Cognitive Behavioural Interventions with Pupils with Learning Disabilities:

An Evaluation of the Impact of the

Feelings Detectives Programme

on Anxiety

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Thesis submitted to the University of Nottingham
for the degree of
Doctor of Applied Educational Psychology,
May 2020

Acknowledgements

The author would like to thank:

- Bob, Finn, Joel and Topsy for their patience, tolerance, love and understanding.
- Her family and friends, for their continued support and encouragement throughout.
- Dr Victoria Lewis, for her valuable supervision during the latter stages of the research project.
- Dr Nick Durbin and Dr Neil Ryrie for their supervisory support in the early stages.
- Dr Lucy Kimber, for morale-boosting during placement supervision.
- Dr Gemma Flack and Dr Orlaith Donnelly from The Psychology Tree for their many contributions to this project.
- Fellow trainees at the University of Nottingham, whose friendships have supported her through the ups and downs of the TEP journey.
- The staff, young people and their parents involved in the research project, for their enthusiasm, humour and goodwill.

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Abstract

Cognitive Behavioural Interventions have been shown to be effective in reducing the anxiety of typically developing children and adults with learning disabilities (LD). Research into the effectiveness of cognitive behavioural approaches to treat anxiety in children and young people (CYP) with LD is in its infancy. The aim of this study was to investigate the impact of a recently developed cognitive behavioural programme called Feelings Detectives on the anxiety of six 15-year-old pupils with LD, who attend a school for CYP with complex needs.

This paper presents quantitative data from single case experiments and pre- and post- intervention measures of anxiety, as well as qualitative data from interviews with the participants and their teacher and teaching assistant. Reliable Change Index demonstrates a significant reduction in parent-reported anxiety for one participant and visual analyses indicate a significant decrease in self-reported measures of anxiety for two participants, all of whom being identified with a relatively high level of verbal reasoning ability. Key design limitations affecting the validity of these findings are discussed.

This is a small-scale exploratory study which highlights potential 'mechanisms' which may have reduced the effect of the intervention, including methodological and procedural limitations. It also identifies positive aspects of the programme which might help to focus larger scale, more rigorously controlled research in the future.

Chapter 1: Introduction

This research thesis presents six case studies, through which the impact of a cognitive behavioural programme called Feelings Detectives on pupils' anxiety will be examined.

The young people who participated in the research attend a school for pupils with complex needs. The primary special educational need for all pupils on roll in the school is cognition and learning.

It is reported that a large proportion of children and young people with LD experience mental health difficulties, with figures being as high as between 36% (Emerson & Hatton, 2007) and 50% (Einfeld, S. L., Ellis, L. A., & Emerson, 2011). 'Mental ill-health' incorporates a wide range of difficulties, however anxiety specifically is reported to be the most prevalent issue (Emerson, 2003). These concerning statistics have invoked a 'strong degree of consensus' regarding the model of care which services should provide (Lenehan, Department of Health [DH], 2017). This includes prevention/early intervention support involving schools (Lenehan, DH, 2017).

This study took place whilst the school was in the process of developing its practices with regards to pupils' social, emotional and mental health (SEMH) as part of the school improvement and development plan (SIDP).

The researcher had, prior to her doctoral training, worked in the school and been responsible for monitoring the effectiveness of existing interventions, as well as investigating the evidence-base for potential interventions which might be introduced to specifically target the reduction of pupil anxiety. This search identified a paucity of high quality, empirical research which evaluated interventions for pupils with LD.

The researcher's experience of working in the school taught her that the pupils (and their families) could be effectively and holistically supported by the high level of teaching and support staff expertise in meeting SEMH needs. Of concern, however, was the knowledge, gained anecdotally, that many of the young people experienced emotional and mental health difficulties as they transitioned into adulthood, once they were no longer being systemically supported in school.

The researcher's strongly held view is that a social model of difficulty should be at the core of educational psychology. Nevertheless, a teaching background instils a responsibility to equip young people with the skills to cope with whatever life has in store, whilst recognising that this may be more difficult for those who are, as a consequence of innate factors, more vulnerable than their typically developing peers.

The starting point for this study was therefore to evaluate an intervention that might be helpful in supporting young people with LD, who are identified as experiencing higher than typical levels of anxiety, to develop coping strategies for dealing with their emotions. In doing so, this study aims to contribute to evidence-based practice in the SEMH provision for young people with LD.

Chapter 2: Literature Review

2.1 Introduction

This research study focuses on the efficacy of a cognitive behavioural intervention to reduce symptoms of anxiety in CYP with LD. The review begins by exploring both the prevalence of mental health problems in CYP in the UK, and the ways in which the concepts of mental health and well-being are construed. It goes on to consider how strategy at a government level has highlighted the appropriateness of educational settings for coordinating efforts to identify and address unmet need.

The study specifically evaluates whether a cognitive behavioural approach can be effective for CYP with LD. The review therefore examines and interprets the phrase 'learning disability'; and then moves from the wider topic of mental health to focus on anxiety, exploring definitions and characteristics, including how it may specifically affect CYP with LD, and evaluating the appropriateness of cognitive behavioural therapy (CBT) as an intervention to target anxiety in children.

A systematic review of the existing research literature on the use of CBT with CYP with LD will then be undertaken, along with a critical evaluation of CBT as an intervention for adults with LD. A second systematic review will examine the research literature to evaluate the effectiveness of CBT to treat anxiety in adults with LD.

The chapter concludes by setting out the theoretical rationale for this study and identifying the research questions it aims to answer.

2.2 Children and Young Peoples' Mental Health

In recent years, the well-being and mental health of CYP in the UK has gained prominence as a subject requiring attention at a national level. A project which investigated how CYP in fifteen countries rated themselves with regards to their subjective well-being, found that those in the UK ranked 11th in terms of their recent happiness and positivity about the future, and 14th in terms of their life satisfaction (Pople, Rees, Main, & Bradshaw, 2015). However, reduced well-being in terms of quality of life does not necessarily correlate with mental ill-health. In the aforementioned survey, conducted with over 9,000 children in the

UK, only approximately a third of those with mental health problems reported low life satisfaction, and almost half of those with reduced life satisfaction did not experience a high level of mental ill-health. There is therefore debate around whether well-being should be conceptualised as existing at one end of a single mental health spectrum. For example, a study which compared the predictors of well-being and mental illness suggested that given their weak correlation, theoretically, the two constructs should be viewed as distinct domains (Patalay & Fitzsimons, 2016).

'Mental ill-health' can encompass a wide range of different disorders. An often quoted statistic from a survey carried out by the Office for National Statistics (ONS) identified that 10.1 % of CYP between the ages of 5-16 in the UK had a clinically diagnosed mental disorder (Green, McGinnity, Meltzer, Ford & Goodman, 2005); and a more recent survey conducted in 2017 reported a slight increase within this age group to 11.2 % (NHS digital, 2017). However, this statistic incorporated four different categories of disorder: emotional, behavioural, hyperactivity and less common disorders such as autism, selective mutism and eating disorders. When comparing the predictors of well-being and mental health, it is arguably important to specify the type of mental health problem under scrutiny. In Patalay and Fitzsimon's large-scale research (2016) involving over 12,000 children parental reports of children's mental health included both emotional and conduct problems. Other research has identified that quality of life may be reduced in children with internalising problems compared with externalising problems (Sharpe, Patalay, Fink, Vostanis, Deighton & Wolpert, 2016). This suggests that emotional problems may be associated with negative appraisals of well-being, and more research is required to explore the development and possible causes of emotion-based disorders specifically. It would seem unhelpful therefore to isolate mental health from well-being, as, despite the weak correlation between the two domains (Patalay & Fitzsimons, 2016), they may be linked with regards to the involvement of emotions. Indeed, the Good Childhood Report defines well-being as consisting of both life satisfaction *and* the experience of positive and negative emotions at a particular point in time (Pople et al., 2015). At the very least, these studies highlight the importance of gaining children's subjective

perceptions about their lives which can help to develop understanding around improving intervention and treatment for those experiencing emotion-based mental health disorders. Furthermore, it is important at this point to differentiate emotional ill-health from mental health disorders which can be life-long, immutable conditions. This will be explored in more detail in a later section.

It has been suggested that the majority of CYP with mental health problems remain unidentified and untreated (Stallard, 2010) and it has been reported that less than 25-35% of those with a diagnosis have been able to access support (NCB, 2015). These concerning statistics have prompted widespread efforts at a government level to investigate ways of improving the mental health of CYP in the UK (e.g. DH, 2011; DH, 2014; DH and Department for Education [DfE], 2017).

2.2.1 Children and Young Peoples' Mental Health in Schools

It is argued that schools present an ideal environment for the detection, early intervention and treatment of emotional and mental health issues, and that they may enable treatment to be more accessible and less stigma-inducing (Masia-Warner, Nangle & Hansen, 2006). School-based programmes have the advantage of reaching greater numbers of children who may be at risk of experiencing mental ill-health, and staff are well-placed to monitor, adapt and track specific programmes (Rait, Monsen, & Squires, 2010). Furthermore, the school environment may facilitate the acquisition of skills, due to it being viewed as a place of learning (Rambaldo, Wilding, Goldman, McClure & Friedberg, 2001).

Government advice from both the health and education departments suggests that schools can contribute to the mental health and wellbeing of pupils (DENI, 2014; DH, 2014). The special educational needs and disability (SEND) code of practice (CoP) states that every school must use their best endeavours to ensure that children with SEND, which include SEMH needs, get the support they need (DfE, 2015). The SEND CoP reports that early identification and intervention can significantly reduce the need for more costly intervention at a later stage, and that "*schools should ensure they make appropriate provision for a child's short-term needs in order to prevent problems escalating*" (DfE, 2015,

6.22). Recommendations include using a ‘graduated response process’ (assess – plan – do – review) to put support in place (DENI, 2014).

Government initiatives have focused on strategy to promote children’s mental health and wellbeing. For example, the *No Health without Mental Health* initiative (DH, 2011) states that “*By promoting good mental health and intervening early, particularly in the crucial childhood and teenage years, we can help to prevent mental illness from developing and mitigate its effects when it does*.”. A second document, *Closing the Gap: priorities for essential change in mental health* (DH, 2014) highlights the lack of appropriate current provision, and the individual and social implications of unmet need. In 2013, the National Institute for Health and Care Excellence (NICE) published *Social and Emotional Well Being for Children and Young People,* which is intended to help Local Authorities (LAs) and their local partners to meet the objectives outlined in the public health outcomes framework for England (2013-2016).

