Review of Study 2

The purpose of Study 2 was to evaluate school wide training in positive behaviour support in a special school in England. Additionally, the current study looked at what could be accomplished through minimal hours of training, in respect of both teacher feedback behaviour and student engagement. Many studies have been conducted in positive behaviour support and there is a growing evidence base for schoolwide positive behaviour support (Bradshaw et al., 2008; Bradshaw et al., 2009; Horner et al., 2009; Solomon et al., 2012). This school contained children who all had a communication difficulty and an intellectual disability. Minimal hours for training were provided, and direct observations were conducted for both staff and students.

This training was not identical to the traditional schoolwide positive behaviour support training, which usually involves deciding on schoolwide rules and consequences, but nevertheless positive behaviour support was still implemented in Study 2. Staff were taught to focus on the positive behaviour of their students and a small group of staff were taught how to determine function of challenging behaviour. A bespoke training was used to train all school staff over one day, for five hours (Tier 1). A smaller group of staff received an additional four hours of training (Tier 2).

Staff completed questionnaires and were observed for positive, neutral, and negative attention towards their students. Students were observed for engagement,

non-engagement, and disruption. School incident data was also reviewed. While the study showed an increase in positive praise to the students, and a decrease in student incident data, no generalizations can be made regarding the results to due a number of limitations. These limitations in this study included compromising the research design in order to accommodate the school, shortening training hours, high rates of staff turnover, and a low response rate.

This study extends the literature, as only two previous studies have looked at positive behaviour support within a school for those students who are diagnosed with intellectual disabilities. One school in Israel, used assistive and augmentative communication, and the second school in the United States used schoolwide rules and expectations for the teaching staff (Hetzroni, 2003; Hill & Flores, 2014). This is the first study in England to evaluate student and staff behaviour through credible measures and with the use of direct observations.

### 9.4 Implications for Practice

This research was an attempt at applying positive behaviour support to an entire school with the majority of students being diagnosed with an intellectual disability. Due to the limitations in the study, no generalizations can be made regarding the effectiveness of the interventions employed. The research did however create learning that can be translated into practice. First, schoolwide positive behaviour support is usually implemented over years, after 80% of the school has agreed into the organizational change (Handler et al, 2007). This is essential as without the backing of the staff, fidelity of the intervention is at risk. Direct observation of staff and student

behaviour is time consuming, and something that needs to be addressed in a succinct way. Ensuring follow up from the staff is vital. Without the feedback, there is no way to measure if the intervention is working.

Within practice, 'buy in' should be obtained from the start; are the individuals willing to implement a new intervention? If so, there should be a schedule created for follow up, decided upon together. This would enhance receiving the feedback that is so vital. Teacher and student behaviour will always be something that is variable. No two classrooms are exactly the same lending themselves to variability. Brief observations over a longer period of time may be something that is more acceptable and sustainable in practice. This is something already done with teacher observations for performance feedback. For instance a weekly observation could serve as a measure, and be less intensive for the individuals being observed.

Positive behaviour support looks to make a positive behaviour change for an individual with their participation. By working together not only to identify the behaviour to be changed, the way to measure the change, and evaluation of the change, acceptability of treatment is likely to increase. Positive behaviour support is the framework moving forward, and one in which practitioners need to work. As individuals do not exist in controlled environments, research needs to adapt to work within uncontrolled settings to be able to measure behaviour change within these environments. Positive behaviour support is the right fit for this research and research to practice translation for individuals wanting change in behaviour.

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# Appendix A – School Staff Perspectives of Challenging Behaviour Prevalence Survey

**School Staff Perspectives of Challenging Behaviour Prevalence Survey**

Please complete one questionnaire for each pupil in your class.

Questionnaire Code:_____

Age:_____

1. Age:_____

2. Sex:
    - ○ Male
    - ○ Female

3. Ethnicity:
    - ○ White British
    - ○ White Irish
    - ○ Any Other White Background
    - ○ White and Black Caribbean
    - ○ White and Black African
    - ○ White and Asian
    - ○ Any Other Mixed Background
    - ○ Asian
    - ○ Asian British
    - ○ Indian
    - ○ Pakistani
    - ○ Bangladeshi
    - ○ Any Other Asian Background
    - ○ Black
    - ○ Black British
    - ○ Caribbean
    - ○ African
    - ○ Any Other Black Background
    - ○ Chinese
    - ○ Any Other Ethnic Group

4. Does the child have sensory impairments? (Please tick all that apply.)
    - ○ Visual
    - ○ Hearing
    - ○ Other_____

5. Does the child have an autistic spectrum condition?
    - ○ Yes
    - ○ No

6. Does the child present like a child a with an autistic spectrum condition, but not have a formal diagnosis?
    - ○ Yes
    - ○ No

7. What is the level of the child's learning disability? If not known, please estimate.
    - ○ Mild
    - ○ Moderate
    - ○ Severe
    - ○ Profound

8. Does the child have any other confirmed clinical diagnoses? (Please tick all that apply.)
    - ○ Fragile X
    - ○ Down Syndrome
    - ○ Smith McGuiness
    - ○ Cornelia De Lange
    - ○ Chi Du Chat
    - ○ ADD/ADHD
    - ○ ODD
    - ○ Anxiety Disorder (Please specify:_____)
    - ○ Depressive Disorder (Please specify:_____)

9. Does the child have a physical health condition? (Please tick all that apply.)
    - ○ Epilepsy/Seizure Disorder
    - ○ Gastric Condition
    - ○ Mobility Difficulties
    - ○ Cardiac Condition
    - ○ Respiratory Condition
    - ○ Skeletal Condition
    - ○ Skin Condition
    - ○ Feeding Issues

10. Please refer to the definition of challenging behaviour:
    ***One*** *of the following is present.*
    4) *The behaviour results in a significant negative impact on person's quality of life or the quality of life of others. This may be owing to restriction of his or her lifestyle, social opportunities, independence, community integration, service-access or choices of adaptive functioning.*
    5) *The behaviour presents risks to health and safety of the person or others*
    6) *Significantly disrupts the learning of the child or others*

    ***and Both*** *of the following are present.*
    c) *The child displays behaviour of significant frequency, severity or chronicity as to require special support (even if there are no actual resources to provide this)*
    d) *The behaviour is pervasive. It is present across a range of person and social situations, although maybe more severe in certain identified settings.*

    Does the child display challenging behaviour?
    - ○ Yes
    - ○ No

**If no, please discontinue the survey. If yes, please proceed to question 11.**

Please see the different types of challenging behaviour below and proceed to the corresponding questions for each type of challenging behaviour the child displays.

- ○ Aggression (Question 11)
- ○ Destructive behaviour – destroying things in the environment (Question 12)
- ○ Self-Injury – harming oneself (Question 13)
- ○ Sexually Inappropriate (Question 14)
- ○ Oppositional behaviour – refusal to comply/defiant (Question 15)
- ○ Other Challenging Behaviour not specified above (Question 16)

11. Does the child display aggressive behaviour, based on the definition below?
*The child uses or threatens violence (verbal and/or physical aggression). Severity may range from pushing, slapping and physically intimidating to punching, kicking, biting, pulling the hair of others, and more serious physical assault.*

*The child has shown these behaviours within the last 6 months.*

- ○ Yes
- ○ No

**If *yes*, please answer 11.A and 11.B. If *no*, continue to question 12.**

11.A. What is the frequency of the child's aggressive behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

11.B What is the impact of the child's aggressive behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

12. Does the child display destructive behaviour, based on the definition below?
*The child damages property such as tearing paper and fabrics, smashing furniture and glass, or more serious property damage, including fire setting.*

*The child has shown these behaviours within the last 6 months.*

- ○ Yes
- ○ No

**If *yes*, please answer 12.A and 12.B. If *no*, continue to question 13.**

12.A. What is the frequency of the child's destructive behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

12.B What is the impact of the child's destructive behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

13. Does the child display self-injury, according to the definition below?
*The child self-injures in a way sufficient to cause tissue damage such as bruising, scarring, tissue loss and dysfunction. This may range from skin-picking/scratching, hair-pulling, face-tapping/slapping to biting hands, lips and other body parts, rectal/genital poking, eye-poking and heading banging*

*The behaviour is not deliberate suicide attempt.*

*The child has shown these behaviours within the last 6 months.*

- ○ Yes
- ○ No

**If *yes*, please answer 13.A and 13.B. If *no*, continue to question 14.**

13.A. What is the frequency of the child's self-injurious behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

13.B What is the impact of the child's self-injurious behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

14. Does the child display sexually inappropriate behaviour, according to the definition below?
*The child touches, fondles or kisses another person/other people in a way that is unwelcome and/or offensive. This behaviour may also include obscene communications, genital exposure, public masturbation and sexual assault.*

*The child has shown these behaviours within the last 6 months.*

- ○ Yes
- ○ No

**If *yes*, please answer 14.A and 14.B. If *no*, continue to question 15.**

14.A. What is the frequency of the sexually inappropriate behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

14.B What is the impact of the child's sexually inappropriate behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

15. Does the child display oppositional behaviour, according to the definition below?
*The child demonstrates persistent, defiant and uncooperative behaviours ranging from defying rules and requests to refusing to move, or socially engage/disengage. It may also include more disruptive behaviours such as lying in the middle of the road.*

*The child has shown these behaviours within the last 6 months.*

- ○ Yes
- ○ No

**If *yes*, please answer 15.A and 15.B. If *no*, continue to question 16.**

15.A. What is the frequency of the oppositional behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

15.B What is the impact of the child's oppositional behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

16. Does the child display any other challenging behaviour not already identified, according to the definition of challenging behaviour below?
***One*** *of the following is present.*
*1) The behaviour results in a significant negative impact on person's quality of life or the quality of life of others. This includes;*
    - *Restriction of his or her lifestyle,*
    - *Social opportunities,*
    - *Independence,*
    - *Community integration,*
    - *Service-access or*
    - *Choices of adaptive functioning.*
*2) The behaviour presents risks to health and safety of the person or others*
*3) Significantly disrupts the learning of the child or others*

***and Both*** *of the following are present.*
*a) The child displays behaviour of significant frequency, severity which requires special support (even if there are no actual resources to provide this)*
*b) The behaviour is present across a range of persons and social situations, although maybe more severe in certain identified settings.*

- ○ Yes
- ○ No

**If *yes*, please answer 16.A, 16.B, and 16.C. If *no*, continue to question 17.**

16.A. Please describe what the challenging behaviour looks like below.

_____
_____
_____
_____

16.B. What is the frequency of the challenging behaviour?

- ○ Less than monthly
- ○ Monthly
- ○ Weekly
- ○ Daily
- ○ Hourly

16.C. What is the impact of the child's challenging behaviour?

- ○ Not a problem at all
- ○ Slight problem
- ○ Moderately serious problem
- ○ Severe problem

17. Does the child take medication(s) for challenging behaviour?

- ○ Yes
- ○ No

**If *yes*, please answer 17.A and 17.B. If *no*, continue to question 18.**

17.A. Please state the name of the medication and dosage.

_____
_____
_____
_____

17.B. Please rate the success of this in managing the child's behaviour?

- ○ No difference
- ○ Made things better
- ○ Made things worse

18. Does the child receive psychological input as a result of the child's challenging behaviour?

- ○ Yes
- ○ No

**If *yes*, please answer 18.A, 18.B, 18.C and 18.D. If *no*, continue to question 19.**

18.A. Who provides the psychological input?

- ○ Educational psychologist
- ○ Clinical psychologist
- ○ Behaviour specialist
- ○ Nurse
- ○ Other_____

18.B. What type of input is provided?

- ○ Report
- ○ Written recommendations
- ○ One to one sessions
- ○ Group sessions
- ○ Training of staff
- ○ Monitoring of student
- ○ Other_____

18.C. Please describe the frequency of input received.

- ○ Weekly
- ○ Monthly
- ○ Quarterly
- ○ Bi-Annually
- ○ Annually
- ○ As Needed
- ○ One Time
- ○ Other_____

18.D. Please rate the success of this in managing the child's behaviour?

- ○ No difference
- ○ Made things better
- ○ Made things worse

19. Does the child receive input on communication due to the child's challenging behaviour?

- ○ Yes
- ○ No

**If *yes*, please answer 19.A, 19.B, 19.C and 19.D. If *no*, continue to question 20.**

19.A Who provides the communication input?

- ○ Speech language therapist
- ○ Psychologist
- ○ Nurse
- ○ Sign language teacher
- ○ Other_____

19.B. What type of input is provided?

- ○ Report
- ○ Written recommendations
- ○ One to one sessions
- ○ Group sessions
- ○ Training of staff
- ○ Monitoring of student
- ○ Other_____

19.C. Please describe the frequency of input received.

- ○ Weekly
- ○ Monthly
- ○ Quarterly
- ○ Bi-Annually
- ○ Annually
- ○ As Needed
- ○ One Time
- ○ Other_____

19.D. Please rate the success of this in managing the child's behaviour?

- ○ No difference
- ○ Made things better
- ○ Made things worse

20. Does the child receive external input as a result of their challenging behaviour? This could include social work, aromatherapy, occupational therapy, etc.

- ○ Yes
- ○ No

**If *yes*, please answer 20.A, 20.B, and 20.C. If *no*, continue to question 21.**

20.A. Please describe any other input provided as a result of the child's challenging behaviour and list who provided this input.

_____
_____
_____
_____

20.B. Please describe the frequency of input received.

- ○ Weekly
- ○ Monthly
- ○ Quarterly
- ○ Bi-Annually
- ○ Annually
- ○ As Needed
- ○ One Time
- ○ Other_____

20.C. Please rate the success of this in managing the child's behaviour?

- ○ No difference
- ○ Made things better
- ○ Made things worse

21. Have you received any training on challenging behaviour?

- ○ Yes
- ○ No

If *yes, please state:*_____

*22.* Are you receiving supervision due to the child's challenging behaviour?

- ○ Yes
- ○ No

If Yes, please list what you are receiving (de-briefing following incidents of challenging behaviour, monthly supervision, etc.)

_____
_____
_____
_____

23. Please indicate your overall level of satisfaction with current levels of support for the child's challenging behaviour.
    - ○ Very Poor
    - ○ Poor
    - ○ Adequate
    - ○ Good
    - ○ Very Good

# Appendix B – Chi Square Tables for Non-Statically Relevant Findings in Study 1

*Table B.1 Chi Squares for Challenging Behaviour in Relation to Categorical Variables*

| Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Level of Disability | 53 | 3 | 0.47 | 0.22 |
| Gender | 53 | 1 | 0.46 | 0.10 |
| ASD | 52 | 1 | 0.55 | 0.83 |

*Table B.2 Chi Squares for Level of Learning Disability in Relation to Type of Challenging Behaviour*

| Challenging Behaviour Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Aggression | 54 | 6 | 0.29 | 0.37 |
| Destructive | 48 | 1 | 0.54 | 0.21 |
| SIB | 48 | 3 | 0.36 | 0.26 |
| Sexually Inappropriate | 46 | 3 | 0.21 | 0.32 |
| Oppositional | 48 | 3 | 0.92 | 0.10 |
| Other | 47 | 3 | 0.85 | 0.13 |

*Table B.3 Chi Squares for Level of Learning Disability in Relation to Type of Input Received*

| Input Received | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Medication | 47 | 3 | 0.95 | 0.09 |
| Psychology | 47 | 3 | 0.70 | 0.18 |
| Communication | 47 | 3 | 0.05 | 0.40 |
| External | 46 | 3 | 0.45 | 0.24 |

*Table B.4 Chi Squares for Gender in Relation to Type of Challenging Behaviour*

| Challenging Behaviour Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Aggression | 56 | 1 | 0.35 | 0.13 |
| Destructive | 48 | 1 | 0.26 | 0.16 |
| SIB | 48 | 1 | 0.82 | 0.03 |
| Sexually Inappropriate | 46 | 1 | 0.10 | 0.24 |
| Oppositional | 48 | 1 | 0.20 | 0.18 |
| Other | 47 | 1 | 0.91 | 0.02 |

*Table B.5 Chi Squares for Gender in Relation to Type of Input Received*

| Input Received | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Medication | 47 | 1 | 0.77 | 0.04 |
| Psychology | 47 | 1 | 0.22 | 0.18 |
| Communication | 47 | 1 | 0.85 | 0.03 |
| External | 46 | 1 | 0.94 | 0.10 |

*Table B.6 Chi Squares for ASD in Relation to Type of Challenging Behaviour*

| Challenging Behaviour Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Aggression | 49 | 1 | 0.62 | 0.07 |
| Destructive | 47 | 1 | 0.36 | 0.14 |
| SIB | 47 | 1 | 0.18 | 0.20 |
| Sexually Inappropriate | 45 | 1 | 0.02 | 0.34 |
| Oppositional | 47 | 1 | 0.75 | 0.04 |
| Other | 46 | 1 | 0.42 | 0.12 |

*Table B.7 Chi Squares for ASD in Relation to Input Received*

| Input Received | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Medication | 46 | 1 | 0.43 | 0.12 |
| Psychology | 46 | 1 | 0.71 | 0.05 |
| Communication | 46 | 1 | 0.80 | 0.04 |
| External | 45 | 1 | 0.76 | 0.05 |

*Table B.8 Chi Squares for School 11 to Categorical Variables*

| Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Level of Disability | 54 | 1 | 0.62 | 0.18 |
| Gender | 56 | 1 | 0.46 | 0.10 |
| ASD | 55 | 1 | 0.30 | 0.14 |
| Challenging Behaviour | 53 | 1 | 0.17 | 0.19 |

*Table B.9 Chi Squares for School 11 in Relation to Type of Challenging Behaviour*

| Challenging Behaviour Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Aggression | 35 | 3 | 0.43 | 0.28 |
| Destructive | 22 | 3 | 0.43 | 0.35 |
| SIB | 13 | 4 | 0.34 | 0.59 |
| Sexually Inappropriate | N<10 | | | |
| Oppositional | 41 | 4 | 0.66 | 0.24 |
| Other | 37 | 3 | 0.67 | 0.21 |

*Table B.10 Chi Squares for School 11 in Relation to Input Received*

| Input Received | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Medication | 48 | 1 | 0.91 | 0.02 |
| Psychology | 48 | 1 | 0.82 | 0.03 |
| Communication | 48 | 1 | 0.62 | 0.07 |
| External | 47 | 1 | 0.92 | 0.02 |

*Table B.11 Chi Squares for School 37 in Relation to Categorical Variables*

| Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Level of Disability | 54 | 3 | 0.54 | 0.20 |
| Gender | 56 | 1 | 0.22 | 0.16 |
| ASD | 55 | 1 | 0.19 | 0.18 |
| Challenging Behaviour | 53 | 1 | 0.32 | 0.14 |

*Table B.12 Chi Squares for School 37 in Relation to Type of Challenging Behaviour*

| Challenging Behaviour Category | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Aggression | 35 | 3 | 0.88 | 0.14 |
| Destructive | 22 | 3 | 0.64 | 0.28 |
| SIB | 13 | 4 | 0.50 | 0.51 |
| Sexually Inappropriate | N<10 | | | |
| Oppositional | 41 | 4 | 0.85 | 0.18 |
| Other | 37 | 3 | 0.93 | 0.11 |

*Table B.13 Chi Squares for School 37 in Relation to Input Received*

| Input Received | N | df | p | $\Phi_{Cramer}$ |
|---|---|---|---|---|
| Medication | 48 | 1 | 0.91 | 0.02 |
| Psychology | 48 | 1 | 0.89 | 0.02 |
| Communication | 48 | 1 | 0.79 | 0.04 |
| External | 47 | 1 | 0.18 | 0.19 |

School 5 was not included due to the small N.

# Appendix C – Tizard Ethics Form

TIZARD
University of Kent

## Tizard Ethics Feedback Form

| | |
|---|---|
| **Student Name:** | Karen Flotkoetter |
| **Supervisor:** | Nick Gore |
| **Title:** | *Three Tiered Model of Positive Behaviour Support Staff Training* |

**Following the alterations made to the above proposal, the Tizard Ethics Committee have now approved this submission.**

**Signed:** **J.Ruffels** **Date: 12.11.12**

**On behalf of Tizard Ethics Committee**

| | |
|---|---|
| **Alterations approved by Supervisor** | **Signature** **Date** |
| **Final approval On behalf of Tizard Ethics Committee** | Rachel Forrester-Jones<br>**Signature** **Date 12.11.12** |

# Appendix D – School Staff Information Packet

## Positive Behaviour Support

Positive Behaviour Support is a model of how to **manage** pupils who display **challenging behaviour**. Positive behaviour support includes learning how to look at what causes challenging behaviour, how to change the environment and the response to challenging behaviour to more effectively manage pupils who display challenging behaviour within the classroom.

Parents will also be able to participate in the training alongside school staff.

**Benefits:**

- Knowledge of how to manage challenging behaviour
- Decrease in challenging behaviour
- Increase in engagement
- Increase in family quality of life
- Decrease in stress for parents and school staff

TIZARD
University of Kent

Karen E. Flotkoetter
PhD Student
Kf79@kent.ac.uk

# Challenging Behaviour Training

*Staff training in Positive Behaviour Support*

A PhD Project by
Karen E. Hans

Under the supervision of
Dr. Nick Gore and
Professor Glynis Murphy.

Tizard Centre
The University of Kent
Tel: 07703 628 662

# Challenging Behaviour

Challenging behaviour displayed by pupils in the classroom can be anything from aggression to disruption. **Challenging behaviour** not only **impacts** the **pupil** who displays the behaviour, but also the **other pupils** in the classroom, and the **staff** supporting these pupils.

**Challenging behaviour** is not displayed by all children with special educational needs or intellectual disabilities, but can **cause parents** and school **staff** to **feel stressed** when supporting these children. This can increase when parents and school staff are at a loss of how to manage the challenging behaviour.

Positive behaviour support is a model of addressing challenging behaviour. **Positive behaviour supports** has not only had **success** within schools, but also within business and social care.

The aim of the research is to train school staff in positive behaviour support through presentations, modelling, and feedback. This would all take place during typical school hours, and would give school staff a way of addressing those students who display challenging behaviour.

## POSITIVE BEHAVIOUR SUPPORT TRAINING

The training takes place through 3 tiers. Tier 1 is for all staff, Tier 2 is for the staff who support more challenging students, Tier 3 is for the staff who support the most challenging students.

## TIER 1– ALL STAFF

- Information on Positive Behaviour Support
- Information on A B Cs of Behaviour
- Information on Challenging Behaviour
- Takes place during school hours

## TIER 2 – SOME STAFF

- Information/Analysis on Functions of Behaviour
- Practice on A B Cs of Behaviour
- Development of responses to challenging behaviour
- Attendance is recommended for some parents
- Takes place during school hours

## TIER 3 – SOME STAFF

- Assessment of student by a behaviour analyst
- Training on Behaviour Intervention Plan
- In Classroom Modelling and Feedback
- Attendance is recommended for some parents
- Takes place during school hours

## CONTACT INFORMATION

More information is available from contacting the researcher, Karen E. Flotkoetter at kf79@kent.ac.uk or 07703 628 662.

University of Kent | Tizard Centre

T: +44 (0)1227 827373
F: +44 (0)1227 763674
E: tizard-info@kent.ac.uk
www.kent.ac.uk/tizard

## School Staff Information Sheet

Your school has agreed to support research being conducted with the University of Kent, Tizard Centre. The aim of this research are to train parents and school staff together in the principles of positive behaviour support and challenging behaviour. The research is being supervised by Professor Glynis Murphy and Dr. Nick Gore and conducted by a PhD student, Karen Flotkoetter, a Board Certified Behaviour Analyst.

**Goals of the Study:**

The goal of the study is to help parents and school staff to manage challenging behaviour displayed by children with disabilities. This will be done through three levels of training conducted in the school during the school day. This training will have parents and school staff training together.

**Benefits of the Study:**
This study will provide parents and staff with training from the researcher, who is a professional in the field. By taking part in the training, parents and school staff will be given the same information on how to manage challenging behaviour for a more consistent approach, as well as the opportunity to work alongside one another.

**What is required of you?**

School staff will be asked to attend least one day of training at the school. The training will take place on the school campus during school hours. Additionally, you will be asked to fill out questionnaires and checklists in regards to your students. These questionnaires and checklists will determine the level of challenging behaviour your students are exhibiting. These checklists and questionnaires will be filled out a minimum of three times throughout the course of the study (before the training, after the training and once more later on) and will take no longer than twenty-five minutes to complete on each occasion over the course of the study (approximately six months).

A subset of students will be identified for further support. The sub group will receive additional training and we will need the school staff to participate in direct observations with the researcher.

**What is required of your student?**
**If parents consent, all students will receive:**

- All children's parents and teachers will receive the one day training.
- Questionnaires and checklist before and after training (completed by the researcher, teacher and parents).
- Your student will not have direct contact with the researcher.

**The subset of students will receive:**
School staff and parents of the subset of children will receive additional training. These students who are selected for additional supports will be observed by the researcher during school and at home. Some of these students may receive a functional behaviour assessment and a behaviour support plan. The functional behaviour assessment is an assessment about why the student is exhibiting this challenging behaviour. The behaviour support plan will then give you the school staff, and parents staff strategies for dealing specifically with your student's challenging behaviour.

**Do I have to take part?**

Your participation in this study will be entirely voluntary. It is up to you to decide whether or not to take part. If you decide to take part you are still free to withdraw at any time, without giving a reason (your responses will then not be included in the research study).

**Will what I say in this study be kept confidential?**

Information gathered during this research study will be treated as confidential and securely stored. Only the researcher and her supervisors will have access to the completed questionnaires, checklists, and direct observation data and information included therein. All participants will be assigned a number or pseudo-name so no identifying information is shared through the research.

**What will happen to the results of the research study?**

The information you provide to the researcher will be used to produce part of the researcher's PhD, and will be considered for publishing in a scientific journal in the near future. All information will remain anonymous and no one will be identifiable through the research study. At the end of the study, the researcher will send out a summary of the results to everyone. You may also request a copy of the longer research paper by contacting us on the email address provided below.

The school staff of those children identified for the subgroup may receive individualized reports of the functional behaviour assessment and behaviour support plan for their student.

**Who is organizing and funding this research?**

University of Kent is funding this research and will hold the findings as well as the report of the current study.

**Contact**

Please contact the researcher (Karen Flotkoetter, email: kf79@kent.ac.uk , tel. number: 07703 628 662) or the supervisor of the research study (Dr. Nick Gore, email: n.j.gore@kent.ac.uk) if you would like to discuss the study, are not clear to its purpose or would like more information.

University of Kent | Tizard Centre

T: +44 (0)1227 827373
F: +44 (0)1227 763674
E: tizard-info@kent.ac.uk
www.kent.ac.uk/tizard

# CONSENT FORM

Title: **Three Tiered Model of Positive Behaviour Support Staff Training**

Researcher: Karen Flotkoetter
Supervisor: Dr. Nick Gore
E-mail: kf79@kent.ac.uk, N.J.Gore@kent.ac.uk
Telephone number: 01227 824 770

***Please tick to confirm***

- I confirm that I have read and understood the information sheet attached for the above study. ☐
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
- I understand the questionnaires and checklists I fill out, as well as the direct observation data taken will be used as measures in the study. ☐
- Any questions I raised have been answered to my satisfaction. ☐
- I *agree* to take part in the above research study. ☐

***OR***

- I *do not agree* to take part in the above research study. ☐

_____ _____

Name of School Staff Date

_____

Signature

Please sign both copies, return one signed copy in the prepaid envelope enclosed in the information pack. Alternatively return a signed to copy to:

**Karen E. Flotkoetter**
**Woodlands**
**University of Kent**
**Giles Lane**
**Canterbury, Kent**
**CT2 7LR**

## Complaints Form

Thank you for agreeing to take part in the research being conducted Karen Flotkoetter and the University of Kent. We hope the research has been beneficial to you and your school, and has had a positive impact.