Education initiatives have included *Social and Emotional Aspects of Learning* (SEAL)(DCSF, 2005) which endeavoured to provide a comprehensive whole school approach to promoting social and emotional skills, and the *Targeted Mental Health in Schools* (TaMHS) project (DCSF, 2008) which sought to transform the delivery of mental health support to children through school-based interventions. Given the research suggesting the limited effectiveness of such initiatives in reducing emotional problems (e.g. Humphrey, Lendrum & Wigelsworth, 2010; Wolpert, Humphrey, Belsky & Deighton, 2013), more recently, guidance to schools has highlighted the importance both of supporting and promoting mental health and wellbeing through prevention, early identification and support, and also providing opportunities for access to specialist support (DfE, 2014, 1.2).

In December 2017 a Green Paper, *Transforming children and young people’s mental health provision,* (DH and DfE, 2017) set out measures to improve mental health support, focusing in particular on provision in schools and colleges. The paper set out three key proposals: to incentivise and support all schools and colleges to identify and train a Designated Senior Lead for mental health, to fund new Mental Health Support Teams, supervised by NHS children

and young people's mental health staff and to pilot a four-week waiting time for access to specialist NHS children and young people's mental health services. The paper states that "*there is evidence that appropriately trained and supported staff such as teachers, school nurses, counsellors and teaching assistants can achieve results comparable to those achieved by trained therapists in delivering a number of interventions addressing mild to moderate mental health problems*".

2.2.2 The Mental Health of Children and Young People with Learning Disabilities

Learning disability refers to a significant impairment of general intellectual and adaptive functioning that originates in childhood. This means that CYP with LD will find it harder than other children to understand, learn and remember new things (Lenehan, 2017). It results from a range of different aetiologies, including genetic syndromes such as Down Syndrome (DS), William's Syndrome (WS), Fragile X Syndrome, as well as other unknown causes (Hronis, Roberts, & Kneebone, 2017). A learning disability can be described as mild, moderate, severe or profound. Although there is no nationally recognised method of differentiation, intelligence quotient (IQ) can be measured using normative tests of cognitive ability, and reported as a percentile and/or standardised score. This score is calculated from an accumulation of measured skills, typically including memory, information processing speed and verbal and non-verbal reasoning abilities, and there may be variance across the abilities of a particular individual. There is also variation in how learning disability is classified in research, with many studies defining their sample on IQ which can range from <70 to <80 ('moderate' to 'mild' LD) (Whitaker & Read, 2018). It is therefore important at this initial stage to point out that the term 'learning disability' does not denote a homogenous group, but rather a continuum of difficulties in specific areas of brain functioning, which can be wide ranging in terms of severity.

It is believed that young people with LD are even more at risk of experiencing mental health issues than their typically developing peers, with figures being as high as between 36% (Emerson & Hatton, 2007) and 50% (Einfeld, Ellis & Emerson, 2011). This variation could be due to methodological limitations, such as biased sampling, differences in assessment instruments and diagnostic criteria and small sample sizes (Einfeld et al., 2011). However studies that have

incorporated full psychiatric assessments have reported similar rates of mental health disorder of between 36-39% (Reardon, Gray, & Melvin, 2015).

2.2.3 The Social-Emotional Development of Children with Learning Disabilities

The prevalence of mental health problems in this population may be a consequence of innate factors such as communication difficulties and limited coping strategies and social skills. In Patalay and Fitzsimons' aforementioned study (2016) into the correlates of mental illness and wellbeing in children, learning and communication difficulties were associated with greater symptoms of mental illness, but were not associated with wellbeing. Nevertheless, difficulties are likely to be compounded by external factors such as socioeconomic deprivation, out-of-home care, adverse life events and inadequate educational provision and supportive services (Lenehan, 2017).

Sadly, 44% of families of CYP with LD and a diagnosable psychiatric disorder reported that they had received no helpful support from services (Emerson & Hatton, 2007). Most of those who had received support reported that the most helpful source was the pupil's teacher (Emerson & Hatton, 2007). The consequences of a lack of support and appropriate intervention can be extremely adverse, both for the young person and their families. This has led some to reconstruct the way that we view and conceptualise learning disability.

Traditionally there has been an assumption that mental health difficulties in children with LD relate to impaired cognitive skills such as difficulties with language and verbal reasoning. For example, studies have suggested that social anxiety may result from difficulties in interpreting social events due to cognitive processing problems (e.g. Spafford & Grosser, 1993). However, the development of social-emotional skills is also frequently impaired in CYP with LD, with the result that students with LD often report less satisfaction with peer relationships than those without LD (e.g. Gregory, Shanahan, & Walberg, 2016). Such insights have led some researchers to reconceptualise learning disability so that it incorporates the domains of emotional, social and behavioural development alongside cognitive/academic functioning. Bender and Wall, (2012) reviewed the literature on the comorbidity of difficulties in these domains with intellectual disability and formulated a model of learning disability which they conceptualise as a 'Wheel of successful outcomes'. Their theory

does not suggest that all those with LD will automatically develop social, emotional and behavioural difficulties, however it recommends that there should be an awareness of how the interaction of 'variables' can have a detrimental effect on life outcomes. For example, the authors cite research which demonstrates a higher prevalence of young people with LD being involved with juvenile authorities and law courts than non-disabled students. The interactive model suggests that a service delivery plan must therefore include attention to each of the potential contributory factors, and recognise the need for interventions in school which target more than just academic remediation.

This section has considered the prevalence of mental health difficulties in CYP, focusing in particular on those with LD; and discussed the need, recognised now at a government level, for early identification and intervention, including in schools. The next section will focus specifically on anxiety, and then move on to consider how and why CBT has become a recognised intervention for the treatment of anxiety, in children, adults and people with LD.

2.3 Anxiety

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013), anxiety disorders can include debilitating levels of fear and anxiety in response to a physical or cognitive stimulus which leads to changes in behaviour to mediate the emotional response to the anxiety producing stimulus. The experience (and clinically recognised features) of anxiety can have cognitive, psychological and physiological components including fearful anticipation, irritability, memory problems, hyperventilation, sweating and chest pains (Suganya, 2015). The International Classification of Diseases (ICD-11) (2019) identifies that fear and anxiety are closely related phenomena, however, a differentiating feature is that fear represents a response to a perceived imminent threat, whereas anxiety relates to a perceived anticipated threat that is more future-orientated.

The latest edition of the DSM-5 took steps to convey more information for a *dimensional* view of symptoms and capture more precisely the nature and severity of conditions (Kupfer, 2015). This reflects an ongoing debate between 'categorical' and 'dimensional' definitions of anxiety, and some have argued that research may benefit from an understanding of anxiety along a continuum. This

would allow consideration of the severity of dysfunction, rather than simply its presence versus its absence, and it has been argued that continuous scores tend be more stable over time and display higher levels of reliability than dichotomous measures (Watson & Watson, 2005). In other words, anxiety can be viewed as a pathological state which is qualitatively different from, and not explained by, normal states and processes, or it can be viewed as arising from exaggerated or extreme versions of normal processes, i.e. at one end of a continuum rather than in a different dimension. The latter view is adopted in CBT (Westbrook, Kennerley & Kirk, 2011).

The 'dimensional' view of anxiety recognises that most people experience it at various points in their lives, but acknowledges that anxiety can become a problem when the symptoms are intense or long-lasting and begin to interfere with a person's concentration and ability to do routine tasks. At this point, it is suggested that people may avoid situations that could provoke feelings of anxiety, feel embarrassed or ashamed a lot of the time, may not have the confidence to face new challenges, or have problems eating and sleeping (Place & Row, n.d.). When symptoms are excessive and persist for at least six months, then an anxiety disorder may be diagnosed.

In the UK, clinical guidance from the National Institute for Health and Clinical Excellence (NICE) for the treatment of Generalised Anxiety Disorder (GAD) and Panic Disorder in Adults recommends stepped interventions, with step one being 'Identification and assessment, education about GAD and treatment options and active monitoring', step two being 'low intensity psychological interventions, individual non facilitated self-help, individual guided self-help and psychoeducational groups', step three being 'choice of a high-intensity psychological intervention (CBT/ applied relaxation) or a drug treatment' and step four 'highly specialist treatment, such as complex drug and/or psychological treatment regimens, input from multi-agency teams, crisis services, day hospitals or inpatient care' (NICE, 2011).

Anxiety disorder is reported to be one of the most prevalent conditions in CYP who experience mental health problems. In 2005, statistics demonstrated that of the 10% of CYP in the UK with a diagnosed mental health issue, 30% had a

diagnosed anxiety disorder (Green, McGinnity, Meltzer, Ford & Goodman, 2005). Twelve years on, figures demonstrated that emotional disorders were still the most prevalent type of mental disorder in 5-19-year-olds, with 8.1% of this age group experiencing significant emotional problems, and 7.2% being diagnosed with an anxiety disorder. It appears that rates of emotional disorder have increased in the 5-15 age range, rising from 4.3% in 1999 to 5.8% in 2017 (NHS digital, 2017), although this may be due to changes in diagnostic practices.

There are different types of anxiety disorder, the most common ones in children being a fear about something specific (phobias), separation anxiety (SAD), social phobia (SoP) and GAD (DSM-5, American Psychiatric Association 2013; NHS, 2020). Each one is said to develop differently throughout childhood and adolescence, with SAD being most prevalent in preschool and declining rapidly throughout Primary school, SoP increasing throughout development, particularly in late childhood and early adolescence and GAD tending to increase in girls and decrease in boys in late childhood (Green et al., 2015). Social phobia involves the fear and avoidance specifically of the scrutiny of others, due to fearing that one's behaviour will be humiliating or embarrassing, whereas in GAD the anxiety is not confined to one particular focus (DSM-5, American Psychiatric Association, 2013).

Anxiety is associated with reduced educational achievement, risky behaviours and mental health difficulties, whereas reduced levels of anxiety are associated with improved social functioning, family functioning and quality of life (Arch, Eifert, Davies, Vilardaga, Rose & Craske, 2012; Wood, 2016). Its effect on academic achievement has been explained by research which indicates that high levels of anxiety can have a detrimental effect on the performance of academic and cognitive tasks (Nelson & Harwood, 2011). This is because anxiety-induced irrelevant and distracting information can disrupt attentional focus and take up space in working memory (Eysenck, Santos, & Calvo, 2007).

2.3.1 Anxiety in Children and Young People with Learning Disabilities

It has been argued that anxiety can develop as a result of learning disability, since children learn early on that academic progress is an important and socially valued achievement and therefore anxiety may develop in anticipation

of possible academic failure (Cohen, 2015; Nelson & Harwood, 2011). However, as discussed in the previous section, anxiety may exacerbate learning difficulty by impacting executive functioning skills such as meta-cognition, working memory and attention (Eysenck et al., 2007), and as such it may be viewed as a transactional process.

It has been proposed (Cohen, 2015) that anxiety in children with LD is less 'consciously' experienced than by typically developing children, which may exacerbate its manifestation. Cohen argues that for some children, the learning environment is associated with fear, due to repeated experiences of failure and confusion, and therefore humiliation and 'helplessness'. However, due to difficulties incurred by the learning disability (e.g. reduced ability for monitoring and regulating responses), these experiences cannot be anticipated or predicted, and anxiety cannot be modulated.