It is Karen's job to treat staff with respect and professionalism. If you did not feel Karen made known to you what was involved in the research, treated you unkindly, or was offensive, you have the right to make a complaint. If you feel any of these situations or another situation which made you feel upset, has taken place, please follow the complaint procedures below:

HOW TO COMPLAIN

- Tell Karen herself, and she will try to solve the situation with you.
- If you would prefer to talk to someone else first, then you can phone Karen's boss, Dr. Nick Gore, on his phone at 01227 827 755.
- Or you can write to him at the following address:

  Dr. Nick Gore
  Woodlands
  University of Kent
  Giles Lane
  Canterbury
  CT2 7LR

Dr. Gore will listen to you carefully and consult with other colleagues to make a decision about next steps. After the decision has been made, he will get in touch with you to let you know what has happened.

If something bad happened when Karen was working with you, it will help us to know this. We want to learn how to stop this happening again and you will not get into trouble if you tell us. Please feel free to contact us whether the complaint was big or small; we want to address any issue that makes you feel upset.

Thank you.

Tizard Centre Research Ethics Committee

# Appendix E – Student Information Packet

## Positive Behaviour Support

Positive Behaviour Support is a model of how to **manage** pupils who display **challenging behaviour**. Positive behaviour support includes learning how to look at what causes challenging behaviour, how to change the environment and the response to challenging behaviour to more effectively manage pupils who display challenging behaviour within the classroom.

Parents will also be able to participate in the training alongside school staff.

**Benefits:**

- Knowledge of how to manage challenging behaviour
- Decrease in challenging behaviour
- Increase in engagement
- Increase in family quality of life
- Decrease in stress for parents and school staff

TIZARD
University of Kent

Karen E. Flotkoetter
PhD Student
Kf79@kent.ac.uk

# Challenging Behaviour Training

*Staff training in Positive Behaviour Support*

A PhD Project by
Karen E. Hans

Under the supervision of
Dr. Nick Gore and
Professor Glynis Murphy.

Tizard Centre
The University of Kent
Tel: 07703 628 662

## Challenging Behaviour

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The aim of the research is to train school staff in positive behaviour support through presentations, modelling, and feedback. This would all take place during typical school hours, and would give school staff a way of addressing those students who display challenging behaviour.

### POSITIVE BEHAVIOUR SUPPORT TRAINING

The training takes place through 3 tiers. Tier 1 is for all staff, Tier 2 is for the staff who support more challenging students, Tier 3 is for the staff who support the most challenging students.

### TIER 1– ALL STAFF

- Information on Positive Behaviour Support
- Information on A B Cs of Behaviour
- Information on Challenging Behaviour
- Takes place during school hours

### TIER 2 – SOME STAFF

- Information/Analysis on Functions of Behaviour
- Practice on A B Cs of Behaviour
- Development of responses to challenging behaviour
- Attendance is recommended for some parents
- Takes place during school hours

### TIER 3 – SOME STAFF

- Assessment of student by a behaviour analyst
- Training on Behaviour Intervention Plan
- In Classroom Modelling and Feedback
- Attendance is recommended for some parents
- Takes place during school hours

### CONTACT INFORMATION

More information is available from contacting the researcher, Karen E. Flotkoetter at kf79@kent.ac.uk or 07703 628 662.

University of Kent | Tizard Centre

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F: +44 (0)1227 763674
E: tizard-info@kent.ac.uk
www.kent.ac.uk/tizard

## Parent Information Sheet

Your school has agreed to support research being conducted with the University of Kent, Tizard Centre. The aims of this research are to train parents and school staff together in the principles of positive behaviour support and challenging behaviour. The research is being supervised by Professor Glynis Murphy and Dr. Nick Gore and conducted by a PhD student, Karen Flotkoetter, a Board Certified Behaviour Analyst.

**Goals of the Study:**

The goal of the study is to help parents and school staff to manage challenging behaviour displayed by children with disabilities. This will be done through three levels of training conducted in the school during the school day. This training will have parents and school staff training together.

**Benefits of the Study:**
This study will provide parents and staff with training from the researcher, who is a professional in the field. By taking part in the training, parents and school staff will be given the same information on how to manage challenging behaviour for a more consistent approach, as well as the opportunity to work alongside one another.

**What is required of you?**

Parents will be asked to attend at least one day of training at the school. The training will take place on the school campus during school hours. Additionally, you will be asked to fill out questionnaires and checklists in regards to your child. These questionnaires and checklists will determine the level of challenging behaviour your child is exhibiting and the impact it is currently having on your family. These checklists and questionnaires will be filled out a minimum of three times throughout the course of the study (before the training, after the training and once more later on) and will take no longer than forty minutes to complete on each occasion of the course of the study (approximately six months).

A subset of children will be identified for further support. The sub group will receive additional training and we will need parents to participate in direct observations with the researcher.

**What is required of your student?**
**If parents consent, all children will receive:**

- All children's parents and school staff will receive the one day training.
- Questionnaires and checklists before and after training (completed by the researcher, school staff, and parents).
- Your child will not have direct contact with the researcher.

**The subset of children will receive:**
School staff and parents of the subset of children will receive additional training. These children who are selected for additional supports will be observed by the researcher during school and at home. Some of these children may receive a functional behaviour assessment and a behaviour support plan. The functional behaviour assessment is an assessment about why the child is exhibiting this challenging behaviour. The behaviour support plan will then give you the parents, and school staff strategies for dealing specifically with your child's challenging behaviour.

**Do I have to take part?**

Your participation in this study will be entirely voluntary. It is up to you to decide whether or not to take part. If you decide to take part you are still free to withdraw at any time, without giving a reason (your responses will then not be included in the research study).

**Does my child have to take part?**

Your child's participation in this study will be entirely voluntary. It is up to you to decide whether or not they take part. If you decide to allow them to take part you are still free to withdraw them at any time, without giving a reason (your responses will then not be included in the research study).

**Will what I say in this study be kept confidential?**

Information gathered during this research study will be treated as confidential and securely stored. Only the researcher and her supervisors will have access to the completed questionnaires, checklists, and direct observation data and information included therein. All participants will be assigned a number or pseudo-name so no identifying information is shared through the research.

**What will happen to the results of the research study?**

The information you provide to the researcher will be used to produce part of the researcher's PhD, and will be considered for publishing in a scientific journal in the near future. All information will remain anonymous and no one will be identifiable through the research study. At the end of the study, the researcher will send out a summary of

the results to everyone. You may also request a copy of the longer research paper by contacting us on the email address provided below.

The parents of those children identified for the subgroup may receive individualized reports of the functional behaviour assessment and behaviour support plan for their child.

**Who is organizing and funding this research?**

University of Kent is funding this research and will hold the findings as well as the report of the current study.

**Contact**

Please contact the researcher (Karen Flotkoetter, email: kf79@kent.ac.uk , tel. number: 07703 628 662) or the supervisor of the research study (Dr. Nick Gore, email: n.j.gore@kent.ac.uk) if you would like to discuss the study, are not clear to its purpose or would like more information.

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F: +44 (0)1227 763674
E: tizard-info@kent.ac.uk
www.kent.ac.uk/tizard

# CONSENT FORM

Title: **Three Tiered Model of Positive Behaviour Support Staff Training**

Researcher: Karen Hans
Supervisor: Dr. Nick Gore
E-mail: kf79@kent.ac.uk, N.J.Gore@kent.ac.uk
Telephone number: 01227 824 770

***Please tick to confirm***

- I confirm that I have read and understood the information sheet attached for the above study. ☐
- I understand that my student's participation is voluntary and that I am free to withdraw them at any time without giving any reason. ☐
- I understand the questionnaires and checklists I fill out, as well as the direct observation data taken of my student will be used as measures in the study. ☐
- Any questions I raised have been answered to my satisfaction. ☐
- I *agree* for my student to take part in the above research study. ☐

***OR***

- I *do not agree* for my student to take part in the above research study. ☐

_____ Date _____

Name of Student

_____

Name of Parent

_____

Signature

Please sign both copies, return one signed copy in the prepaid envelope enclosed in the information pack. Alternatively return a signed to copy to:

**Karen E. Hans**
**Woodlands**
**University of Kent**
**Giles Lane**
**Canterbury, Kent**
**CT2 7LR**

## Complaints Form

Thank you for agreeing to take part in the research being conducted Karen Flotkoetter and the University of Kent. We hope the research has been beneficial to you and your school, and has had a positive impact.

It is Karen's job to treat staff with respect and professionalism. If you did not feel Karen made known to you what was involved in the research, treated you unkindly, or was offensive, you have the right to make a complaint. If you feel any of these situations or another situation which made you feel upset, has taken place, please follow the complaint procedures below:

HOW TO COMPLAIN

- Tell Karen herself, and she will try to solve the situation with you.
- If you would prefer to talk to someone else first, then you can phone Karen's boss, Dr. Nick Gore, on his phone at 01227 827 755.
- Or you can write to him at the following address:

  Dr. Nick Gore
  Woodlands
  University of Kent
  Giles Lane
  Canterbury
  CT2 7LR

Dr. Gore will listen to you carefully and consult with other colleagues to make a decision about next steps. After the decision has been made, he will get in touch with you to let you know what has happened.

If something bad happened when Karen was working with you, it will help us to know this. We want to learn how to stop this happening again and you will not get into trouble if you tell us. Please feel free to contact us whether the complaint was big or small; we want to address any issue that makes you feel upset.

Thank you.

Tizard Centre Research Ethics Committee

# Appendix F – Tizard Ethics Amendment Approval

Dear Karen

The Ethics Committee have considered the amendment to your proposal, recently submitted and are happy to approve this.

Kind Regards
Jo

Jo Ruffles |Personal Assistant | Room G01 |Woodlands |University of Kent, Giles Lane, Canterbury CT2 7LR |email: J.Ruffels@kent.ac.uk | Tel: +44 (0) 1227 827955 | www.kent.ac.uk/tizard

# Appendix G – Proposed Intervention

In Table 5.1 below, an overview of the proposed study is given. This is to help the reader understand the participants in each phase of the study and timeline for completion of the study.

*Table G.1 Proposed Numbers and Timeline*

| Condition | Week | Monday | Tuesday | Wednesday | Thursday | Friday | Proposed Date |
|---|---|---|---|---|---|---|---|
| **Baseline**<br><br>**20 Targeted Students and Corresponding Staff**<br><br>**Questionnaires Completed** | **1** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | September 2012 |
| | **2** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | |
| **Tier 1**<br><br>**All Staff for Students Ages 10 and Under**<br><br>**Questionnaires Completed** | **3** | Training 1/3 Staff & Carers (5 hour) | Training 1/3 Staff & Carers (5 hour) | Training 1/3 Staff & Carers (5 hour) | Break | Break | October 2012 - November 2012 |
| | **4** | Break | Break | Break | Break | Break | |
| | **5** | Break | Break | Break | Break | Break | |
| | **6** | Break | Break | Break | Break | Break | |
| | **7** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | |
| | **8** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | |

***DO = Direct Observation; 100 minutes 20 minutes for the following five conditions (independent work, free play, social, group work, one to one work)**
***Questionnaires done at the same time as DO**

## Baseline and Tier 1

As can be seen in Table 5.1 above, Baseline was to take place during the first month of school, once 20 students and staff from the primary school agreed to take part in the research. Since Tier 1 is whole school training, no control group would be possible. The training was to take place in one day, over five hours. All staff and caregivers would have been invited to attend one of the three sessions that were going to be run. It was proposed that the same five hour training happen over three days to ensure the school could function during the school year, while training all staff.

Tier 2 and Tier 3 implementation plans are presented in Table 5.2 below. These are shown together to help the reader understand the scaffolding of the intervention proposed for research.

*Table G.2 Tier 2 and Tier 3 Proposed Numbers and Timeline*

| Condition | Week | Monday | Tuesday | Wednesday | Thursday | Friday | Proposed Date |
|---|---|---|---|---|---|---|---|
| **Tier 2**<br><br>**20 Targeted Pupils**<br>**10 Control**<br>**10 Intervention**<br>**and Corresponding Staff**<br><br>**Questionnaires Completed** | **9** | Training Day 1 (6 hours) | ABC Data Collection by participants (5 hours) | Training Day 2 (5 hours) Evaluation of ABC | Break | Break | November 2012 - December 2012 |
| | **10** | Break | Break | Break | Break | Break | |
| | **11** | Break | Break | Break | Break | Break | |
| | **12** | Break | Break | Break | Break | Break | |
| | **13** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | |
| | **14** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | |
| **Tier 3**<br><br>**6 Targeted Students**<br>**3 Control**<br>**3 Intervention**<br>**and Corresponding Staff**<br><br>**Questionnaires Completed** | **15** | Observation Student 1 | Observation Student 2 | Observation Student 3 | Break | Break | January 2013 - March 2013 |
| | **16** | Training Student 1 Team | Training Student 2 Team | Training Student 3 Team | Break | Break | |
| | **17** | Implementation Student 1 Team | Implementation Student 2 Team | Implementation Student 3 Team | Break | Break | |
| | **18** | Break | Break | Break | Break | Break | |
| | **19** | Break | Break | Break | Break | Break | |
| | **20** | Break | Break | Break | Break | Break | |
| | **21** | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | DO (200 min) 10 Pupil & Corresponding Staff | | | |

***DO = Direct Observation; 100 minutes 20 minutes for the following five conditions (independent work, free play, social, group work, one to one work)**
***Questionnaires done at the same time as DO**

## Tier 2

At the Tier 2 level, school staff would have been identified for the ten students who displayed the highest levels of challenging behaviour through direct observations and questionnaires. Of the previously identified 20 students and corresponding staff, the ten students' staff and parents with the most challenging behaviour would have been invited to participate in the intervention. The other ten would have been observed and

assessed with the measures to serve as a control group for the ten participating in the intervention.

At this tier, the researcher proposed getting the staff and family carers together for three sessions, covering the functions of behaviour and environmental manipulations to respond to challenging behaviour. The researcher would again create a bespoke training. Day one would give a review of what challenging behaviour is as well as a review of feedback (Appendix H). Additionally the participants would be taught about antecedents and consequences to behaviour, including watching four simple videos and having participants decide what the consequences were to the behaviours presented and recording, along with the researcher, on an antecedent behaviour consequence (ABC) data sheet. Participants would chose one behaviour they considered challenging for their student. This behaviour would be refined with the researcher in terms of definition. Day one would conclude with the researcher reminding the participants about the target ratio of positive to negative feedback, 5:1.

Participants would have then spent Day 2, taking ABC data in the classroom on their student's behaviour. The caregivers would have been invited into the school to take data as well to ensure they were competent when identifying not only the challenging behaviour, but also the antecedents and consequences associated with the challenging behaviour. The researcher proposed spending 30 minutes with each student team (staff and caregiver) to ensure data collection was identifying all parts of the behaviour correctly.

During day two, the participants would be told the researcher would come and observe their positive and negative feedback. This would then be shared with them at

day two of the training. This observation would not be counted as data collection for the results, but rather just used as a tool to show participants their feedback behaviour. Additionally, participants would be asked to record any instances of the target challenging behaviour on the ABC data sheet that would be reviewed by the researcher during the day two training.

Day three would have included material on consequences to challenging behaviours. This would include introducing replacement behaviours that serve the same function as challenging behaviour. Proactive and reactive strategies would be reviewed, as well as reinforcers. Proactive strategies were presented as those that would help prevent the challenging behaviour, where reactive strategies were presented as how to deal with challenging behaviour when it occurs. Reinforcers would not only explain as increasing the likelihood of behaviour but also as concrete and social reinforcers. The day would again be summed up with a reminder of keeping the positive feedback five times more frequent than the negative feedback.

A simple behaviour plan would be given to each participant. If more than one staff member was present for a target student, they would work together. After the presentation of each item above (antecedent, consequence, function, reinforcement, proactive strategies, and reactive strategies) the researcher would stop and have the participants fill in the section for their student. They would use their ABC data collection sheets to identify the antecedents and consequences seen in the previous week. These would help to identify proactive strategies, as well as a potential function of the challenging behaviour. Reactive strategies would also be identified and reinforcers available. (The plan template and sample plan is available in Appendix L).

The researcher would give input to each group regarding their plan prior to the conclusion of the session.

Upon completion of the three days of training, observation and questionnaires would be administered to all 20 staff and student participants to compare those who received Tier 2 training and those who served as the control. The data would then be analysed to see if there significant gains from those participating in the Tier 2 intervention.

**Tier 3**

Tier 3 was intended to be carried out for three students who are unable to access the school curriculum due to challenging/disruptive behaviour. These three students would have been chosen from those students who participated in Tier 2 intervention. A simple functional assessment was going to be conducted over two days on the chosen target behaviour from the Tier 2 plan. The researcher would conduct an interview with the staff as well as observations to see what the function of the behaviour was most likely to be.

One school day would be given for additional data collection by the researcher. This would include ABC data on the challenging behaviour and conducting a functional assessment interview with the school staff. Once the assessment occurred, the researcher created a simple behaviour intervention plan and trained the school staff that support the student within one school day, providing feedback on the implementation of the plan over another full day (five hour) session. All school staff would have been asked to read the plan ahead of the implementation and sign that they agreed to follow the plan. This was done to promote buy in from the staff.

Observations would have been conducted post Tier 3. These were the same staff and student observations described in the measures section below and conducted at all previous time points for the 10 students who had participated in Tier 2. The additional seven students would have served as a control group for Tier 3. Questionnaires would again have been administered.

# Appendix H – Tier 1 Training

## Positive Behaviour Support

Karen E. Flotkoetter, M.A., BCBA
4th September, 2012

## Agenda

- Housekeeping
- Overview of the Study
- Background
- What is challenging behaviour?
- What is Positive Behaviour Support?
- 5 Key Points

## What is challenging behaviour?

*Culturally abnormal behaviour(s) of such an intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit use of, or result in the person being denied access to, ordinary community facilities*

(Emerson & Einfeld, 2005)

*Behaviour is often described as "challenging" if it places the safety of the person or others in jeopardy, or if it impacts on the person's or other people's quality of life.*

Peter McGill

**Why do people behave in "challenging" ways?**

## Understanding challenging behaviour

Imagine the following scenario:

*You are in a queue at the checkout in a supermarket with a two year old. They ask for some sweets from the display and you say 'no'.*

Q. What behaviour might the two year old show?

Q. Why is it called the 'terrible twos'?

## Understanding challenging behaviour

Now imagine you have 'fast forwarded' 10 years, and you are in the same situation with a twelve year old.

How would their behaviour have improved?

What have they learnt in the last 10 years?

## Understanding challenging behaviour

The "terrible twos" – children use challenging behaviour to get the things they want. Why?

As they get older, they learn better ways of getting their needs met – they gain a new set of tools

People with learning difficulties have the same needs as everyone else

But they may not find it so easy to replace their old tools (challenging behaviour) with new ones (socially acceptable communication)

## Understanding challenging behaviour

Challenging behaviour can be seen as a method of communication that enables people to get their needs met

## Erroneous assumption that a student…

- Is inherently "bad" or "naughty"
- Will be better tomorrow…….

## Prevalence of Challenging Behaviour

- 10 – 15% of people with a learning difficulty display challenging behaviour
- So, a learning difficulty does not guarantee challenging behaviour

## Understanding challenging behaviour

**Antecedents (Triggers)**

**Consequences (Results)**

## Common Antecedents

- Adult request/directive
- Oral instruction
- Individual seat work
- Group work
- Managing materials
- External interruptions
- Classroom transitions
- Teasing from peers
- Changes to routine
- Guest Teacher
- Assembly
- Recess

## Common Antecedents

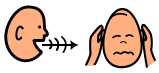
**A crowded place**

**Lack of choice**

**Pain**

**Fatigue**

**Noise**



## Antecedents – A Final Point

**Question**

What does this mean for behaviour support?

**Point**

It is difficult to change behaviours if we do not understand what triggers them

## Consequences (Results)

***Challenging behaviour enables people to …***

**1. Get the things they want**

**2. Avoid the things they don't want**

## Consequences

**Get attention**

**Get an object or activity**

**Escape from tasks and situations**

**Change levels of sensory stimulation**

## Common Consequences

- Gain peer attention
- Gain adult attention
- Gain/obtain item
- Avoid peer(s)
- Avoid adult(s)
- Avoid seat work
- Avoid group work
- Avoid an event

## Exercise 1:

## Identifying the results of challenging behaviour

## Consequences – A Final Point

- All behaviors (even misbehaviors) serve a purpose (function)
- People keep using certain behaviors for one simple reason – they work

## Consider

"If a child doesn't know how to read, we teach.
"If a child doesn't know how to swim, we teach."
"If a child doesn't know how to multiply, we teach."
"If a child doesn't know how to drive, we teach."
"If a child doesn't know how to behave, we……..
……teach? …….punish?"

"Why can't we finish the last sentence as automatically as we do the others?"

Tom Herner (NASDE President, Counterpoint 1998, p.2)

## Think

- **Discuss** "Did you ever have a child in your program who didn't seem to respond to any of your typical approaches to dealing with challenging behavior, a child with whom nothing you tried seemed to work?"

## Association for PBS Definition

- *Positive Behavior Support (PBS) is a set of research-based strategies used to increase quality of life and decrease problem behavior by teaching new skills and making changes in a person's environment. Positive behavior support combines:*
  - *Valued outcomes;*
  - *Behavioral and biomedical science;*
  - *Validated procedures; and*
  - *Systems change to enhance quality of life and reduce problem behaviors.*

## What is Positive Behavior Support?

- An approach to developing **effective** interventions for children with severe challenging behavior
- Developed from the **science** of applied behavior analysis (behavior modification)
- Interventions are based on understanding the **purposes** of the challenging behavior.
- Use of **positive strategies** to support child in achieving meaningful, long-term outcomes

## How Does PBS Work?

- **Step 1:** Bring together a team of individuals who are concerned and knowledgeable about the child.
- **Step 2:** Gather information about the child's behavior (functional assessment).
- **Step 3**: Develop the behavior support plan.
- **Step 4:** Implement and evaluate the success of the plan.

## Behaviour Support Programmes

***… consist of:***

**Proactive strategies**

**Reactive strategies**

## Reactive Strategies

**The goal of a reactive strategy is to bring the incident to a close as safely and as quickly as possible, using the least restrictive and most respectful method**

**Reactive strategies are concerned with behaviour *management*, not behaviour *change***

## Responding to early warning signs

- Make a list of early warning signs
- Listen to the 'whispers' of behaviour
- Respond before the 'whisper' turns to a 'Shout' !

## Responding to early warning signs…

Too late ! Now make situation safe and follow reactive strategies

Plan a favourite activity to happen straight away

Have a 5 minute 'talk time' to plan the afternoon activities

Allocate someone to set up a new activity

Carry on, you are meeting the person's needs !

- **Kicks someone on the shin**
- **Banging fist on the window**
- **Repeated questions 'who's supporting me this afternoon'**
- **Looks bored, pacing around, restless**
- **Calm and happy , engaged in a favourite activity**

## Reactive strategies: Diversion


Do not draw attention to the challenging behaviour

Encourage participation in a favourite activity

Talk about a topic the person finds interesting

Do something unexpected, e.g., "accidentally" drop something, pretend to fall over, tell a joke!

Talk about the next activity on the person's schedule

## Reactive strategies: Giving in!

Defusing an incident of challenging behaviour by giving the person what he or she wants (the "result")

Example: someone is sitting in the road and refuses to move. You "give in" by letting the person go back to the shop and buy a can of Coke

Giving in can reinforce challenging behaviour.
This can be avoided by making sure the person gets the "result" proactively (i.e., not only when they display in challenging behaviour)

## Proactive Behaviour Support

Basic proactive behaviour support meets people's needs by improving their quality of life

## Proactive Behaviour Support

**SHOULD be respectful and reflect the person's wishes**

**Should NOT be degrading or involve the use of threats and punishment, e.g., cancelling a trip out because a person displayed challenging behaviour**

**Always ask yourself this question:**

***How would I like to be treated if I was the person displaying challenging behaviour?***

## Preventing

- Prevention strategies reduce the likelihood that the child will need or want to use the challenging behavior.

## Prevention Strategies

- How can the environment be changed to reduce the likelihood that the behavior will occur?
- What procedures can I select that fit in with the natural routines and structure of the classroom or family?
- How can I build on what works?
- What can be done to help the child deal with or avoid behavior antecedents?

## Possible Prevention Strategies

- Offering **choices** using pictures or actual objects.
- **Safety signal** - providing a timeline ("5 minutes till clean-up"), use timer
- **Modify task length** – shorten group time.
- Select reinforcer prior to activity ("when you put the toy away, you can go outside").

## Why Develop a System for Teaching Behavior?

- Behaviors are prerequisites for academics
- Procedures and routines create structure
- Repetition is key to learning new skills:
  - For a child to learn something new, it needs to be repeated on average 8 times
  - For a child to unlearn an old behavior and replace it with a new behavior, the new behavior must be repeated on average 28 times (Harry Wong)

## Replacing

- Teach alternatives to challenging behavior
- Replacement skills must be efficient and effective (work quickly for the child)
- Consider skills the child already has
- Make sure the reward for appropriate behavior is consistent

## Possible Replacement Skills

- Ask for break
- Say “all done”
- Ask for help
- Ask for a turn
- Ask for a hug
- Use a schedule
- Ask for adult intervention
- Anticipate transition

## Responding

- What adults will do when the challenging behavior occurs to ensure that the challenging behavior is not reinforced and the new skill is learned.
- A good basic strategy is to redirect the child to use an alternative skill or a new skill.
- Make sure rewards for appropriate behavior equal or exceed the rewards for challenging behavior.

**Examples of Responding**

- Redirect child to use replacement skill.
- Praise/reinforce when replacement skill is used.
- State exactly what is expected.
- Cue with appropriate preventions strategy

**What is feedback?**

- Information describing a students' performance that is intended to guide their future performance in that same or related activity
- More experienced telling the less experienced what has been done correctly and what needs to be improved upon
- Objective statement of an action, for the purpose of reinforcing that action or changing that action

**Who receives feedback?**

- Student
- Resident
- Teacher
- Peers
- Subordinates
- All of the above give feedback as well

## Effective feedback

- Focus on specific behaviors
- Neutral yet learning
- Manner it is given
- Include specific suggestions (especially if modeled by the teacher)
- Brevity


## Rationale-What Does 5 Positives to 1 Negative Mean?

- Students should experience predominately positive interactions (ratio of 5 positives for every negative)
- Positive Interactions=
  - Behaviorally specific feedback as to what the student did right (contingent)
  - Smile, nod, wink, greeting, attention, hand shake, high five (non-contingent)
- Negative Interactions=
  - Non-specific behavioral corrections
  - Ignoring student behavior (appropriate or inappropriate)

## Ratio of Interactions

- Interactions with students are considered positive or negative based on the behavior in which the student is engaged at the time attention is given
- Negative interactions are not wrong and are sometimes necessary; the key is the ***ratio***
- Positive interactions can be provided in a variety of ways: verbal praise, nonverbal acknowledgement, non-contingent attention

## How Does 5 to 1 Happen?

All Staff are expected to:

- Interact in a friendly, supportive manner at all times---students, parents, guests and colleagues
- Initiate positive interactions by:
  - Making eye contact
  - Smiling nodding, winking
  - Welcoming
  - Offering a greeting
  - Asking if assistance is required
  - Provide positive feedback regarding appropriate student behavior
  - Maintain an attitude of respect and support, even when correcting student behavior

## Research on Ratio of Interactions

- After withdrawing praise from a classroom, off-task behavior increased from 8.7% to **25.5%**
- When the rate of criticism was increased, off-task behavior increased from 25.5% to **31.2%** with over 50% off-task behavior on some days
- In classes where teachers provided **more than 70%** positive statements, students reporting that they like school remained high across the school year

## 5 : 1 Ratio, It's not Just for Kids

- Business Teams:
  - High Performance = 5.6 positives to 1negative
  - Medium Performance = 1.9 positives to 1 negative
  - Low Performance = 1 positive to 2.7 negatives

  Losada, 1999; Losada & Heaphy, 2004
- Successful Marriages:
  - 5.1 positives to 1 negative (speech acts) and
  - 4.7 positives to 1 negative (observed emotions)

## Remember Positive Feedback Can:

Research has shown increases in:

- Students' correct responses
- Work productivity and accuracy
- Academic performance
- On-task behavior and attention
- Compliance, positive comments about self
- Cooperative play

## Effective Praise Needs:

- Contingent
- Specific
- Credible and focused on what the student did
- Rewards specified performance
- Provides information about student competence
- Orients toward task-related behavior
- Uses prior accomplishments as context for describing current successes
- Noteworthy effort
- Attributes success to effort

**Exercise 2:**

**Behaviour Support Plan**

**Understanding our reactions to challenging behaviour**

Show video from You Tube

**Understanding our reactions to challenging behaviour**

**Supporting people with challenging behaviour can be stressful**

**What are the signs of burnout and stress?**

## Understanding our reactions to challenging behaviour

Supporting people with challenging behaviour can be stressful

How might stress and burnout affect our performance at work?