As stated previously, it is thought that CYP with LD are more likely to develop mental health problems than those without, and anxiety specifically has been reported to be the most prevalent mood disorder in this population (Emerson, 2003). A study in the UK which examined the presentation and development of clinical levels of anxiety in children with LD (n=74) compared with typically developing children (n=116) found that children with LD had significantly higher rates of anxiety (measured using the parent-rated Child Behaviour Checklist) at the ages of 8-9 and higher rates of separation anxiety at the age of 5 than their typically developing counterparts (Green et al., 2015).

Research in the US employing a meta-analysis of 58 studies has suggested that approximately 70% of pupils with LD experience higher levels of anxiety than those without LD (Nelson & Harwood, 2011), although there was a difference in the magnitude of the effect size according to whether symptoms were self-reported, or reported by teachers or parents. Researchers reflected upon whether this discrepancy was due to pupils underreporting or adults overreporting symptoms, but suggested that the ability to reflect on and report emotional responses is partly dependent on metacognitive abilities, and therefore surmised that the former was a more accurate interpretation of results.

Another factor which may have explained the heterogeneous results was whether pupils were in special educational provision or mainstream schools. Nelson and Harwood (2011) reported that the difference in anxious symptomatology approached statistical significance, with those in special education reporting higher levels of anxiety than those in mainstream. They postulated that this may have been due to increased severity of LD in those in special education, although point out that the effect sizes generated for special schools were based on only six schools.

We have seen how anxiety, and mental health difficulties more generally, are commonly experienced by people with LD. The next section aims to evaluate the effectiveness of CBT to treat anxiety, but also considers whether CBT in general can be viewed as an appropriate intervention for people with LD.

2.4 Cognitive Behavioural Therapy

The traditional model of CBT suggests that an event, in association with a person's beliefs, thoughts and interpretations can bring about certain emotional or behavioural consequences. The role of the associated cognition is important, since it differentiates the experience of the individual, without which the emotional response to the same event would be the same in everyone who experiences it. Beck's model (Beck, Rush, Shaw & Emery, 1979) proposes that these core beliefs or 'schemas' are developed in early childhood, and that they are reinforced by new experiences being filtered through them, so that only information which supports them is retained. They can therefore, when irrational, be at the root of mental health issues such as anxiety, since they can lead to distorted patterns of thinking, known as automatic negative thoughts, which are the interpretations or meanings that we take from what happens around and within us. Dysfunctional assumptions can be viewed as bridging the gap between core beliefs and negative automatic thoughts, and can be considered as 'rules for living' which often take the form of 'if…then…' propositions. CBT theories propose that characteristic forms of cognition are associated with particular kinds of emotional problem. For example, in anxiety, there is thought to be a bias towards the over estimation of threat, perceived as a high risk of an unwanted outcome (Westbrook et al., 2011). The role of the therapy is to challenge or alter those beliefs/thoughts.

When considering the reduced cognitive functioning of children and adults with LD, it is important to note that cognitive techniques need not be considered as "all or nothing" (Willner, 2006). Cognitive techniques range in complexity (Sauter, Heyne & Westenberg, 2009) and some may be more appropriate for particular clients than others (Hronis, Roberts & Kneebone, 2017). This will be considered in more detail in a later section.

In the second edition of 'What works for whom?' (Roth & Fonagy, 2005) CBT is cited as an evidence-based therapy for the treatment for most psychological disorders in adults, which has more support than any other therapy. The National Institute for Health and Care Excellence (NICE) currently recommends CBT for the treatment of social anxiety disorder in adults and children, and for the treatment of mental health problems in people with LD.

2.4.1 Cognitive Behavioural Therapy to treat Anxiety in Children

A number of recent studies have demonstrated the effectiveness of CBT in treating anxiety in CYP. For example, one wait-list control pilot study in the US evaluated the effectiveness of a 12-week manualised CBT programme for 32 children as young as 5 years old (Monga, Young, & Owens, 2009). It found a significant reduction in anxiety symptoms using standardised, parent-reported measures following treatment, although there was no follow-up measure to examine whether improvement was maintained, and results were limited by the demand effects of parents completing questionnaires following treatment.

A study which examined the effect of a group-based manualised programme on nine 8-11 year-old children found a statistically significant reduction in symptoms of anxiety (O'Callaghan & Cunningham, 2015). However, there was no control group, and no measure to see if results were maintained. In addition, the study relied upon self-report measures, which may have incurred demand characteristics, such as participants responding in accordance with social expectation.

A systematic review, of 41 studies and 1806 participants, addressed these issues by examining whether CBT was an effective treatment for anxiety in comparison with wait-list controls, non-CBT treatments and medication, and the long-term effects of CBT (Ac, James, Fa, Soler, & Choke, 2013). It found that

CBT was significantly more effective than no therapy, but that it was no more effective than other ‘therapies’, such as self-help books. Due to the small number of studies, the researchers couldn’t compare CBT with medication, and since only four studies investigated long-term outcomes, they found no clear evidence to demonstrate that improvement could be maintained. The authors also examined whether CBT was more effective when delivered individually, as a group, or with the attendance of parents, and found no clear evidence to indicate that one mode of delivery was more effective than another.

One specific programme based on CBT for children called “FRIENDS for Life” has been endorsed by the World Health Organisation (WHO), as “efficacious across the entire spectrum, as a universal prevention program, as a targeted prevention program and as a treatment” (WHO, 2004). Its effectiveness for the treatment of anxiety has been assessed by a number of meta-analyses of randomised control trials (RCTs) with promising, although inconclusive results. E.g. Briesch, Hagermoser Sanetti and Briesch (2010) found that effect sizes (ES) ranged from 0.16-1.00, and that these were greater for those diagnosed with an anxiety disorder (ES=0.84) and for those ‘at risk’ of developing anxiety (ES=0.44) than for the general population (ES=0.24). This is not surprising given the likely floor effect, and does appear to support the programme’s validity as a preventative tool. Nevertheless, methodological issues have been raised, (Briesch et al., 2010; Maggin & Johnson, 2014) involving the lack of multiple assessment methods and/or sources, inappropriate units of analysis (e.g. randomly allocating the intervention to whole schools, rather than to individuals within a school, but analysing data as if the latter were true) and not ensuring group equivalency or using covariates to control for the effect of variations. In a more recent systematic review (Higgins & O’Sullivan, 2015), further research is recommended to address methodological concerns related to analysis, such as correcting for multiple contrasts, ensuring that control groups are matched, and detailing attrition rates. Nevertheless, all reviews found that the programme had a positive impact on anxiety measures compared to control groups and that promising results had been identified regarding the longevity of effects.

2.4.2 Cognitive Behavioural Therapy and People with Learning Disabilities

It has been suggested that people with LD are likely to experience circumstances and life events which put them at an increased risk of developing mental health problems (Hastings, Hatton, Taylor & Maddison, 2004). Although there is considerable variation in the prevalence rates of mental health issues in this population due to the diagnostic criteria applied and sampling methods employed in studies (Tsimopoulou, Kroese, Unwin, Azmi & Jones, 2018), it has been suggested that as many if not more adults within this demographic experience mental health problems than in the general population, with estimates being as high as 40.9% of adults with LD having a clinical diagnosis of mental ill-health (Cooper, Smiley, Morrison, Williamson, Williamson & Allan, 2014).

Historically, treatments have largely consisted of medication and/or behavioural interventions (Vereenooghe & Langdon, 2013). However, national guidelines from the Department of Health state that people with LD should be offered the same treatments for mental health issues as those without a disability, and that reasonable adjustments should be made if necessary (Dagnan, Burke, Davies & Chinn, 2015). CBT has been recommended by NICE (2009) and by the British Psychological Society (Banks, Beail, Irvine, Howie, Attavar & Marsden, 2016) for people with LD, with recommendations provided on how it might be adapted.

Towards the end of the last century, research began to emerge demonstrating the potential benefits of CBT for treating people with LD (e.g. Dagnan & Chadwick, 1997). This was initially controversial due to the assumption that this demographic may not have the cognitive abilities necessary for such a treatment to be effective (Sturmey, 2006). This was because it was assumed that they would be unable to engage in the cognitive activities necessary for understanding irrational thoughts, cognitive distortions and cognitive restructuring. (Ghafoori, Ratanasiripong, & Holladay, 2010).

To benefit from CBT, individuals are said to need to be able to: understand the mediating role of thoughts in emotional responses, link activating events to emotions, and differentiate between feelings, thoughts and behaviours (Hatton, 2002). It has been shown that clients with mild intellectual disabilities have the

skills necessary to be able to recognise and label emotions (Joyce, Globe & Moody, 2006), link situations to emotions (Dagnan, Chadwick & Proudlove, 2000) and discriminate between thoughts, feelings and behaviours (Sams, Collins & Reynolds, 2006), however the ability to understand the mediating role of cognitions is likely to decrease in line with receptive language ability (Taylor, Lindsay, & Willner, 2008). Nevertheless, it has been demonstrated that training prior to CBT can greatly enhance the effectiveness of treatment (e.g. Bruce, Collins, Langdon, Powlitch & Reynolds, 2010), particularly with regards to developing cognitive mediation skills (Tsimopoulou, Kroese, Unwin, Azmi & Jones, 2018).

A study by Turk and Francis (1990) attempted to adapt a CBT programme for people with LD, and found that the intervention was not long enough for participants to generalise the skills and that they forgot much of their learning. As discussed in her book, Stenfert Kroese (2014) points out that a key consideration when adapting CBT for people with LD is their ability to generalise and maintain techniques learned in sessions. Some studies have advocated involving the staff who work with participants to assist them in learning and remembering skills (e.g. Moore, Adams, Elsworth & Lewis,1997; Rose, West & Clifford, 2000). Rose, Loftus, Flint and Carey (2005) found, for example, that a greater reduction in anger was seen in participants who had a higher receptive vocabulary and who were accompanied immediately after the group by staff members who knew the clients. Others have recommended that participants practise skills learnt through homework exercises (e.g. Allt, Fenner & Marvell, 1997; Jahoda, Selkirk, Trower, Pert, Stenfert Kroese & Dagnan, 2008), and that the use of visual techniques can assist the retention of skills (Chapman, Shedlack, Hospital, France, & Hospital, 2006).

The evidence base for the effectiveness of CBT for people with LD has been greatly augmented by the publication of controlled trials for treating anger issues (Felce, Cohen, Willner, Rose, Kroese, Rose & Hood, 2015; Nicoll, Beail, & Saxon, 2013; Willner et al., 2013) which have demonstrated significant improvement at outcome measures, that have also been sustained at follow-up. Research has also demonstrated its efficacy for treating depression. For example, two studies have found large effect sizes for decreases in depression

(Hartley, Esbensen, Shalev, Vincent, Mihaila & Bussanich, 2015; Lindsay, Tinsley, Beail, Hastings, Jahoda, Taylor & Hatton, 2015), and three have found have medium effect sizes (McGillivray & Kershaw, 2015; McGillivray, McCabe & Kershaw, 2008; McCabe, McGillivray & Newton, 2006), although results are constrained by the small sample sizes and lack of randomisation in all but one of these studies. Furthermore, only one small-scale study (Hartley et al., 2015) found that improvement was sustained at follow-up.