What can we do to reduce stress – at work and away from work?

How can we help colleagues cope with stress?

## Summary

**5 Points**

1. *Challenging behaviour serves a function*
2. *Behaviour support works best if proactive and positive*
3. *PBS can address challenging behaviour through positive consequences*
4. *Replacement skills need to be taught in order to meet function of challenging behaviour*
5. *Praise 5 times more than corrective or negative statements*

## Thank you

## Exercise 1: Identifying Function

In each scenario, what "function" does the person's challenging behaviour achieve?

**Scenario One**

| Antecedent | Behaviour | Consequence | Function |
|---|---|---|---|
| Neal was in the lounge on his own, sitting in his favourite chair. I was in the kitchen with Neal's housemates, preparing dinner. | Neal suddenly started screaming and hitting himself. | I went in and talked to him. He stopped screaming and hitting himself. | |

**Scenario Two**

| Antecedent | Behaviour | Consequence | Function |
|---|---|---|---|
| We had just come back from the playground<br>(Susan seemed fine while we were there).<br>She was sitting in the classroom with me. | Susan started swearing and slapped me on the side of the head. | I tried talking to her, but she continued to swear. She stopped swearing when I gave her a crayon. | |

**Scenario Three**

| Antecedent | Behaviour | Consequence | Function |
|---|---|---|---|
| Julia was sitting with everyone at the cafeteria table. She had finished her lunch, so I asked her to help me put the rubbish in the bin. | Julia started to bite her hand. | I told her someone else would help me put the rubbish in the bin. She stopped biting her hand. | |

**Scenario**

| Antecedent | Behaviour | Consequence | Function |
|---|---|---|---|
| | | | |

## John

John is a 13-year-old-boy with severe intellectual disabilities who recently moved into a classroom with 5 other pupils with intellectual disabilities

John communicates by pointing at things and by leading people to places or objects. According to a Speech and Language Therapy assessment, John recognizes symbols. For example, if someone shows him the symbol for lunch, he knows that he is going to the cafeteria and get his lunch bag from the cupboard. However, the staff team who support him usually communicate using speech alone.

John is a fit, healthy, active boy who does not sit still for very long. John enjoys outdoor activities such as going for walks, jogging and playing football. Indoors, he likes activities involving food, including preparing snacks. He even likes clearing away the rubbish.

John needs help with most activities. However, he is the most able person in the classroom, and often misses out on staff attention and assistance because they are busy with the people who need more help.

John has a long history of self-injurious behaviour in the form of punching the side of his face. It was also reported that John sometimes punches himself when staff are busy with helping other pupils or admin. The staff team believes that John punches himself because he is bored.

John also punches himself if he there is confusion over what is coming next. One time, a staff member said, "Let go for a walk in the hall." For some reason, John thought he was going to play football and went to collect his ball. When the staff member said it was too muddy to play football, John punched himself.

---

# Appendix I – Tier 2 Training:  Day 1

## Positive Behaviour Support
## Tier 2

Karen E. Flotkoetter, M.A., BCBA
18th January, 2013

## Agenda

- Housekeeping
- Update of the Study
- Review of Tier 1
- A B C of Behaviour
- Homework

## What is challenging behaviour?

*Behaviour is often described as "challenging" if it places the safety of the person or others in jeopardy, or if it impacts on the person's or other people's quality of life.*

Peter McGill

## Understanding challenging behaviour

The "terrible twos" – children use challenging behaviour to get the things they want. Why?

As they get older, they learn better ways of getting their needs met – they gain a new set of tools

People with learning difficulties have the same needs as everyone else

But they may not find it so easy to replace their old tools (challenging behaviour) with new ones (socially acceptable communication)

## Understanding challenging behaviour

Challenging behaviour can be seen as a method of communication that enables people to get their needs met

## Understanding challenging behaviour

**Antecedents (Triggers)**

**Consequences (Results)**

## Setting Events

- Can be environmental (e.g., noisy room, crowds)
- Can be biological (genetic syndrome, illness)
- All affect the effectiveness of reinforcers

## Environmental Factors

- Crowds
- Noise
- Schedule disruption
- Smells

## Biological Setting Events

- Pain due to:
  - Otitis Media
  - Headaches
  - Gastroesophageal Reflux Disease or other GI problems
  - Menstrual Pain
  - Illness (chronic conditions or acute illness)

## Biological Setting Events

- Sleep Deprivation
- Mood
- Allergies (skin scratching)
- Fatigue
- Hunger

## Mental Health Issues

- Some of these factors overlap with their developmental disability
  - E.g., a child with autism that has a obsessive compulsive disorder or
  - can be hyperactive

## Common Antecedents

- Adult request/directive
- Oral instruction
- Individual seat work
- Group work
- Managing materials
- External interruptions
- Classroom transitions
- Teasing from peers
- Changes to routine
- Guest Teacher
- Assembly
- Recess

## List of Antecedents

**Exercise 1:**

Make a list of specific antecedents the identified pupil displays prior to engaging in challenging behaviour

## Antecedents – A Final Point

**Question**

What does this mean for behaviour support?

**Point**

It is difficult to change behaviours if we do not understand what triggers them

## Consequences (Results)

***Challenging behaviour enables people to …***

**1. Get the things they want**

**2. Avoid the things they don't want**

## Consequences

**Get attention**

**Get an object or activity**

**Escape from tasks and situations**

**Change levels of sensory stimulation**

## Common Consequences

- Gain peer attention
- Gain adult attention
- Gain/obtain item
- Avoid peer(s)
- Avoid adult(s)
- Avoid seat work
- Avoid group work
- Avoid an event

## List of Consequences

**Exercise 2:**

Make a list of specific consequences that happen after the identified pupil displays challenging behaviour

## A B C Charts

**Exercise 3:**

Videos – Identifying the results of challenging behaviour

## Video 1

Video 2

Video 3

Video 4

## Consequences – A Final Point

- All behaviors (even misbehaviors) serve a purpose (function)
- People keep using certain behaviors for one simple reason – they work

## What is feedback?

- Information describing a students' performance intended to guide their future performance
- More experienced telling the less experienced what has been done correctly and what needs to be improved upon
- Objective statement of an action, for the purpose of reinforcing that action or changing that action

## Who receives feedback?

- Student
- Resident
- Teacher
- Peers
- Subordinates
- All of the above give feedback as well

**Effective feedback**

- Focus on specific behaviors
- Neutral yet learning
- Manner it is given
- Include specific suggestions (especially if modeled by the teacher)
- Brevity


**Rationale-What Does 5 Positives to 1 Negative Mean?**

- Students should experience predominately positive interactions (ratio of 5 positives for every negative)
- Positive Interactions=
  - Behaviorally specific feedback as to what the student did right (contingent)
  - Smile, nod, wink, greeting, attention, hand shake, high five (non-contingent)
- Negative Interactions=
  - Non-specific behavioral corrections
  - Ignoring student behavior (appropriate or inappropriate)

**Remember Positive Feedback Can:**

Research has shown increases in:

- Students' correct responses
- Work productivity and accuracy
- Academic performance
- On-task behavior and attention
- Compliance, positive comments about self
- Cooperative play

**Types of Reinforcement**

- Concrete
  - A tangible item given to the student or students after they have displayed a positive behavior.
- Social
  - Attention given to the student by peers or adults given to the student or students after they have displayed a positive behavior

**Concrete Reinforcers**

- Types:
  - Candy
  - Stickers
  - Homework passes
  - IPad Time
- Important to remember
  - Social reinforcers are 90% more effective than concrete ones.
  - These are used to "jump start" the students.

## Your Classroom…

What types of concrete reinforcers you are using in your classroom.

- Are they effective?
- Are you using varying types?
- Are you moving away from concrete reinforcers?

## Social Reinforcers

- Important to remember:
  - 90% more effective than concrete reinforcers
  - Used after you have identified a significant adult the student respects and desires time with.

## What is positive reinforcement?

- Scenario: Johnny is always late for morning assembly, because he is playing a word game on the computer. You mention to him that it is important to get to morning assembly on time. The next day he is on time to morning assembly.
- When he does this, you……..

## Options…

A. Say to yourself, "Finally," and do not acknowledge him because he is finally doing what everyone else does.
B. Give him a pat on the back and say, "It's good to see you here on time!"
C. Embarrass him by saying," Well, finally! Look who's here!"

## Answer

- Choose B.
  - Pat him on the back and tell him you are glad to see him.
- Reasoning:
  - You are asking him to give up something that is preferred for him…word game on the computer.
  - If that positive encounter is not replaced by another, he will return to his previous behavior.

## Will it Work?

- If you only tell him once that you appreciate his presence, you can bet he will be tardy again.
- To change a behavior permanently, the positive reinforcement must continue until the behavior becomes natural.

This is why we often fail to help a student change behavior…..we don't reinforce the behavior long enough.

## List of Reinforcers

- Create a list of reinforcers both concrete and social for your student
- Next week we will use to this to discuss how often and when to use

## Homework

- A B C Charts
  - 1 incident per day
  - Rate of feedback Positive v Negative
  - List of reinforcers
  - Schedule a day
- Next session – replacement behaviours and reinforcement

## Thank you

## Appendix J – Positive : Negative Feedback Form

| | |
|---|---|
| **Name:** | |
| **Date:** | 25/1/13 |
| **Feedback** | |
| **Date:** | **Ratio (Positive Feedback: Negative Feedback):** |
| 8/10/12 | 3:1 |
| 18/10/12 | 4:1 |
| 22/10/12 | 1:2 |
| 15/11/12 | 4:1 |
| | |
| **Ideas for Improvement:**<br>• Token economy<br>• 1 hour for each staff as the reinforcer<br>• Alarm to remind you to scan and give positive attention<br>• Reminder on lesson plan | |
| **Times of day to scan for positive feedback:**<br>• Marks on clock at quarter hour<br>• Beginning of day<br>• Lunch<br>• End of day | |

# Appendix K – Tier 2 Training:  Day 3

## Positive Behaviour Support
## Tier 2 – Day 2

Karen E. Flotkoetter, M.A., BCBA
25th January, 2013

## Positive/Negative Feedback

Key Points
- 20 minute observations
- No more than 2 per day
- Random sample
- 5:1 goal of positive to negative feedback is overall, not for a 20 minute period

## Agenda

- Housekeeping
- A B C Charts
- Replacement Behaviour
- Reinforcement
- Plan
- Next Steps

## Understanding challenging behaviour

**Antecedents (Triggers)**

**Consequences (Results)**

## Antecedents – A Final Point

**Question**

What does this mean for behaviour support?

**Point**

It is difficult to change behaviours if we do not understand what triggers them

## Consequences (Results)

***Challenging behaviour enables people to …***

**1. Get the things they want**

**2. Avoid the things they don't want**

## Consequences

Get attention

Get an object or activity

Escape from tasks and situations

Change levels of sensory stimulation

## Exercise 1:

**Identifying the results of challenging behaviour**

**What is the function?**

## How Does Positive Behaviour Support Work?

- **Step 1:** Bring together a team of individuals who are concerned and knowledgeable about the child.
- **Step 2:** Gather information about the child's behavior (functional assessment).
- **Step 3**: Develop the behavior support plan.
- **Step 4:** Implement and evaluate the success of the plan.

## Behaviour Support Programmes

*… consist of:*

**Proactive strategies**

**Reactive strategies**

## Reactive Strategies

**The goal of a reactive strategy is to bring the incident to a close as safely and as quickly as possible, using the <u>least</u> restrictive and <u>most</u> respectful method**

**Reactive strategies are concerned with behaviour *management*, <u>not</u> behaviour *change***

## Responding to early warning signs…

Too late ! Now make situation safe and follow reactive strategies

Plan a favourite activity to happen straight away

Have a 5 minute 'talk time' to plan the afternoon activities

Allocate someone to set up a new activity

Carry on, you are meeting the person's needs !

- **Kicks someone on the shin**
- **Banging fist on the window**
- **Repeated questions 'who's supporting me this afternoon'**
- **Looks bored, pacing around, restless**
- **Calm and happy , engaged in a favourite activity**

## Reactive strategies: Diversion


Do not draw attention to the challenging behaviour

Encourage participation in a favourite activity

Talk about a topic the person finds interesting

Do something unexpected, e.g., "accidentally" drop something, pretend to fall over, tell a joke!

Talk about the next activity on the person's schedule

## Reactive strategies: Giving in!

Defusing an incident of challenging behaviour by giving the person what he or she wants (the "result")

Example: someone is sitting in the road and refuses to move. You "give in" by letting the person go back to the shop and buy a can of Coke

Giving in can reinforce challenging behaviour.
This can be avoided by making sure the person gets the "result" proactively (i.e., not only when they display in challenging behaviour)

## Responding

- What adults will do when the challenging behavior occurs to ensure that the challenging behavior is not reinforced and the new skill is learned.
- A good basic strategy is to redirect the child to use an alternative skill or a new skill.
- Make sure rewards for appropriate behavior equal or exceed the rewards for challenging behavior.

## Examples of Responding

- Redirect child to use replacement skill.
- Praise/reinforce when replacement skill is used.
- State exactly what is expected.
- Cue with appropriate preventions strategy

## Reactive Strategy

**Exercise 2:**
Develop a reactive strategy for when the challenging behaviour is occurring

- Remember: This can be as simple as ignoring and going back when the student is calm for 5 seconds.