It should be noted at this juncture that there are two distinct approaches to cognitive therapy which have been used with people with LD (Dagnan & Chadwick, 1997). These are the 'deficit' model which assumes that emotional problems are due to a lack of cognitive skills and processes, and the 'cognitive distortion' model which has been developed from a psychotherapeutic tradition. In Beck's latter model (1979), unhelpful or irrational emotions and behaviours are thought to be the products of distorted beliefs, attributions and inferences, and treatment involves 'restructuring' these cognitions. However, CBT methods of restructuring for people with LD range from verbal self-regulation processes such as using prompt cards to initiate self-statements (e.g. Prangnell & Green, 2008) to Socratic approaches in which the evidence for and against distorted cognitions are examined (e.g. Lindsay et al., 2015). This highlights the importance of describing interventions in explicit detail, so that practitioners are able to select the most appropriate model based on the cognitive abilities of their clients. It also demonstrates the inherent difficulties in evaluating studies which proport to use CBT to treat emotional problems in people with LD, where needs might vary and where 'CBT' can incorporate a wide range of very different procedures and techniques.

A recent paper by Surley and Dagnan, (2019) reviews the adaptations to CBT which have been employed in 23 studies where this therapy has been used to treat people with LD. It draws from a framework created originally by Hurley, Tomasulo and Pfadt (1998) to identify the adaptations which are made in individual psychotherapeutic work with this population, and highlights those which have been reported to be effective in CBT. These include adapting activities, using a directive style (e.g. setting an agenda and maintaining a

consistent structure), adapting language, involving caregivers, incorporating flexibility and simplifying concepts.

In the next section consideration will be made of how some of these adaptations have been incorporated into CBT for CYP with LD.

2.4.3 Cognitive Behavioural Therapy and Children and Young People with Learning Disabilities

This section aims to review the literature on the effectiveness of CBT with CYP under the age of 18 years, who have a learning disability. In order to carry out a thorough evaluation, a comprehensive systematic literature search was performed using the databases psychINFO, Web of Science and Google Scholar, employing the search terms (cognitive behavio* OR CBT) AND (therapy OR intervention OR treatment) AND (child* OR adolescents) AND (intellectual OR learning) in the title. Exclusion criteria consisted of papers not written in English and papers focusing on interventions not considered to contain both cognitive and behavioural elements.

Table 1- Inclusion and Exclusion Criteria for SLR1

Inclusion Criteria	*Exclusion Criteria*
• Children and/or young people with mild/moderate learning/intellectual difficulties	• Adults with mild/moderate learning/intellectual difficulties
• Cognitive Behavioural approach	• Other Psychotherapy
• Peer reviewed papers	• Non-peer reviewed papers
• Individual study	• Meta-analyses/systematic reviews
• Must include empirical data	• Qualitative data
• Must include pre-and post-comparison data	• Does not include both pre- and post-comparison data
• Access to full text	• Access to abstract only

This search identified nine papers which were relevant to the topic, although two were excluded as their focus was on adaptations necessary to make CBT an appropriate intervention for this population (Hronis, Roberts, & Kneebone, 2017; Danial, 2013). The first of these, being peer-reviewed, will be discussed at the end of this section. The seven papers selected were:

1. Hronis, A., Kneebone, I., Roberts, R., & Roberts, L. (2019). Fearless Me ! © : A feasibility case series of cognitive behavioral therapy for adolescents with intellectual disability.

2. Arsenault, P. J. (2018). Cognitive Behavioral Therapy as a Supplemental Treatment For Adolescents with Learning Disabilities.

3. Azizi, A., Drikvand, F. M., & Sepahvandi, M. A. (2018). Effect of cognitive - behavioral play therapy on working memory , short-term memory and sustained attention among school-aged children with specific learning disorder : a preliminary randomized controlled clinical trial.

4. Abdulkader, W. F. A. K. (2017). The Effectiveness of a Cognitive Behavioral Therapy Program in Reducing School Bullying among a Sample of Adolescents with Learning Disabilities.

5. Hamidi, A. (2015). Effectiveness of play therapy based on cognitive-behavioural therapy on loneliness reduction of 9-11 years old children suffering from learning disorders.

6. Mirnaalini, R. V. (2014). The Efficacy of Cognitive Behaviour Therapy in Managing Anxiety in Children with Learning Disability

7. Shechtman, Z. (2014). Cognitive-Behavioral and Humanistic Group Treatment for Children With Learning Disabilities : A Comparison of Outcomes and Process.

Two studies were excluded as they were non-peer reviewed papers (Arsenault, 2018; Hamidi, 2015). The five remaining studies measured the impact of CBT on different dependent variables including bullying. Only two studies investigated the effectiveness of CBT in reducing anxiety. These will be reviewed in more detail, given their relevance to the current study. The

remaining three studies will be evaluated, however, it should be clarified that two of these investigated the efficacy of CBT in improving academic progress/cognitive ability in CYP with a specific learning disability as opposed to a generalised learning (or intellectual) disability. For this reason, and given the limited number of studies overall it was decided that a more in-depth literature review be carried out to examine the effect of CBT on the reduction of anxiety in an adult population with LD, which will be reviewed in a later section.

2.4.3.1 Characteristics and quality appraisal of the studies

Of the two studies which investigated the effect of CBT in pupils with a specific learning disability, one study (Shechtman & Pastor, 2005) compared cognitive behavioural and humanistic group interventions on measures of academic and psychosocial progress in 7-11 year old pupils with LD (n=200). Participants were included in the study if they were judged to be achieving two years behind age expected levels in reading and maths. The researchers hypothesised that a strong connection between emotional and academic functioning would impact the effect of employing a group therapeutic intervention on the reading and maths scores of participants. It reported that pupils in both groups made improved academic progress compared with those who had only received academic assistance, but found that the humanistic group intervention was more effective than the CBT intervention on most measures. The CBT programme was based on one which had been developed by Alyagon and Bracha (1996) to develop coping skills with academic tasks and social adjustment. It did not address the concept of cognitive distortions, nor explore the link between thoughts, emotions and behaviour, but focused instead on developing problem-solving techniques. Therefore, it did not fully incorporate the essential components of CBT.

In a second study (Azizi, Drikvand, & Sepahvandi, 2018), 7-9 year old children (n=35) with specific learning disabilities were randomly allocated to a Cognitive Behavioural Play Therapy (CBPT) group (n=18) and control group (n=17). Group sessions of 60-90 minutes were delivered twice per week for four weeks. The study measured the effect of the intervention on working memory, short-term memory and sustained attention, using standardised cognitive assessments including a computer-based test which measures continuous

visual attention (DAUF). It found that the number of incorrect answers and response time in the DAUF test were significantly reduced in the CBPT group compared with the control, but with low effect sizes. There was no improvement observed in working memory or short-term memory following the intervention of CBT.

Another study (Abdulkader, 2017) compared the pre-, post- and follow-up measures of a researcher-formulated teacher questionnaire on the rate of bullying by 12-15 year-old students with LD, in a randomly allocated experimental (n=21) and control group (n=19). The CBT intervention was specifically targeted at reducing bullying behaviour. It found a significant difference between the experimental and control groups post-intervention, but not at follow-up. The reliability of the results is limited by the potential bias of the teachers' responses which may have been subjective, and could have been resolved by triangulating the measures or assessing for inter-rater reliability.

Two studies examined the effectiveness of CBT to reduce anxiety (Mirnaalini, 2014; Hronis, Kneebone, Roberts & Roberts, 2019). The first of these, conducted in India, examined the effect of CBT on a self-reported measure of anxiety (Screen for Anxiety Related Disorders, SCARED). Groups of 9-15-year-old pupils with LD (n=51) received a week-long CBT intervention, and a pre-post- comparison analysis found a significant reduction in anxiety scores immediately following the intervention. However, the validity of the results is compromised by the absence of a control group, and the reliability of the findings is constrained by difficulties associated with reliance on subject self-reports, such as participants being more aware of their feelings post-intervention and seeking social acceptance by responding in accordance with expectation, and by the novelty aspect of the treatment.

Hronis et al., (2019) used the recommendations from a review exploring the cognitive deficits in CYP with LD (Hronis, Roberts, & Kneebone, 2017) to develop a programme called 'Fearless Me!', a therapist supported online CBT programme specifically targeted at reducing anxiety. This was delivered to 21 12-18-year-old females with mild-moderate LD, who had been recruited from a school for girls with special needs. It adopted a case series design which

collected data on self-reported anxiety symptoms at baseline, throughout the intervention and post-intervention. Measures were triangulated by recording pre- and post-intervention teacher reports (School Anxiety Scale-Teacher Report, SAS-TR) and four parent reports, including the Spence Children's Anxiety Scale: Parent Version (SCAS). Use of the Reliable Change Index and a visual analysis of the results identified reductions in anxiety, which were particularly seen in older adolescents who had demonstrated higher levels of anxiety at baseline. In a discussion of results, the researchers noted that low parental input for some students (e.g. in supporting them to complete online homework tasks, thereby generalising and maintaining learnt skills) may have reduced the effects of the intervention. This study also incorporates a computer-assisted element to the delivery of the CBT which may have augmented the engagement of the participants, and which was also found to be beneficial in reducing anxiety in adults with LD (Cooney, Jackman, Coyle & O'Reilly, 2017).

The promising results of this study suggest that CBT may be an effective treatment for anxiety in CYP with LD. It is useful in offering insights into the adaptations necessary for making CBT accessible to those with LD, which were considered in the previous section. The '*Fearless Me!'* programme was developed drawing on information gathered from a review of the cognitive profiles typical of CYP with mild-moderate LD (Hronis et al., 2017). It identified that this population can experience difficulties with attention, working memory, learning and memory, executive functions and language and reading which may affect their capacity to learn and retain skills taught in CBT. The authors propose that these deficits could be accommodated by adapting resources and techniques to make them more appropriate. This includes incorporating shorter, more frequent sessions, breaking tasks down into manageable units, using engaging, stimulating activities and materials, providing opportunities for interpersonal interactions, reducing verbal demands by using short, simple, explicit instructions and non-verbal techniques such as visual aids. It also recommended that the therapist models skills and incorporates role-play and hands-on activities into the programme, employs multiple teaching examples and modalities, and repetition to support the generalisation of skills, gives more time for information to be processed, provides explicit rules for sessions and

simplifies texts and language. Recommendations are also provided on ensuring the consistency of the location, time and day for sessions, and on involving parents or carers to facilitate and reinforce the practice of skills.