## Proactive Behaviour Support

**Basic proactive behaviour support meets people's needs by improving their quality of life**

## Preventing

- Prevention strategies reduce the likelihood that the child will need or want to use the challenging behavior.

## Prevention Strategies

- How can the environment be changed to reduce the likelihood that the behavior will occur?
- What procedures can I select that fit in with the natural routines and structure of the classroom or family?
- How can I build on what works?
- What can be done to help the child deal with or avoid behavior antecedents?

## Possible Prevention Strategies

- Offering **choices** using pictures or actual objects.
- **Safety signal** - providing a timeline ("5 minutes till clean-up"), use timer
- **Modify task length** – shorten group time.
- Select reinforcer prior to activity ("when you put the toy away, you can go outside").

## Proactive Strategies

**Exercise 3:**

Develop proactive strategies that include:

- Environmental Changes
- Scheduling

## Replacing

- Teach alternatives to challenging behavior
- Replacement skills must be efficient and effective (work quickly for the child)
- Consider skills the child already has
- Make sure the reward for appropriate behavior is consistent

## Why Develop a System for Teaching Behavior?

- Behaviors are prerequisites for academics
- Procedures and routines create structure
- Repetition is key to learning new skills:
  - For a child to learn something new, it needs to be repeated on average 8 times
  - For a child to unlearn an old behavior and replace it with a new behavior, the new behavior must be repeated on average 28 times (Harry Wong)


**Possible Replacement Skills**

- Ask for break
- Say "all done"
- Ask for help
- Ask for a turn
- Ask for a hug
- Use a schedule
- Ask for adult intervention
- Anticipate transition

**Replacement Behaviour**

**Exercise 4:**

Decide on an appropriate replacement behaviour to teach:

- Same function
- Just as easy
- Scheduling

## Reinforcement

Key Points:

- Increases the behaviour
- Delivered after the behaviour is displayed
- Schedule
  - How frequent it is needed
  - Remember when learning a new skill it is best to reinforce each time the skill is shown
  - Once learned variable reinforcement keeps them going

## Types of Reinforcement

- Concrete
  - A tangible item given to the student or students after they have displayed a positive behavior.
- Social
  - Attention given to the student by peers or adults given to the student or students after they have displayed a positive behavior

## Concrete Reinforcers

- Types:
  - Candy
  - Stickers
  - Homework passes
  - IPad Time
- Important to remember
  - Social reinforcers are 90% more effective than concrete ones.
  - These are used to "jump start" the students.

## What is reinforcement?

- Scenario: Johnny is always late for morning assembly, because he is playing a word game on the computer. You mention to him that it is important to get to morning assembly on time. The next day he is on time to morning assembly.
- When he does this, you……..

## Options…

A. Say to yourself, "Finally," and do not acknowledge him because he is finally doing what everyone else does.
B. Give him a pat on the back and say, "It's good to see you here on time!"
C. Embarrass him by saying," Well, finally! Look who's here!"

## Answer

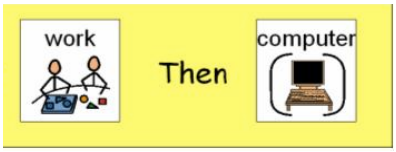
- Choose B.
  - Pat him on the back and tell him you are glad to see him.
- Reasoning:
  - You are asking him to give up something that is preferred for him…word game on the computer.
  - If that positive encounter is not replaced by another, he will return to his previous behavior.

## Will it Work?

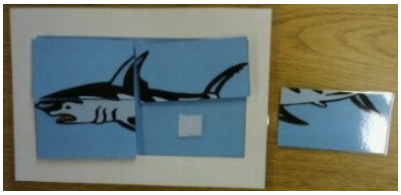
- If you only tell him once that you appreciate his presence, you can bet he will be tardy again.
- To change a behavior permanently, the positive reinforcement must continue until the behavior becomes natural.

This is why we often fail to help a student change behavior…..we don't reinforce the behavior long enough.

## First Then




## Reinforcer Puzzle



**I am working for…**

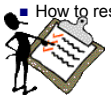

**Reinforcers**

**Exercise 5:**
Create a list of reinforcers

**The Plan**

**Exercise 6:**
List the steps of exactly how you will teach the replacement behaviour, include:

- Reinforcer used
- Schedule
- How to respond to the challenging behaviour



## Rationale-What Does 5 Positives to 1 Negative Mean?

- Students should experience predominately positive interactions (ratio of 5 positives for every negative)
- Positive Interactions=
  - Behaviorally specific feedback as to what the student did right (contingent)
  - Smile, nod, wink, greeting, attention, hand shake, high five (non-contingent)
- Negative Interactions=
  - Non-specific behavioral corrections
  - Ignoring student behavior (appropriate or inappropriate)

## Remember Positive Feedback Can:

Research has shown increases in:

- Students' correct responses
- Work productivity and accuracy
- Academic performance
- On-task behavior and attention
- Compliance, positive comments about self
- Cooperative play

## Next Steps

- Implement Plan
  - Share with staff and make necessary additions so you can have anyone follow the steps.
  - Contact me if questions:
    - 07703 628 662
    - kf79@kent.ac.uk
- March - Observations
  - Questionnaires
- Tier 3 for 3 pupils

## Thank you

## References


Hoelscher, N. *Reinforcement theory or changing and keeping desired behaviors* (PDF document). Retrieved from empowermentzone.tamu.edu/support/**Reinforcement_Theory.ppt.**

Zarcone, J. *A biobehavioral approach to functional assessment (PDF document). Retrieved from* www.kipbsmodules.org/Word-PDF-**PPT**/FBA_wkb8.pdf.

# Appendix L – Tier 2 Behaviour Support Plan

| | |
|---|---|
| **Student Name:** | |
| **Target Behaviour:** What does it look like? | ○ Avoidance of work – automatic refusal whatever he is asked to do.<br>○ Constant demanding to do what he wants. |
| **Antecedents:** What triggers the target behaviour?<br>• People<br>• Time<br>• Place<br>• Type of work<br>• etc | ○ Avoidance of work – especially paper tasks he sees as 'work'.<br>○ Wanting to be in control.<br>○ Classroom disruption – people coming into the room.<br>○ Other pupils – noise, distraction |
| **Consequence:** What is the function of the target behaviour?<br>• Attention<br>• Escape<br>• Access to an Object<br>• Sensory | ○ Attention – behaviour means he gets attention (often from as many as three adults).<br>○ Control – to get what he wants at any given moment (eg iPad)<br>○ Escape from task – whatever he is asked to do. |
| **Response to Challenging Behaviour:** What do staff say or do when the target behaviour occurs?<br>*List as steps so anyone can follow | ○ Explain to Alex what is happening now and next, verbally and using visual timetable.<br>○ Include rewards in the schedule – ie 5 mins play time, iPad, walk etc.<br>○ Give Alex some choice in what he does when – eg have three activities to hand and let Alex decide which he does first, second third. (Use post-it notes or visual symbols)<br>○ Give choice of alternative task, but keep required task to hand to complete later.<br>○ If behaviour escalates, remove Alex from classroom to quiet area, away from 'audience'. |

| | |
|---|---|
| **Proactive Changes:** What can we change to help avoid antecedents?<br><br>• Crowds<br>• Schedule<br>• How much work | ○ Avoid using the word 'work' too often – refer to specific tasks, eg 'cutting and sticking', 'matching', 'sorting game', 'computer activity' etc.<br>○ Have sign on door – Please do not disturb and ask other staff to avoid coming in during lesson time.<br>○ Present work tasks in smaller / shorter pieces.<br>○ Give Alex choice of activities or choice of where he would like to work (ie in class, in wet play area or empty classroom). |
| **Replacement Behaviour:** What can the student do instead of the target behaviour to serve the *same function*? | ○ Take 'turns' with staff – eg 'help' staff to complete the task by telling them what to do.<br>○ Negotiate to reduce amount – eg 'if you finish these three pictures you can leave the last one'. |
| **Reinforcement:** What increases the student's behaviour?<br><br>• People<br>• Food<br>• Toy<br>• IPad Time<br>• Walk<br>• etc | ○ iPad<br>○ Interactive whiteboard time – CBeebies etc.<br>○ A walk.<br>○ Visit Monica.<br>○ Playing with garage etc in play area.<br>○ Verbal praise, high five etc.<br>○ Chat time. |
| **Teaching the replacement skill:** How will we teach the skill?<br><br>*List in steps anyone can follow, include:<br>• When to teach<br>• Schedule to reinforce | |

## Appendix M – Tier 3 Behaviour Support Plan

| | |
|---|---|
| **Student Name:** | |
| **Target Behaviour:** What does it look like? | Non-Compliance – Refusal to move to the designated area or participate in the activity<br>(sitting, laying on the floor, not responding to directions) |
| **Antecedents:** What triggers the target behaviour?<br><br>• People<br>• Time<br>• Place<br>• Type of work<br>• etc | • Being presented with a demand – paper pencil work<br>• Transition to a new setting<br>• Ending a preferred activity (break time. lunch) |
| **Consequence:** What is the function of the target behaviour?<br><br>• Attention<br>• Escape<br>• Access to an Object<br>• Sensory | Escape – avoids the demand or transition<br><br>Attention – being one to one with staff, she receives constant attention from at least one member of staff |
| **Response to Challenging Behaviour:** What do staff say or do when the target behaviour occurs?<br><br>*List as steps so anyone can follow | • Prior to a demand or transition show __ what she will be doing<br>• If she does not begin immediately, staff should say, "__ first _____ (insert direction here) then _____ (reinforcer - something she likes)"<br>  ○ Reinforcers include:<br>  ▪ Chocolate buttons<br>  ▪ Banana<br>  ▪ Grapes<br>  ▪ Biscuit<br>  ▪ Tickles<br>  ▪ Light Room<br>  ▪ Break<br>  ▪ IPad<br>• If she does not follow the direction, show her the direction, saying, ""__ first _____ (insert direction here) then _____ (reinforcer - something she likes)"<br>  ○ Ensure you wait at least 30 seconds between presenting the two directions<br>• If she still does not follow the direction, make the direction simpler and continue to pair with the reinforcer<br>  ○ "First __ cut 2 pictures, then you can have a chocolate button" |

| | |
|---|---|
| | ○ "First __ walk to assembly and sit, then you can go to the light room"<br>○ Ensure you are showing her a picture or object of reference when giving the direction<br>• If she still does not follow the direction, simplify again and offer a reinforcer that is bigger than the task<br>○ "First __ cut one picture then 2 chocolate buttons"<br>○ "First __ walk to assembly (not requiring her to stay in assembly) then you can go to the light room"<br>• This will continue until you have gotten her to comply with a request. The ultimate goal is to get her to follow the direction. If she only does one question on her paper or transitions, but does not actually participate, this is better than her missing the entire session.<br>• As she follows more directions make the direction bigger and the reinforcer smaller.<br>○ You have had success getting her to answer one question for 2 chocolate buttons on more than 5 occasions,<br>▪ Have her answer 2 questions for 1 chocolate button for 5 occasions,<br>▪ Then have her answer 3 questions for ½ chocolate button on 5 occasions, and continue.<br>○ She walks to assembly and stops, then continues to the light room for 5 minutes on 3 occasions.<br>▪ She walks to assembly and sits for 1 minute then continues to the light room for 4 minutes on 3 occasions.<br>▪ She walks to assembly and sits for 2 minutes then continues to the light room for 3 minutes on 3 occasions.<br>○ This continues until she is able to complete the direction with little to no reinforcement. |
| **Proactive Changes:**<br>What can we change to help avoid antecedents?<br><br>• Crowds<br>• Schedule<br>• How much work | • Ensure her schedule is in order of preferred activity, non-preferred activity, preferred activity.<br>○ If a particular activity is most likely to cause her to not comply, then ensure the following activity is one she really enjoys and is likely to comply.<br>• Ensure she is given the opportunity to chose between work or activity whenever possible.<br>○ Would you like to do this paper or this paper first?<br>○ Would you like to cut or glue?<br>○ This gives her a choice in her work.<br>○ With this choice, staff can offer to do whichever she does not choose. This simplifies the activity for her immediately.<br>○ Remember – the goal is getting her to follow directions, some work is better than no work. |

| | |
|---|---|
| **Replacement Behaviour:** What can the student do instead of the target behaviour to serve the *same function*? | She has no effective way to say break or stop. She shows this by refusing to complete the activity. It would be good to teach her the sign for break, so she could ask to end an activity. To teach her the sign for break, follow the steps in the *teaching replacement skill section* below. |
| **Reinforcement:** What increases the student's behaviour?<br>• People<br>• Food<br>• Toy<br>• IPad Time<br>• Walk<br>• etc | Reinforcers include<br>• Chocolate buttons<br>• Banana<br>• Grapes<br>• Biscuit<br>Food should be used, as this is a primary reinforcer. There is concern for the amount of food offered. Food should be broken or cut into bites size pieces (1/2 button, slice of banana, 1 grape, ¼ biscuit. This way by the end of the day, she will have only been offered the whole of 1 banana, a total of 3 biscuits, 1 pack of buttons, etc.<br>• Tickles<br>• Light Room<br>• Break<br>• IPad<br>With __, her reinforcers are often not powerful enough to compete with refusing to do work (essentially, having a break.) For this reason, it is suggested time should be devoted to having her engage with new items that could be reinforcing when she is following directions. How to teach this is below:<br>• Show her an item that may be of interest, a massager, since she likes tickles.<br>• Have the staff member use the massager on themselves, then offer to her.<br>• If she refuses, respect her choice, and try again at another time.<br>• If she does not refuse, use it briefly on her then offer to her to use independently.<br>• Again, if she refuses, respect her choice and offer to her at another time.<br>• Ensure she makes contact with the item at least 5 times before considering the item is not liked by her.<br>• Continue to do this with a variety of items, so her reinforcers can build, giving staff and __ many items to pair directions with.<br>*Ensure reinforcers are prepped at the beginning of the day and ready to offer to her immediately. This means, staff keeping a bag with them at all times that contains chocolate buttons, biscuits, a banana, picture of the light room, IPad. This ensures the reinforcers are immediately available, and key for any behaviour to change. |

<table>
<tr><td>Teaching the replacement skill:<br>How will we teach the skill?<br><br>*List in steps anyone can follow, include:<br>• When to teach<br>• Schedule to reinforce</td><td>How to teach __ to sign break.<br>• When she completes a task sign break, and then hand over hand have her sign break.<br>• Allow her time with no directions or demands (at least 3 minutes to begin).<br>• After she has successfully been shown break for a minimum of 5 times, show her the break sign then hesitate before hand over hand prompting is used. Ensure she signs break even if hand over hand prompting is used before being allowed the break.<br>o This hesitation and prompting will continue to fade from full hand over hand, to one hand prompt of the break sign.<br>o Then, show and have her copy, once she has successfully signed with one hand prompt.<br>o Then hesitate before showing her the break sign to see if she will sign independently upon completion.<br>o Ensure she signs break even if hand over hand prompting is used before being allowed the break.<br>*If she spontaneously signs break, ensure she is allowed a break immediately (no less than 5 minutes) before another direction is given.</td></tr>
<tr><td>Staff Read and Sign:<br>Have staff read and sign</td><td><table>
<tr><th>Date</th><th>Position</th><th>Signature</th></tr>
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## Appendix N – Emotional Reactions to Challenging Behaviour Scale

**Emotional Reactions to Challenging Behaviours Scales (ERCB)**

Below is a list of emotions that caregivers have said that they experience when they have to work with people who display challenging behaviours. We want to know how ***you*** would feel in this situation. Think about the description below and consider each of the emotional reactions. Select the response next to each item that best describes how often you think ***you*** would feel each emotion when working with someone who reacted in this way.

**Chris is a child who has severe learning disabilities. Chris frequently rocks from one foot to the other whilst standing up. Often Chris injures his own body, Chris will hit his head on the wall, bite and pick his skin. Sometimes, Chris spits on the table and smears it around. Occasionally, Chris is aggressive, Chris will shout, and bite and scratch people who are close by, and pull the curtains down.**

Please circle the number.

| | No, never | Yes, but infrequently | Yes, frequently | Yes, very frequently |
|---|---|---|---|---|
| SHOCKED | 0 | 1 | 2 | 3 |
| CONFIDENT | 0 | 1 | 2 | 3 |
| GUILTY | 0 | 1 | 2 | 3 |
| HOPELESS | 0 | 1 | 2 | 3 |
| COMFORTABLE | 0 | 1 | 2 | 3 |
| AFRAID | 0 | 1 | 2 | 3 |
| ANGRY | 0 | 1 | 2 | 3 |
| INVIGORATED | 0 | 1 | 2 | 3 |
| INCOMPETENT | 0 | 1 | 2 | 3 |
| HAPPY | 0 | 1 | 2 | 3 |
| FRUSTRATED | 0 | 1 | 2 | 3 |
| HELPLESS | 0 | 1 | 2 | 3 |
| SELF-ASSURED | 0 | 1 | 2 | 3 |
| DISGUSTED | 0 | 1 | 2 | 3 |
| RELAXED | 0 | 1 | 2 | 3 |
| RESIGNED | 0 | 1 | 2 | 3 |
| FRIGHTENED | 0 | 1 | 2 | 3 |
| CHEERFUL | 0 | 1 | 2 | 3 |
| HUMILIATED | 0 | 1 | 2 | 3 |
| BETRAYED | 0 | 1 | 2 | 3 |
| SAD | 0 | 1 | 2 | 3 |
| EXCITED | 0 | 1 | 2 | 3 |
| NERVOUS | 0 | 1 | 2 | 3 |

## Appendix O – Self-Injurious Behaviour Questionnaire

**Self-Injurious Behaviour Questionnaire**

The following questions (1 – 16) are about challenging behaviour. Please read each question carefully and then tick the box next to the statement that you most agree with. ***Only tick one box for each question.***

1) If a client displays challenging behaviour only when she is left alone and usually stops when she is told not to, the best thing to do is:

- ☐ Keep telling her to stop when she displays challenging behaviour so that the challenging behaviour does not continue.
- ☐ Try not to leave her alone.
- ☐ Ignore her when she displays challenging behaviour.
- ☐ Assess her medication levels and revise them as necessary.

2) If a client displays challenging behaviour only when people are interacting with him and stops as soon as they move away, the best thing to do is:

- ☐ Assess medication levels and revise them as necessary.
- ☐ Try and leave him on his own as much as possible.
- ☐ Move away when the challenging behaviour occurs to prevent it from continuing.
- ☐ Continue the interaction regardless of the challenging behaviour.

3) If a client only displays challenging behaviour when something she wants is denied, but stops as soon as the thing is give to her, the best thing to do is:

- ☐ Not to deny her the things she wants.
- ☐ Not to give her the thing when she displays challenging behaviour.
- ☐ To assess her medication levels and revise them as necessary.
- ☐ To give her the things she wants to prevent challenging behaviour from continuing.

4) Which of the following is the best definition of a client's self-injurious behaviour if it is being used in a treatment programme:

- ☐ Any contact between head and object
- ☐ Any painful head banging.
- ☐ Any quite hard contact between head and object.
- ☐ Any attempt cause injury to the head.

5) When trying to teach a client to keep her hands in her lap instead of self-injuring, which is most important to do in the early stages:

- ☐ Reward her every time her hands are in her lap.
- ☐ Keep reminding her to put her hands in her lap is she has self-injured.
- ☐ Reprimand her for not putting her hands in her lap.
- ☐ Give her extra helpings of her favourite food at lunchtime if her hands have been in her lap for most of the morning.

6) If a client displays challenging behaviour only when he is asked to do a difficult tasks and stops when the task is removed temporarily, the best thing to do is:

- ☐ Keep removing the task temporarily when he displays challenging behaviour to prevent the behaviour from continuing.
- ☐ Continue to present the task regardless of the challenging behaviour.
- ☐ Not present difficult tasks.
- ☐ Check medication levels and revise them as necessary.

7) When trying to decrease the head hitting of a client what is the best way of finding out if you are succeeding:

- ☐ Record at the end of the day how much time has been spent head-hitting.
- ☐ Ask someone to rate on a 5-point scale the client's well being at the end of each day.
- ☐ Keep a written record of the number of head hits for each day.
- ☐ Look at the site of the self-injury to see if there are bruising or abrasions at the end of each week.

8) For a client who likes attention and who self-injures by banging his head hard and by rubbing his shin, what is most likely to happen if he is only reprimanded after hard head bangs:

- ☐ Hard head banging will decrease because of the pain.
- ☐ He will sustain more injury to his head.
- ☐ Hard banging will decrease as he learns it is inappropriate.
- ☐ Hard banging will become softer.

9) Which is most true when using punishment to decrease self-injury:

- ☐ The self-injury rapidly decreases initially but may come back.
- ☐ The self-injury rapidly decreases and never comes back.
- ☐ The self-injurer learns new appropriate behaviours.
- ☐ The self-injurer learns to distrust the person administering the punishment.

10) If presented immediately after displaying challenging behaviour, which of the following can make the challenging behaviour more likely to occur in the future:

- ☐ Being held and told to “calm down”.
- ☐ Being severely reprimanded.
- ☐ Being scheduled for a short period.
- ☐ All of the above.

11) Before beginning a programme to decrease a client’s challenging behaviour, which of the following is it most important to know:

- ☐ Whether the current medication has been recently reviewed.
- ☐ What usually happens before and after the challenging behaviour?
- ☐ Whether the client understands the programme.
- ☐ Whether all staff respond to the challenging behaviour in the same way.

12) A client who likes attention is usually told to stop when he self-injures. It is decided to ignore the self-injurious behaviour when it occurs. What is most likely to happen?

- ☐ The self-injury will increase because he is angry about being ignored.
- ☐ The self-injury will decrease because the attention is withheld.
- ☐ The self-injury will decrease and then increase as the person tries harder to gain attention.
- ☐ The self-injury will increase and then decrease because attention is withheld.

13) For a client who self-injures and who likes attention, which of the following is most likely to make the self-injury a long lasting habit:

- ☐ Attending to him every time he self-injures.
- ☐ Attending to him every time he self-injures and then only occasionally when he self-injures.
- ☐ Attending to him if his self-injury is very hard.
- ☐ Attending to him just before and after he self-injures.

14) A client usually displays challenging behaviour when asked to do something difficult. Which of the following is most likely to succeed in decreasing the behaviour in the long term?

- ☐ Continuing to present the task regardless of the challenging behaviour.
- ☐ Continue to present the task regardless of he challenging behaviour and reinforce the client when no challenging behaviour occurs.
- ☐ Continue to present the task regardless of the challenging behaviour and reinforce the client when the task is finished.
- ☐ Only presenting the task when the client is in a good mood.

15) If a client usually displays challenging behaviour when asked to do something difficult. Which of the following is it most important to do to decrease the behaviour in the long term?

- ☐ Only present the task when the client is in a good mood.
- ☐ Complete the task even if challenging behaviour occurs right up to the end.
- ☐ Stop the task when challenging behaviour has not occurred for a period of time even it is not completed.
- ☐ Present the task for a pre-set period of time and stop after that time regardless of what is happening.

16) A client self-injures by scratching his face and gloves are used to prevent the injuries becoming infected. The gloves stop the scratching and he often puts them on himself or requests them. The best thing to do is:

- ☐ Leave the gloves on all the time.
- ☐ Only put the gloves on when he has not scratched.
- ☐ Only put the gloves on when he has scratched very badly.
- ☐ Put the gloves on as soon as he scratches to prevent further injury.

## Appendix P – Staff Direct Observation Data Sheet

**Direct Observation Data Sheet**

Date:_____ Time Start:_____ Time Stop:_____

| **Teacher Feedback Behaviour**<br><br>Name:<br>_____ | **Positive Attention**<br>(praise both general and specific, "thank you", smile, tickles, nod, pat on the back to any student in the classroom)<br>*each response is recorded | **Neutral Statements**<br>(commenting on a statement of fact, i.e. "you are wearing black trousers")<br>*directed towards student | **Negative Attention**<br>(no, stop, or other forms of attention that does not tell what to do; and corrective feedback, telling what they should be doing at the present time (includes instructions after given once)<br>*each response is recorded |
|---|---|---|---|
| | | | |
| Activity:<br>(task, materials, number of staff and students) | | | |

## Appendix Q – Checklist of Challenging Behaviours

## Checklist of Challenging Behaviours

Has this person exhibited any of the following behaviours during the past ***three months***?

Please rate the following behaviours on the following scales:

| | Frequency | Intensity | Staff Response | Management Difficulty |
|---|---|---|---|---|
| **Aggressive Behaviours** | **1 Never**<br>**2 Not at present** (not in 3 months)<br>**3 Occasionally** (1 – 4 times)<br>**4 Often** (4 or more times)<br>**5 Very Often** (daily) | **1 No injury**<br>**2 Minor injury** (no first aid needed)<br>**3 Moderate injury** (first aid needed)<br>**4 Serious injury** (medical attention)<br>**5 Very serious** (hospitalisation) | **1 No response**<br>**2 Verbal response**<br>**3 Ignore**<br>**4 Physical response** (leading, physical restraint, medication)<br>**5 Get help** | **1 No problem**<br>**2 Slight problem** (some difficulty)<br>**3 Moderate problem** (quite difficult, but confident)<br>**4 Considerable problem** (difficult to manage on own)<br>**5 Extreme problem** (help required) |
| Pinching people? | | | | |
| Biting people? | | | | |
| Scratching people? | | | | |
| Punching/slapping/pushing or pulling people? | | | | |
| Kicking people? | | | | |
| Head butting people? | | | | |
| Pulling peoples' hair? | | | | |
| Choking/throttling people? | | | | |
| Using objects as weapons against people (e.g. knife or other hand held object)? | | | | |
| Throwing things at people? | | | | |
| Tearing other peoples' clothes? | | | | |
| Making unwanted sexual contact? | | | | |
| Injuring self (e.g. head banging, eye poking/gouging, biting/scratching self) | | | | |

| | | |
|---|---|---|
| Does this person exhibit any other type of aggressive behaviour? | **Please circle:**<br>1 = Yes | 2 = No |
| If yes, please describe: | | |

| | Frequency | Staff Response | Management Difficulty |
|---|---|---|---|
| **Other disturbing behaviours** | **1 Never**<br><br>**2 Not at present** (not in 3 months)<br><br>**3 Occasionally** (1 – 4 times)<br><br>**4 Often** (4 or more times)<br><br>**5 Very Often** (~~daily~~) | **1 No response**<br><br>**2 Verbal response**<br><br>**3 Ignore**<br><br>**4 Physical response** (~~leading~~, physical restraint, medication)<br><br>**5 Get help** | **1 No problem**<br><br>**2 Slight problem** (~~some~~ difficulty)<br><br>**3 Moderate problem** (~~quite~~ difficult, but confident)<br><br>**4 Considerable problem** (~~difficult~~ to manage on own)<br><br>**5 Extreme problem** (~~help~~ required) |
| Damaging/breaking furniture and/or other objects? | | | |
| Smashing windows? | | | |
| Setting off fire alarm? | | | |
| Verbal abuse (e.g. shouting, screaming, swearing at others)? | | | |
| Taking food and/or drink from others | | | |
| Threatening to hurt others (either verbally and/or with gestures)? | | | |
| Displaying ritualistic/repetitive behaviour (e.g. closes/opens doors, rearranges furniture, hoards rubbish etc) | | | |
| Engaging in stereotyped behaviour (e.g. body rocking, finger tapping, hand waving etc) | | | |
| Showing withdrawn behaviour (i.e. difficult to reach or contact)? | | | |
| Soiling or wetting when upset/distressed/agitated? | | | |
| Vomiting when upset/distressed/agitated? | | | |
| Exposing his/her body inappropriately (e.g. strips/masturbates in public)? | | | |
| Absconding or trying to abscond from facility? | | | |
| Causing nighttime disturbance? | | | |

| | | |
|---|---|---|
| Does this person exhibit any other type of disturbing behaviour? | **Please circle:**<br>1 = Yes | 2 = No |
| If yes, please describe: | | |
| In your experience of this person, which of the behaviours you have described are the most difficult to cope with? | | |