Many of these factors have been incorporated into the intervention which will be delivered as the independent variable in the present study. A description of this, along with the adaptations which the intervention comprises is provided in the next section.

2.4.4 The Feelings Detectives Programme

Feelings Detectives (The Psychology Tree, 2019) was developed from a manualised version of the "FRIENDS for Life" CBT programme which was adapted for children with autism and learning difficulties and called 'Special FRIENDS'. Early research indicated that an adapted version of FRIENDS was successful in reducing symptoms of anxiety (Slack, 2013), however these findings were not replicated by Burke, Prendeville and Veale (2017) when individual facilitators differentiated the delivery of the original FRIENDS materials. This prompted the development of Feelings Detectives as an intervention which could incorporate evidence-based adapted CBT protocol into a manualised programme. It has been piloted and evaluated by assistant educational psychologists in UK schools, but as yet, there is no existing evidence base for this intervention.

Feelings Detectives is a 12-week coping skills intervention programme specifically designed for CYP aged between 7-13 years with social communication and interaction difficulties and learning difficulties. It aims to support them in developing their ability to recognise and understand feelings, manage helpful and unhelpful thought patterns and use effective coping strategies including problem-solving skills. It is delivered by a trained adult to groups of a recommended maximum of 8 pupils, thereby incorporating opportunities for interpersonal interactions, both between adult and pupil, and between group members. The programme is taught using stimulating and engaging materials and resources such as the colourful 'Detective Notebook' (see example pages, Appendices A and B) which introduces the character of 'Feelings Monkey' who will support the pupils or 'trainee detectives' during their

training. It also employs a ‘Detective Wall’ showing the key skills and vocabulary being taught each week.

Key features of the programme include overlearning, via two 30-minute weekly sessions that focus on repeated skills development, chunking of learning tasks, a consistently adhered to structure for sessions, visual resources, simplification of concepts using clear language, modelling and scaffolding learning, opportunities for generalisation, reduced literacy demand and parent/carer involvement in homework tasks. The programme developers have therefore drawn on the research from studies which have employed CBT with adults with LD, as well as the evidence-base for effective mediation strategies to assist academic progress in children with LD, to create an intervention which is designed specifically to accommodate the difficulties which may be experienced by this population.

The paucity of research into effective interventions to treat anxiety in children with LD, and the similarity in cognitive profile of adolescents and adults with LD, directs the researcher to investigate the literature on CBT for the treatment of anxiety in adults with LD. The following section will include a systematic review of the research literature on this topic.

2.4.5 Cognitive Behavioural Therapy to Treat Anxiety in People with Learning Disabilities

Studies on the prevalence of anxiety disorder amongst adults with LD have suggested that it occurs in between 2% and 17.4% of this population (Cooper et al., 2014). This variance may be due to a lack of consensus on how anxiety disorder is defined, inconsistent methods of case identification and a lack of reliable evaluation criteria (Hatton, 2002). Indeed, due to difficulties with detection and diagnosis in people with LD, it is suggested that these figures are likely to be an underestimation (O’Brien, 2007). It is suggested that characteristics associated with learning disability may affect the presentation of symptoms of anxiety, e.g. some people may experience limited ability to interpret internal states, limited facility with expressive and receptive language, limited cognitive flexibility and adaptation, anxiety generated by novelty and limited ability to abstract or plan ahead (Chapman et al., 2006). In addition, it is likely that social circumstances and life experiences will put people with LD at a greater risk of experiencing symptoms of anxiety (Dagnan & Jahoda, 2006).

As previously stated, there has historically been an assumption that adults with LD may not have the cognitive abilities necessary for CBT to be effective in treating mental health issues such as anxiety (Sturmey, 2006). Nevertheless, it has been shown that CBT can be adapted to treat anxiety in children (Ac et al., 2013,) including children under the age of 7 years (Monga et al., 2009), and this has helped to inform practical adaptations that could be used with adults with LD (Whitehouse, Tudway, Look, & Kroese, 2006, ;Banks et al., 2016), and with young people with LD (Hronis, Roberts, & Kneebone, 2017b).

A recent meta-analysis was carried out to compare the effectiveness of different existing interventions to treat anxiety and depression in people with LD (Koslowski, Klein, Arnold, Kosters, Schutzwohl & Salize, 2016). It found that no intervention (psychotherapeutic, biological or system level) gained a clinically significant effect size, however a modest finding was that CBT appeared to be a promising treatment. An earlier meta-analysis reviewed the effectiveness of different psychological therapies for this demographic, and found that CBT was efficacious for both anger and depression (Verenooghe & Langdon, 2013). However, the evidence for the treatment of anxiety is not so robust. The purpose of the following systematic review is to locate and evaluate the most recent studies which have specifically investigated the effectiveness of CBT to treat anxiety in adults with LD.

2.5 Systematic Review

2.5.1 Rationale and Objectives for Systematic Review

It has been suggested that to demonstrate treatment efficacy, it is necessary to run controlled research in which '*it is reasonable to conclude that benefits are due to the effects of the treatment and not to chance or confounding factors'* (Chambless & Hollon, 1998, p.7). According to the hierarchy of evidence (Scott, Shaw & Joughin, 2001) this would ideally be through RCTs, or sub-optimally through quasi-experimental trials. In this review a number of case studies have also been included, provided that they report quantitative data comparing pre- and post-measurement. Although they necessarily have a lower value in terms of the 'weight of evidence' that they provide (Gough, 2007) it was decided that their inclusion would nevertheless contribute to the knowledge base. This

review then, focuses on quantitative studies and poses the question: Is CBT an effective intervention for treating anxiety in people with LD?

2.5.2 Inclusion Criteria

In order to meet the objectives of the review, a search was carried out to identify studies with characteristics that met a specific list of criteria relating to the review question. It was decided that studies focusing on people with severe LD would not be included, as research indicates that they may be unable to access the cognitive demands of the treatment. It was also decided that the review would focus on people with learning/intellectual disabilities alone, rather than with an additional Autistic Spectrum condition or a further subset of people with LD, in order to specifically explore the effects on this population, such that results could be generalisable to this group. The internalising disorder of anxiety was chosen as the dependent variable to measure, as opposed to any other mental health issue, either solely or explicitly; and studies were excluded in which there was not a quantitative measurement of the effect of the intervention on anxiety symptoms, either pre- and post-measurement or comparison with a control group. The search excluded studies with CYP, since these were included in a previous search (and reviewed in an earlier section). Studies in which CBT was delivered face-to-face, to a group and through a computerised method were included.

Table 2- Inclusion and Exclusion Criteria for SLR2

Inclusion Criteria	*Exclusion Criteria*
• People with mild/moderate learning/intellectual difficulties	• People with severe learning disabilities and/or autism, or an additional issue such as sex offending
• Cognitive Behavioural approach	• Other Psychotherapy
• Peer reviewed papers	• Non-peer reviewed papers
• Individual study	• Meta-analyses/systematic reviews

• Outcomes measure change in anxiety • Must include empirical data • Must include pre-and post-comparison data • Access to full text	• Outcomes measure change in depression, anger/aggression, pain or another area of difficulty • Qualitative data • Does not include both pre- and post-comparison data • Access to abstract only

2.5.3 Search Strategies

A systematic search strategy was used in order to gain 'a thorough, objective and reproducible search of a range of sources' (Lefebre,Manheimer & Glanville, 2011). Papers included in this review were identified through a systematic search in three databases: Web of Science, PSYCinfo and Google Scholar. A full list of search terms and the number of articles returned are outlined in Table 3.

Key terms were used in order to retrieve relevant results, pertinent to the research question. These were 'cognitive' and 'behaviour' set in brackets to group them, without the term 'therapy' in the first two searches, in order that these would not exclude alternatives, such as 'intervention'. Terms also included 'disabilities' and 'learning' or intellectual', again grouped in brackets, and wildcards and truncations were employed to find all spelling variations. This resulted in 446 potential articles published in peer-reviewed academic journals.

In addition to the database search, a manual search through the reference lists of several relevant systematic reviews was carried out, resulting in a further seven articles. The studies were managed by the EndNote programme, through which duplicates were removed, following which further duplicates, books and citations were removed by hand (n=287), and abstracts were scanned according to inclusion and exclusion criteria which identified twelve full text articles that appeared suitable to include within the review. Three further articles

were excluded upon full text reading (see Figure 1 for a full deconstruction of the search process). Thus, a total of nine articles were included for analysis.

Table 3- Database Search for SLR2

Database search	*Date*	*Search terms*	*Number of hits*
Web of Science	09/06/2019	TITLE: (cognitive and behavio$r* and ((disabilit* and (learning or intellectual)) not ASD not autis*))	98
Web of Science	09/06/2019	((cognitive and behavio$r* and ((disabilit* and (learning or intellectual)) and anxiety not ASD not autis*)))	6
PSYCinfo	09/06/2019	ti(((cognitive and behavio*r* and ((disabilit* and (learning or intellectual)) not ASD not autis*))))	232
PSYCinfo	09/06/2019	ti(((cognitive and behavio*r* and ((disabilit* and (learning or intellectual)) and anxiety not ASD not autis*))))	16
Google Scholar	09/06/2019	allintitle: cognitive behaviour learning therapy OR intervention -autism -autistic	52
Google Scholar	09/06/2019	allintitle: cognitive behaviour intellectual therapy OR intervention -autism -autistic	34
Google Scholar	09/06/2019	allintitle: cognitive behaviour intellectual anxiety therapy OR intervention -autism -autistic	4
Google Scholar	09/06/2019	allintitle: cognitive behaviour learning anxiety therapy OR intervention -autism -autistic	4

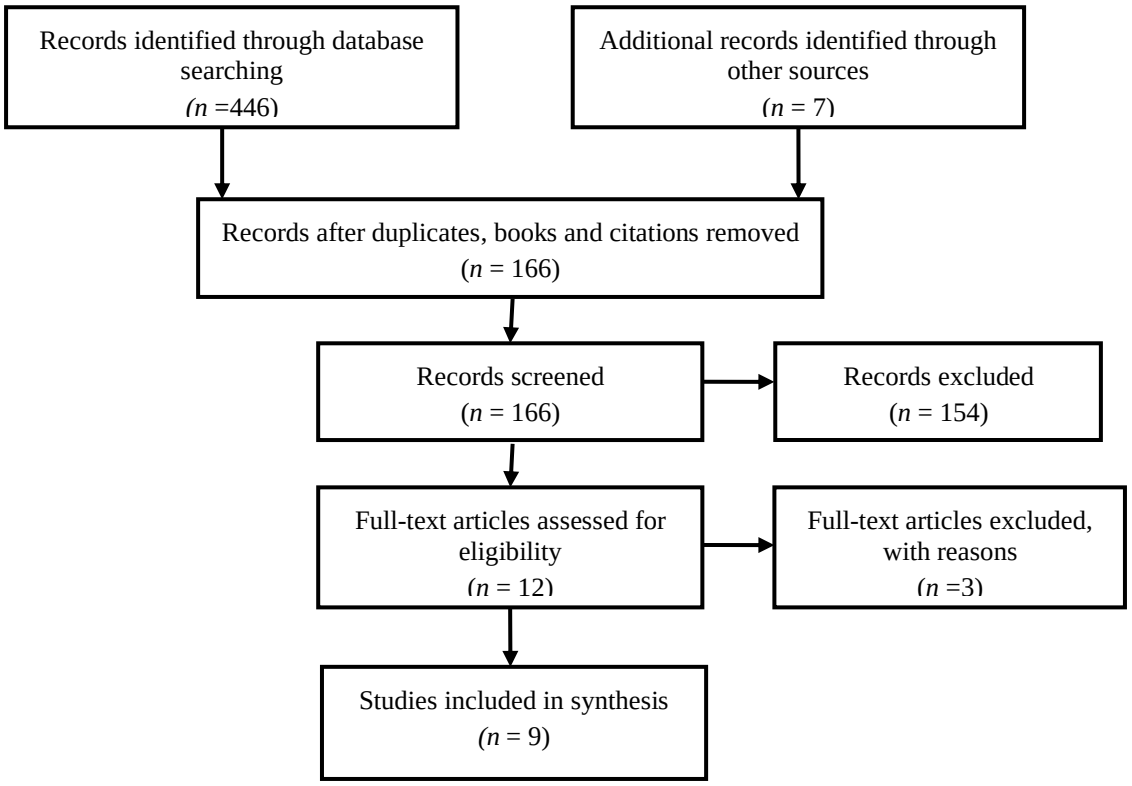

Figure 1: PRISMA flow diagram of database search and study selection (Moher, Liberati, Tetzlaff & Altman, 2009)

The twelve studies assessed for suitability were:

1. Lindsay, W. R. (1999) Cognitive Therapy
2. Chapman, R. A. & Shedlack, K. J. (2006) Stop-Think-Relax: An Adapted Self-Control Training Strategy for Individuals with Mental Retardation and Coexisting Psychiatric Illness.
3. Douglass, S., Palmer, K. & O'Connor, C. (2007) Experiences of running an anxiety management group for people with a learning disability using a cognitive behavioural intervention.
4. Ghafoori, B., Ratanasiripong, P. & Hollady, C. (2010) Cognitive Behavioural Group Therapy for Mood Management in Individuals with Intellectual Disabilities: A Pilot Study.
5. Marwood, H. & Hewitt, O. (2012) Evaluating an anxiety group for people with learning disabilities using a mixed methodology.
6. Hassiotis, A., Serfaty, M., Azam, K., Strydom, A., Blizard, R., Romeo, R., Martin, S. & King, M. (2013). Manualised Individual Cognitive

Behavioural Therapy for mood disorders in people with mild to moderate intellectual disability: A feasibility randomised controlled trial.

7. Cowdrey, F. A. (2014) Exposure therapy for fear of spiders in an adult with learning disabilities: a case report.
8. Stuart, S. Lothian, E., Learning, C., Team, D., Hospital, H., & Road, A. (2014) Doing more feeling better: A behavioural approach to helping a woman overcome low mood and anxiety.
9. Kellett, S., Matuozzo,H. & Kotecha, C. (2015) Effectiveness of cognitive-behaviour therapy for hoarding disorder in people with mild intellectual disabilities.
10. Lindsay, W.R., Tinsley, S., Beail, N., Hastings, R.P., Jahoda, A., Taylor, J.L. & Hatton, C. (2015). A preliminary controlled trial of a trans-diagnostic programme for cognitive behaviour therapy with adults with intellectual disability.
11. Stenfert Kroese, B., Willcott, S., Taylor, F., Smith, P., Graham, R., Rutter, T., Stott, A. & Willner, P. (2016) Trauma-focussed cognitive-behaviour therapy for people with mild intellectual disabilities: outcomes of a pilot study.
12. Cooney, P., Jackman, C., Coyle, D. & O'Reilly, G. (2017) Computerised cognitive-behavioural therapy for adults with intellectual disability: randomised control trial.

One study was excluded on full text reading, due to its focus being mainly on behavioural elements of CBT, and to the learning difficulty of the participant being very mild (Stuart et al., 2014). Another study was excluded because although it measured the effect of CBT on anxiety as a secondary outcome, the primary outcome focus was hoarding, and the CBT programme was specifically designed to reduce hoarding behaviour (Kellett, Matuozzo, & Kotecha, 2015). One further study was excluded since its dependent variable was the Impact of Event Scale, a self-report measurement of the impact of trauma on individuals who experienced Post Traumatic Stress Disorder, rather than a measurement of generalised anxiety (Stenfert Kroese et al., 2016).

2.5.4 Results

2.5.4.1 Characteristics of Studies

A summary of the nine studies can be found in Table 4. A more detailed appraisal of the methodological characteristics and key findings can be found in Appendix C. A total of 94 participants with mild-moderate LD are included, their ages ranging from 17-73 years. Not all studies measured the extent of learning disability in participants. Most relied upon service records, meaning that studies cannot account for possible differences in intellectual functioning. Most studies recruited their sample from community or voluntary organisations providing residential or day services for people with LD.

The dependent variable for the CBT was anxiety alone in three of the studies (Cowdrey, 2014; Douglass, Palmer, & O'Connor, 2007; Marwood, Hewitt, & Service, 2012), and a mixed presentation of emotional problems (i.e. anxiety and depression and/or anger) in six of the studies (Lindsay, 1999; Chapman & Shedlack, 2006; Ghafoori et al., 2010; Hassiotis et al., 2013; Lindsay et al., 2015; Cooney et al., 2017). The results relating to anxiety alone are evaluated here. Most participants' anxiety symptoms in case studies were clinically assessed by psychologists delivering the intervention, and described by the researcher.

The CBT methodology varied across studies. In three studies the intervention was delivered by a therapist (Chapman & Shedlack, 2006; Hassiotis et al., 2013; Lindsay et al., 2015). In four studies the CBT was manualised, entirely or in part (Chapman & Shedlack, 2006; Cowdrey, 2014; Hassiotis et al., 2013; Lindsay et al., 2015) and in one study it was delivered as a computer game (Cooney et al., 2017). In two studies the sessions were attended by participants' carers or support workers (Douglass et al., 2007; Marwood & Hewitt, 2012), and in one other study the involvement of a supporter was actively encouraged (Lindsay et al., 2015). CBT was delivered as a group intervention in three studies (Douglass et al., 2007; Ghafoori et al., Marwood & Hewitt, 2012) and individually in the other six studies. In one study the CBT intervention was focused on the specific area of anxiety experienced (Cowdrey, 2014). Seven of the nine studies reported the use of homework within the programme, and five

studies provided details on relaxation techniques which were incorporated into the CBT.

Table 4- Summary of Study Characteristics

Study (first author)	Participants	Intervention	Design	Main DV	Findings
1. Lindsay (1999)	N=15 Age: Not given LD: Not given	Simplified form of Beck's Cognitive Therapy.	Quantitative case series	Self-reported frequency and intensity of problematic cognitions (BAI or ZAS) Pre-, post- and follow-up measures.	Significant decrease in BAI or ZAS (from 75% to around 40% of total score possible on each scale). Effect maintained at follow-up.
2. Chapman (2006)	N (relevant to this review)=2 Age:67-year old man, 32-year old woman. LD: Mild Intellectual Disability	Stop-think-relax adaptation of CBT delivered individually by therapist.	Two case studies.	Staff-rated checklist of observable behaviours using the ABC Pre- and post-measures.	Significant decrease in scores of 'irritability' and 'hyperactivity' for both participants.
3. Douglass (2007)	N=6 Age:22-65 LD: Mild-moderate. 2 men, 4 women.	Group CBT delivered by assistant and trainee psychologists, LD nurse and OT. Details of techniques provided.	Mixed methods. One group.	GAS-ID (plus self-rating interview and carer-rated impact on anxiety) Pre- and post-measures.	Decrease in GAS-ID scores for three participants, of which two clinically significant.
4. Ghafoori (2010)	N=8 Age: 19-22, Mean 20 LD: Mild-borderline. 2 men, 6 women	Group CBT delivered by clinical psychologist. Details of techniques provided (targeting anger, depression and anxiety management).	One group. Pilot study.	SCL-90-R Pre- post- and 4-month follow-up measures.	Significant decrease in anxiety ($p<.05$) post-intervention. Improvement at follow-up but not statistically significant.

5. Marwood (2012)	N=8 Age:17-73 LD: Mild 5 men, 3 women.	CBT adapted for LD. Details provided. Delivered to group by trainee and assistant clinical psychologists.	Mixed methods. One group.	GAS-LD Pre- and post-measures.	5 participants showed decreased anxiety, but only 2 with clinical significance. Qualitative reports of decrease in anxiety.
6. Hassiotis (2013)	N=32 (randomised to M-iCBT group n=16 Age: Mean 33.7 5 men, 11 women; or control TAU group (n=16) Age: Mean 38 7 men, 9 women). LD: Mild-moderate.	Treatment manual developed specifically for study and reported in full elsewhere (Hassiotis et al. 2011) Delivered by 2 accredited therapists.	RCT Feasibility Study. 2 groups- intervention and TAU.	BAI-Y tested for comprehension in pilot study, and read to participants if required. Administered at baseline, post-test and 6 months follow-up.	No statistically significant difference found in main effects or interactions.
7. Cowdrey (2014)	N=1 Age: 39 LD: Mild Female.	Exposure therapy + additional cognitive components. 'Think-feel-do' resource. Delivered by researcher.	Single case A-B design.	Spider Phobia Questionnaire	10/15 over 3-week baseline, 2/15 at session 11. Staff report that had not been called out to support for 2 months.
8. Lindsay (2015)	N=12 adults in each group Age: treatment group mean: 28.9 Control group mean: 33.1	Trans-diagnostic treatment manual (5 modules) developed by authors used as a procedural guideline (Details provided).	'Waiting list controlled design'. Small 'pilot' study. Quasi-experimental design.	BSI factors of GSI, Anxiety and Depression. Details provided. GAS- LD (self- and carer-reports).	No significant difference between groups at baseline. Marginally significant effect of treatment group on BSI of Anxiety; significant effect of

	LD: Mean IQ of treatment group 62.4, mean IQ of control group 63.9 6 men, 6 women.	Delivered individually by therapist.			group on BSI GSI scores. No statistically significant change between post-treatment and follow-up at 3- and 6-months.
9. Cooney (2017)	Treatment group: N=25 Age: Mean 42.0 8 men, 16 women. TAU group: N=26 Age: Mean 39.2 11 men, 14 women LD: Mild-moderate	CBT computer game developed for adults with LD, to address symptoms of anxiety and depression. Participants played game alongside clinical psychologist.	2 x 3 (group x time) RCT vs TAU	GAS-LD Pre-, post and 3- month follow-up.	Significant reduction in group x time interactions for anxiety, and both its worries and physiological symptoms subscales.