## Appendix R – Student Direct Observation Data Sheet

**Teacher Student Direct Observation Data Sheet**

| **Activity:** (task, materials, number of staff and students) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Student:** | | | **Staff** (includes any staff member) | | | |
| **Time Start:** _____ **Time Stop:** _____ | **Engaged** (looking at the teacher or materials, working on materials, or answering questions, compliance) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials, non-compliance) | **Disruptive** (out of area, engaging with the materials other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you", smile, nod, pat on back) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, attention that does no tell what to do; corrective feedback, telling what they should be doing (includes instructions after being presented once) | **No Attention** (ignores student) |
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| | Student: | | | Staff: | | | |
|---|---|---|---|---|---|---|---|
| | **Engaged** (looking at the teacher or materials, working on materials, or answering questions) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials) | **Disruptive** (out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you" to any student in the classroom) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, or other forms of attention that do no tell the student what to do; and corrective feedback, telling a student what they should be doing at the present time) | **No Attention** (ignores student) |
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| | Student: | | | Staff: | | | |
|---|---|---|---|---|---|---|---|
| | **Engaged** (looking at the teacher or materials, working on materials, or answering questions) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials) | **Disruptive** (out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you" to any student in the classroom) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, or other forms of attention that do no tell the student what to do; and corrective feedback, telling a student what they should be doing at the present time) | **No Attention** (ignores student) |
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| | Student: | | | Staff: | | | |
|---|---|---|---|---|---|---|---|
| | **Engaged** (looking at the teacher or materials, working on materials, or answering questions) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials) | **Disruptive** (out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you" to any student in the classroom) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, or other forms of attention that do no tell the student what to do; and corrective feedback, telling a student what they should be doing at the present time) | **No Attention** (ignores student) |
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| | Student: | | | Staff: | | | |
|---|---|---|---|---|---|---|---|
| | **Engaged** (looking at the teacher or materials, working on materials, or answering questions) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials) | **Disruptive** (out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you" to any student in the classroom) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, or other forms of attention that do no tell the student what to do; and corrective feedback, telling a student what they should be doing at the present time) | **No Attention** (ignores student) |
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| | Student: | | | Staff: | | | |
|---|---|---|---|---|---|---|---|
| | **Engaged** (looking at the teacher or materials, working on materials, or answering questions) | **Not Engaged** (engaging in self stimulation, sleeping, not looking at teacher or materials) | **Disruptive** (out of area, engaging with the materials in a manner other than their designed purpose, talking out without permission, or demonstrating an aggressive action) | **Positive** (praise both general and specific, "thank you" to any student in the classroom) | **Neutral** (commenting on a statement of fact, "you are wearing black trousers") | **Negative** (no, stop, or other forms of attention that do no tell the student what to do; and corrective feedback, telling a student what they should be doing at the present time) | **No Attention** (ignores student) |
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## Appendix S – The Beach Center Family Quality of Life Scale

## The Beach Center Family Quality of Life Scale

When answering these questions, please think about your experiences over the last **6 months**.

We want you to tell us how you feel about your life together as a family. Your "family" may include people – mother, father, partners, children, aunts, uncles, grandparents, etc.

For this survey, please consider your family as those people

- Who think of themselves as part of your family (even though they may or may not be related by blood or marriage), and
- Who support and care for each other on a **regular basis**.

For this survey, please DO NOT think about relatives (extended family) who are only involved with your family every once in a while. Please think about your family life over the past six months.

**Step 1: Importance** – First, please tick the box in the first set of columns to show how important you think that statement is.

- Ticking the ***first*** box means you think the statement is only a ***little important***.
- Ticking the ***fifth*** box means you think that statement is ***critically important***.

**Step 2: Satisfaction** – Please tick the box in the next set of columns to show how satisfied you are with the statement.

- Ticking the ***first*** box means you are ***very dissatisfied***.
- Ticking the ***last*** box means you are ***very satisfied***.

Please remember to answer both IMPORTANCE and SATISFACTION for each question.

| For my family to have a good life together…. | How **important** is it that… | | | | | How **satisfied** am I that… | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A Little Important | | Important | | Very Important | Very Dissatisfied | | Neither | | Very Satisfied |
| 1. My family enjoys spending time together. | | | | | | | | | | |
| 2. My family members help the children learn to be independent. | | | | | | | | | | |
| 3. My family has the support we need to relieve stress. | | | | | | | | | | |

| For my family to have a good life together…. | How **important** is it that… | | | | | How **satisfied** am I that… | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A Little Important | | Important | | Very Important | Very Dissatisfied | | Neither | | Very Satisfied |
| 4. My family members have friends or others who provide support. | | | | | | | | | | |
| 5. My family members help the children with schoolwork and activities. | | | | | | | | | | |
| 6. My family members have transportation to get to the places they need to be. | | | | | | | | | | |
| 7. My family members talk openly with each other. | | | | | | | | | | |
| 8. My family members teach the children how to get along with others. | | | | | | | | | | |
| 9. My family members have some time to pursue their own interests. | | | | | | | | | | |
| 10. My family solves problems together. | | | | | | | | | | |
| 11. My family members support each other to accomplish goals. | | | | | | | | | | |
| 12. My family members show that they love and are for each other. | | | | | | | | | | |
| 13. My family has outside help available to us to take care of the special needs of all family members. | | | | | | | | | | |
| 14. Adults in my family teach children to make good decisions. | | | | | | | | | | |
| 15. My family gets medical care when needed. | | | | | | | | | | |
| 16. My family has a way to care of our expenses. | | | | | | | | | | |

| For my family to have a good life together…. | How **important** is it that… | | | | | How **satisfied** am I that… | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A Little Important | | Important | | Very Important | Very Dissatisfied | | Neither | | Very Satisfied |
| 17. Adults in my family know other people in the children's lives (friends, teachers, etc.). | | | | | | | | | | |
| 18. My family is able to hand life's ups and downs. | | | | | | | | | | |
| 19. Adults in my family have time to take care of the individual needs to every child. | | | | | | | | | | |
| 20. My family gets dental care when needed. | | | | | | | | | | |
| 21. My family feels safe at home, work, school, and in our community. | | | | | | | | | | |
| | | | | | | | | | | |
| ***Think of your child when answering the questions below.*** | | | | | | | | | | |
| 22. My family member with a disability has support to accomplish goals at school. | | | | | | | | | | |
| 23. My family member with a disability has support to accomplish goals at home. | | | | | | | | | | |
| 24. My family member with a disability has support to make friends. | | | | | | | | | | |
| 25. My family has good relationships with the service providers who provide services and support to our family member with a disability. | | | | | | | | | | |

# Appendix T – Mann Whitney U Test and Wilcoxon Signed Rank Test Tables for Non Statistically Significant Findings from Study 2

**Baseline – Emotional Reactions to Challenging Behaviour**

*Table T.1 Baseline Mann Whitney U Test for ERCB Scale between Gender*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 88.50 | -1.82 | 0.07 | 0.31 |
| ERCBCE | 131.50 | -0.06 | 0.96 | 0.01 |
| ERCBDA | 138.50 | -0.05 | 0.96 | 0.01 |
| ERCBFA | 112.00 | -1.0 | 0.34 | 0.17 |

*Table T.2 Baseline Mann Whitney U Test for ERCB Scale Between Residential Support Workers and All Other Positions*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 138.00 | -0.50 | 0.64 | 0.08 |
| ERCBCE | 120.00 | -0.87 | 0.41 | 0.15 |
| ERCBDA | 126.00 | -0.90 | 0.39 | 0.15 |
| ERCBFA | 142.00 | -0.37 | 0.73 | 0.06 |

**Baseline – Self-Injurious Behaviour Questionnaire**

*Table T.3 Baseline Mann Whitney U Test for SIBQ Between Genders*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| SIBQ Knowledge C | 87.00 | -1.91 | 0.07 | 0.33 |
| SIBQ Knowledge I | 93.00 | -1.70 | 0.10 | 0.29 |
| SIBQ Action C | 135.00 | -0.19 | 0.88 | 0.03 |
| SIBQ Action R | 114.00 | -0.97 | 0.38 | 0.17 |
| SIBQ Action A | 110.00 | -1.31 | 0.31 | 0.22 |
| SIBQ Action IO | 136.50 | -0.30 | 0.90 | 0.05 |

*Table T.4 Baseline Mann Whitney U Test for SIBQ Between Residential Support Workers and Other Positions*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| SIBQ Knowledge C | 121.00 | -1.09 | 0.30 | 0.31 |
| SIBQ Knowledge I | 125.50 | -0.94 | 0.37 | 0.16 |
| SIBQ Action C | 123.00 | -1.08 | 0.34 | 0.18 |
| SIBQ Action R | 121.00 | -1.13 | 0.30 | 0.19 |
| SIBQ Action A | 132.00 | -0.85 | 0.50 | 0.14 |
| SIBQ Action IO | 152.00 | -0.08 | 0.99 | 0.01 |

**Tier 1 – Emotional Reactions to Challenging Behaviour Scale**

*Table T.4 Wilcoxon Signed Rank Test Between ERCB Baseline and ERCB Tier 1*

| | z | *p* | r |
|---|---|---|---|
| ERCBCR | -0.30 | 0.76 | 0.08 |
| ERCBCE | -1.58 | 0.12 | 0.44 |
| ERCBDA | -0.12 | 0.91 | 0.03 |
| ERCBFA | -1.56 | 0.12 | 0.43 |

*Table T.5 Tier 1 Mann Whitney U Test for ERCB Scale between Gender*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 15.00 | -0.74 | 0.52 | 0.21 |
| ERCBCE | 16.00 | -0.61 | 0.62 | 0.17 |
| ERCBDA | 13.50 | -0.65 | 0.53 | 0.19 |
| ERCBFA | 17.00 | -0.45 | 0.72 | 0.13 |

*Table T.6 Tier 1 Mann Whitney U Test for ERCB Scale Between Residential Support Workers and All Other Positions*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 11.00 | -1.45 | 0.18 | 0.40 |
| ERCBCE | 9.50 | -1.70 | 0.10 | 0.47 |
| ERCBDA | 16.50 | -0.24 | 0.82 | 0.07 |
| ERCBFA | 16.00 | -0.74 | 0.53 | 0.20 |

**Tier 1 – Self-Injurious Behaviour Questionnaire**

*Table T.7 Wilcoxon Signed Rank Test for SIBQ Between Baseline and Tier 1*

| | z | *p* | r |
|---|---|---|---|
| SIBQ Knowledge C | -0.74 | 0.46 | 0.23 |
| SIBQ Knowledge I | -0.74 | 0.46 | 0.23 |
| SIBQ Action C | -0.33 | 0.74 | 0.11 |
| SIBQ Action R | -1.00 | 0.32 | 0.32 |
| SIBQ Action A | -1.00 | 0.32 | 0.32 |
| SIBQ Action IO | -1.00 | 0.32 | 0.32 |

**Tier 2 – Emotional Reactions to Challenging Behaviour Scale**

*Table T.8 Tier 2 Mann Whitney U Test for ERCB Scale between Gender*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 18.50 | -0.22 | 0.83 | 0.06 |
| ERCBCE | 16.00 | -0.60 | 0.62 | 0.17 |
| ERCBDA | 19.50 | -0.07 | 0.94 | 0.02 |
| ERCBFA | 16.50 | -0.52 | 0.62 | 0.14 |

*Table T.9 Tier 2 Mann Whitney U Test for ERCB Scale Between Residential Support Workers and All Other Positions*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| ERCBCR | 16.50 | -0.52 | 0.62 | 0.14 |
| ERCBCE | 11.00 | -1.34 | 0.22 | 0.38 |
| ERCBDA | 13.00 | -1.03 | 0.35 | 0.29 |
| ERCBFA | 19.00 | -0.15 | 0.94 | 0.04 |

**Tier 2 – Self-Injurious Behaviour Questionnaire**

*Table T.10 Tier 2 Mann Whitney U Test for SIBQ Between Genders*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| SIBQ Knowledge C | 11.50 | -1.23 | 0.22 | 0.35 |
| SIBQ Knowledge I | 11.50 | -1.23 | 0.22 | 0.35 |
| SIBQ Action C | 19.50 | -0.09 | 0.94 | 0.02 |
| SIBQ Action R | 15.00 | -0.76 | 0.52 | 0.21 |
| SIBQ Action A | 15.50 | -0.69 | 0.52 | 0.19 |
| SIBQ Action IO | 20.00 | 0.00 | 1.00 | 0.00 |

*Table T.11 Tier 2 Mann Whitney U Test for SIBQ Between Residential Support Workers and Other Positions*

| | *U* | z | *p* | r |
|---|---|---|---|---|
| SIBQ Knowledge C | 8.50 | -1.72 | 0.09 | 0.48 |
| SIBQ Knowledge I | 8.50 | -1.72 | 0.09 | 0.48 |
| SIBQ Action C | 14.00 | -1.04 | 0.44 | 0.29 |
| SIBQ Action R | 17.50 | -0.38 | 0.72 | 0.11 |
| SIBQ Action A | 19.50 | -0.08 | 0.94 | 0.02 |
| SIBQ Action IO | 20.00 | 0.00 | 1.00 | 0.00 |

# Appendix U – 4 + 1 Questions

# Positive Behaviour Support Training Feedback

Please answer the questions regarding your perspective on the Positive Behaviour Support Training (Karen Flotkoetter's PhD study) conducted [redacted] in the 2012 – 2013 school year?

| • Tried?<br>What have you **tried** as a result of the Positive Behaviour Support Training? | • Learned?<br>What have you **learned** from the Positive Behaviour Support Training? |
|---|---|
| | |
| • Pleased About?<br>What are you **pleased about** regarding the Positive Behaviour Support Training? | • Concerned About?<br>What are you **concerned about** regarding the Positive Behaviour Support Training? |
| | |
| • Do Next?<br>As a result of the Positive Behaviour Support Training, what would you **do next**? | Please feel free to write any other comments here: |
| | |