Note. CBT = Cognitive Behavioural Therapy; TAU = Treatment as usual; BAI=Beck Anxiety Inventory; ZAS=Zung Anxiety Scale; GAS-LD = Glasgow Anxiety Scale for People with Learning Disorders; BSI = Brief Symptom Inventory; GSI = Global Severity Index; BAI-Y = Beck Anxiety Inventories-Youth; ABC=Aberrant Behaviour Checklist; SCL-90-R= Symptom Checklist 90-Revised

2.5.4.2 Quality Appraisal

It was decided to include case studies, single-group designs and quasi-experimental trials as well as randomised controlled trials in order to broaden the scope of the review. Each study was then appraised by applying Gough's (2007) Weight of Evidence framework, which delineates the appraisal into three subsections:

Weight of Evidence A: A generic and thus non-review-specific judgement about the coherence and integrity of the evidence in its own terms.

Weight of Evidence B: A review-specific judgement about the appropriateness of that form of evidence for answering the review question, that is, the fitness for purpose of that form of evidence.

Weight of Evidence C: A review-specific judgement about the relevance of the focus of the evidence for the review question.

These sets of judgements were then combined to form an overall assessment *Weight of Evidence D* of the extent that a study contributes evidence to answering a review question.

Criteria for making these judgements were developed based on the quality indicators outlined by Gersten, Fuchs, Compton, Coyne and Innocenti (2005). Each study was scored according to adherence to specific criteria, and the total score determined the Weight of Evidence D. Results are shown in Table 5, and provided in more detail in Appendix D.

Table 5- Weight of Evidence

Study	Weight of Evidence A	Score /20	Weight of Evidence B	Score /5	Weight of Evidence C	Score /4	Weight of Evidence D	Total Score /29
1. Lindsay (1999)	Low	7	Low	2	Medium	3	Low	12
2. Chapman (2006)	Low	11	Low	1	Medium	3	Low	15
3. Douglass (2007)	Medium	13	Low	1	High	4	Low	18
4. Ghafoori (2010)	Medium	15	Low	2	Medium	3	Medium	20
5. Marwood (2012)	Medium	14	Low	1	High	4	Medium	19
6. Hassiotis (2013)	High	18	Medium	3	Medium	3	High	24

7. Cowdrey (2014)	Low	10	Low	1	Medium	3	Low	14
8. Lindsay (2015)	Medium	14	Medium	3	Medium	3	Medium	20
9. Cooney (2017)	High	18	Medium	4	Medium	3	High	25

The sample sizes in all of the research were small (less than 100 participants), which reduces the validity and reliability of the studies. Only two of the studies implemented an RCT design (Hassiotis et al., 2013; Cooney et al., 2017), and one other study sampled participants by service agency (Lindsay et al., 2015) which diminishes its internal validity, since findings may be specific to that agency. All other studies were one group design or case studies, with low reliability and validity.

All studies included employed a quantitative design, using different standardised scales to measure outcomes. Only six studies used measurement scales which had been verified for their reliability and/or validity with an LD population. E.g. one study employed the ABC which has published alpha reliability coefficients of 0.86-0.94 and is a carer-rated behavioural measure (Chapman & Shedlack, 2006), one study used the SCL-90-R which is reported to have high reliability and validity for an adult population with LD (Ghafoori et al., 2010) and four studies used the GAS-ID which has been devised specifically for this population (Douglass et al., 2007; Marwood & Hewitt, 2012; Lindsay et al., 2015; Cooney et al., 2017). Only one study assessed participants' ability to complete self-reports, by testing for comprehension in a pilot study (Hassiotis et al., 2013). Only two studies triangulated the measures by using self-reports and carer-reports (Douglass et al., 2007; Lindsay et al., 2015), and one study used qualitative analysis to supplement findings (Marwood & Hewitt, 2012).

Some studies may have been affected by the 'history' of participants taking psychotropic medication or participating in a different intervention for their anxiety. Only two studies (Chapman & Shedlack, 2006; Marwood & Hewitt, 2012) ensured that medication was not changed during the course of the

experiment, and one study (Cowdrey, 2014) considered the potential effect of previous mindfulness-skills training. Participants were aware (for ethical reasons) that they were being assessed for their response to the intervention. This could have produced demand characteristics such as the Hawthorne Effect (Landsberger, 1958) which suggests that an outcome is affected by a participant being motivated to perform differently due to being observed. There may also have been experimenter effects where the researchers or therapists measured the outcomes; this was acknowledged by only one study (Ghafoori et al., 2010). Since only two studies (Hassiotis et al., 2013 and Cooney et al., 2017) attempted blinding, the other studies are at risk of acquiescence bias and researcher allegiance.

2.5.5 Findings

All but one study reported positive outcomes (Hassiotis et al., 2013 found that treatment as usual (TAU) was more effective at reducing anxiety than CBT combined with TAU). Two studies used Jacobson and Truax's (1991) definition of clinical significance, i.e. that outcomes are significant if post-intervention scores are more than 2 standard deviations below the mean of the pre-intervention sample (Douglass et al., 2007; Marwood & Hewitt, 2012). In these studies, four out of fifteen participants (27%) demonstrated a clinically significant improvement. Two studies (Ghafoori et al., 2010; Lindsay et al*.,* 2015) found a significant reduction in anxiety scores, which was not seen at follow-up, although improvement was maintained. Two further studies reported decreases in anxiety (Cowdrey, 2014; Lindsay, 1999). One study found that participants were able to maintain greater self-control when experiencing anxiety (Chapman & Shedlack, 2006). One RCT study reported a significant group by time interaction, i.e. that the CBT group improved more than the TAU group (Cooney et al., 2017).

2.5.6 Discussion

This review found nine studies which evaluated the effectiveness of CBT to treat anxiety in people with LD. In each of these studies a different adaptation of CBT was employed, such that it is difficult to identify the specific variables that contributed to a positive effect. It is of course vital that we are given a detailed description of the intervention, so that the study can be replicated, and it may be

true that a mixed method approach involving qualitative data can provide us with a richer and more insightful understanding of ‘what works’ and ‘why’. Nevertheless, in this instance, the intention was to determine whether a generic form of CBT may be a beneficial intervention in reducing the symptoms of anxiety in people with LD. This review demonstrated some positive results, however, design limitations constrain the conclusions that can be drawn, and only one randomised controlled study was able to demonstrate less equivocal evidence (Cooney et al., 2017).

Future research may benefit from strictly defining the sample, both in terms of levels of learning disability, and levels of anxiety. The inclusion of participants with sub-clinical anxiety may have resulted in floor effects on outcome measures with the result that change could not be detected. Also, it is worthy of note that the two RCT studies (Hassiotis et al., 2013; Cooney et al., 2017) and the controlled trial (Lindsay et al., 2015) all use ‘trans-diagnostic’ interventions which could be applicable to any mood disorder. However it may be that, as is the practice in mainstream health services (Dagnan, Jackson, & Eastlake, 2018) specific models of CBT are better suited to treat specific diagnoses. Further research is required to investigate whether this is the case with people with LD.

There is also a need for further larger-scale RCTs to gain a more definitive answer to the review question. Although this review suggests that CBT may be more beneficial than treatment as usual, a study which compares CBT with a different form of intervention would reduce confounding factors such as novelty and attention. It is also important to consider the potential for therapeutic techniques used in CBT to promote questions that *invite, generate and reinforce* feelings of incompetence and inability in people with LD (e.g. Gerry & Crabtree, 2013). This raises ethical questions regarding the suitability of CBT with this population. It also focuses attention on whether self-report measures (when these are unaccompanied by other methods such as carer and/or support worker rated behavioural measures) are appropriate ways to capture and evaluate change, since a lack of improvement may indicate participants’ having gained greater levels of insight resulting in a greater tendency to notice and

report symptoms. It has been argued that more holistic, personally meaningful measures (which may address the specific aims of the therapy) might better capture the treatment effect (Unwin, Tsimopoulou, Kroese, & Azmi, 2016). For example, in one study in this review, all participants reported a reduction in worries, despite this not being demonstrated in the quantitative measure (Douglass et al., 2007). Future research could therefore triangulate measures and employ a mixed methods design.

When seeking an answer to a question relating to the effectiveness of a particular intervention in a real-world, ecologically valid context, one is at risk of reductionism, since it is an ecological fallacy to presume that we can draw conclusions about individuals with LD, whether on the basis of a measure of central tendency, or through individual case studies. There may also be any number of variables that contribute to the success or failure of that intervention, particularly those that mitigate against the social isolation that is often experienced by people with LD and emotional problems. For example, there may be long chains of contributory factors or causality, including the interpersonal nature of the relationship between therapist and participant, intrapersonal relationships within the group, and involvement of caregivers or support workers in the programme. Indeed, many studies have discussed the role of the therapist (e.g. Cooney et al., 2017) and the importance of the therapeutic relationship which can benefit from an experience and understanding of working with people with LD. This was lacking in one study (Hassiotis et al., 2013) which may have contributed to the outcome. Other studies discussed the value of the development of relationships with other group members, where CBT was delivered as a group intervention. Comparing group versus individual CBT, and investigating whether involving supporters or whether the therapeutic relationship affects outcomes may be useful areas for future research.

2.6 Conclusion

The purpose of this study is to investigate whether CBT, and the Feelings Detectives programme specifically, is effective in reducing levels of anxiety in CYP with LD. This review has explored the research literature and found that

CBT can be an effective treatment for anxiety in typically developing children and adults with LD. It found two papers which indicated promising results with regards to the effects of CBT on anxiety in CYP with LD. Nevertheless, research is still in its infancy, and the high prevalence rates of anxiety in this population prompt a search for a school-based intervention which can be demonstrated to be an appropriate and beneficial technique for reducing anxiety in these children and young people.

2.7 Rationale

Research needs to be underpinned by theory (Stoiber & Waas, 2002), and as Robson suggests (2002, p.42) it would seem sensible to 'capitalise on any studies where there are relatively strong findings giving support to a particular theory suggesting the operation of certain mechanisms in the contexts of the study'. In this study, different theoretical perspectives form the foundations which guide hypotheses, both in terms of ways to support the learning and retention of skills in young people with LD, and in the conceptualisation of anxiety.

Findings from studies in the general population have shown that the best predictor of positive outcomes for the use of CBT is in the client's level of motivation at the start of the programme (BPS, 2016). In this study, pupils did not refer themselves for treatment, and may not have been motivated to practice techniques and strategies (as advocated in the homework component of the programme). However, it is hypothesised that pupils with LD will require additional support in retaining their learning of these strategies for them to become generalised to contexts beyond the classroom. Various techniques for facilitating retention of skills have been explored, and two in particular have been shown to be beneficial: distributed and interleaved practice (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). In this study, the intervention has been specifically designed to incorporate *overlearning, chunking of learning tasks* and *explicit support for generalisation* (pp. 5-6, The Psychology Tree, 2019).

Safran (1990) suggests that people learn and change through experience in life rather than just in therapy, and Rose, Loftus, Flint and Carey (2005) have found that including staff alongside clients in CBT anger-management groups

improves outcomes. It is therefore hypothesised that the context in which the class teacher and teaching assistant are involved in 'embedding' learning by revisiting it throughout the week will produce the greatest effect on reducing symptoms of anxiety.

Anxiety is conceptualised in this study according to Beck's cognitive model (1979). It is theorised that anxiety is associated with a cognitive bias towards the over-estimation of threat (Westbrook et al., 2011), since it is argued that different people respond to the same stimulus in different ways, due to mediating cognitions through which an event is interpreted. Therefore, it is hypothesised that a programme which challenges these cognitions, described as 'negative automatic thoughts', will be effective in reducing anxiety. In this study, the intervention incorporates the teaching of "*recognising 'helpful and unhelpful' thoughts that can impact on your feelings*", and "*learning and applying a range of problem-solving strategies*" (p.5, The Psychology Tree, 2019).

2.8 Research Questions and Hypotheses

This study will endeavour to investigate whether a CBT-based programme for children will reduce the anxiety of pupils with LD.

The research questions are:

1. Does the Feelings Detectives intervention reduce pupils' anxiety-related behaviour?
2. Does the Feelings Detectives intervention reduce pupils' self-report of their anxiety?
3. Is the Feelings Detectives intervention more effective in reducing pupils' anxiety when its' taught strategies are revisited and embedded by the pupils' teacher and teaching assistant?

The research hypotheses are:

1. The Feelings Detectives intervention will reduce pupils' anxiety-related behaviour.

2. The Feelings Detectives intervention will reduce pupils' self-report of their anxiety.
3. The Feelings Detectives intervention will be more effective in reducing pupils' anxiety when its' taught strategies are revisited and embedded by the pupils' teacher and teaching assistant.

Chapter 3. Methodology

3.1 Introduction

This chapter presents the ontological and epistemological positions which underpin the study, to set the scene and explain the rationale for the research design and procedures which have been chosen. The methods employed during the research are then outlined, including a description of the participants and measures, and a review of the ethical principles which have guided the study. The chapter concludes with an exploration of the potential threats to the reliability and validity of the research.

3.2 Ontology and Epistemology

Research is a "process of *systematic enquiry*, that is designed to collect, analyse, interpret and use *data*" (Mertens, 2007, p.2). There are a variety of different ways of conducting this process, and therefore, the philosophical orientation of the researcher will inevitably influence the methods chosen. Indeed, the ontological and epistemological standpoint of the researcher will govern their beliefs on how reality can be viewed, and how they decide to gain knowledge about that reality. In the following sections, different perspectives will be outlined, culminating in a positioning of this study.

3.2.1 Positivism

The positivist ontology is realism, the view that there exists a single external reality which can be measured, since, epistemologically, objective knowledge is achievable. This knowledge may be acquired through deductive reasoning, wherein a researcher will start with a theory, which will inspire a hypothesis that can be tested empirically. This is done using a fixed design in which quantitative data is produced, systematically and with precision in order that it is reliable and valid.

However, it is contended that direct experience is subjective, and that without acknowledging this, observation and measurement becomes overly deterministic and reductionist. It is now understood that not every observer will observe a phenomenon in the same way, and that the characteristics and perspective of the observer will have an effect (Robson, 2002).

3.2.2 Post-Positivism

Under post-positivism, it is understood that the researcher brings their own values, experiences, culture and language to the experiment, and that these may influence what is observed (Reichardt & Rallis, 1994, cited in Robson, 2002). Although a single external reality exists, it may only be known with reference to this bias, i.e. imperfectly. Therefore, one study cannot establish a truth. It can only contribute probabilities (Mertens, 2010).

It would not be ecologically valid to measure the effect of an intervention away from the real-world context of the classroom, and yet in doing so it must be acknowledged that extraneous variables will pose a threat to validity. Therefore, it is important to follow rigorous procedures to try to reduce researcher bias (Mertens, 2010). The paradigm still adopts a position of deductive reasoning but attempts to find an imperfect and probabilistic truth which becomes more likely as other research begins to contribute its' findings (Robson, 2002).

By setting out to explore whether anxiety and anxiety-related behaviour are reduced by the implementation of the Feelings Detectives programme, this study could adopt a Positivist ontology; however, acknowledgement of the subjectivity with which the evaluation will be carried out requires a Post-Positivist stance. Nevertheless, there are problems with this position, which shall henceforth be explored.

3.2.3 Relativism

In this study, an attempt will be made to measure *anxiety.* This is not an easy undertaking, since anxiety is arguably a construct which can, for convenience sake, be described in terms of behavioural symptoms, for the purpose of assisting one person in judging whether another person is experiencing it. This study will incorporate this post-positivist view of anxiety by measuring 'anxiety-related behaviour'. However, the actual *experience* of anxiety is very difficult to access. We cannot *know* that one person is experiencing exactly the same thing as another person. All we can do is find ways of helping each individual express what they are feeling. Reality, in terms of the experience of anxiety, should also therefore be represented through the eyes of the participants (Fletcher, 1996, cited in Robson, 2002), and will additionally be captured in this

study by instruments which attempt to both quantify the participants' experience, and portray it through language. Therefore, assuming that 'anxiety' does in fact exist, this study takes a relativist position that it can be examined, but not independently of the context in which it is explored or the theoretical beliefs (relating to how knowledge can be obtained) of the researcher. This, the epistemological positioning, will now be discussed.

3.2.4 Evidence-Based Practice

It has been argued, by drawing an analogy with clinical practice in medicine in which decisions around therapy choices for patients are improved by employing research evidence (Hargreaves, 1997), that this maxim should also enhance decision-making in education. In the UK, the drive for evidence-based provision followed in the wake of critical reports such as the Hillage Report (Tooley & Darby, 1998) which focused on the quality of, and access to research informing both policy and school and classroom practice. This cast doubts as to the quality and relevance of existing educational research, as well as its ability to provide practitioners with clear guidance. There is now an "assumption" (Sebba, 1999, cited in Frederickson, 2002 p. 101) that educational policy and practice should be informed by evidence, to ensure that there is consistency in the quality of provision, thereby improving consumer confidence (be it at the level of individual parents, schools, Local Authorities or government) that interventions chosen are likely to be effective. The goal of bridging the research-practice gap, identified in the 1980s and '90s in both the UK and US, continues to be an issue for educational psychologists (EPs) who are being required by Local Authorities to be more specific and evidence-informed in their recommendations for Education, Health and Care plans. Research evidence is vital therefore in generating knowledge that is more valid and reliable than personal opinion, beliefs or values (Fox, 2002).

'Evidence-based' interventions are assumed to be those which have been evaluated by means of empirical scientific research. Robson (2002) defines 'scientific' as research which is carried out 'systematically, sceptically and ethically'. However, in a politically positivist climate, in which consumers seek confidence that chosen interventions will generate desired outcomes, 'scientific' has been equated with 'experimental', and a distinction, particularly in the

Health Service, has been made between good and poor quality research (Fox, 2002). To this end, a hierarchy for judging the quality of research is now widely recognised, at the top of which 'several systematic reviews of randomised controlled trials' constitute the highest standard, and studies which do not involve the random allocation of participants to different treatment groups are not considered to be a valid source of evidence (Roth & Fonagy, 1996).

However, this poses a significant challenge to educational researchers, since the ecological conditions of real-world settings such as schools make it difficult to manipulate independent variables and measure outcomes with the degree of precision that is possible in a laboratory (Stoiber & Waas, 2002). Furthermore, although it may be possible to find strong correlations between an independent variable and a dependent variable, it is extremely difficult to, beyond reasonable doubt, prove that the relationship is a causal one (Biesta, 2007). It has therefore been argued that evidence should be judged as existing along a continuum, rather than efficacious or not, and that there is a place for research which does not necessarily meet the 'gold standard' of the RCT (Stoiber & Waas, 2002).

Nevertheless, whilst there may not be any prescriptively defined criteria for what constitutes 'evidence-based' research, there is however an ethical pre-requisite that underpins this classification. Without empirical evidence to demonstrate that a particular intervention or approach will be at least more efficacious than not intervening, it cannot, ethically, be recommended (Frederickson, 2002). Moreover, without properly controlled experimental research, there is arguably an additional danger that the intervention may cause deterioration or harm compared to not intervening (Frederickson, 2002).

There is therefore a need for research which can demonstrate the efficacy of an intervention through controlled experiment in a real-world setting. However, a second challenge exists for educational researchers, involving the difficulty of being able to generalise findings from group studies to individual pupils. Indeed, as Frederickson argues (2002) the very features of an RCT which give it high internal validity can undermine its external validity. For example, and with relevance to the present study, RCTs compare groups of children which have been purposefully homogenised, however we must acknowledge that there may

be heterogeneity in the way that different children both experience anxiety and respond to a specific programme, and that therefore an idiographic study may well be better suited to investigating a research question which asks, ‘does this work for these pupils, under these conditions?’

Single-subject quantitative quasi-experimental research enables this question to be investigated, by creating a situation in which each participant acts as their own control, and systematic rigorous efforts are made to control extraneous variables in order to establish the evidence as being valid. Single-subject designs are also ecologically valid in that they replicate and are compatible with educational psychology practice which aims to plan, monitor and evaluate the effects of a particular intervention for a particular pupil.

However, if EPs are to be able to judge the applicability of an intervention and tailor it to the needs of an individual pupil, then there is also, arguably, a need to understand the mechanisms which are at work in effecting change. As Hughes argues (2000) it is additionally necessary to know *how* an intervention works.

3.2.5 Critical Realism

A critical realist approach roots the research in its *context*, and acknowledges that, whatever the outcomes, there will be particular, complex mechanisms which have played a role, and which must be *interpreted* (Robson, 2002). Single-subject research, by employing experimental control, has been identified as a valid methodology to establish evidence-based practice in education (Horner, Carr, Halle, McGee, Odom & Wolery, 2005), since it incorporates the systematic rigour that endorses its credibility. However, it also facilitates the opportunity for unpicking and exploring explanations for outcomes. By providing as much detail as possible about what happens in the study, both quantitively and qualitatively, we can also investigate the ‘mediating and moderating factors’ that may have influenced the outcome/s (Stoiber & Waas, 2002).

This is essential in a study which aims to investigate the impact of a programme on *anxiety*, which is a phenomenon that is difficult both to conceptualise and to measure objectively, since it is not empirically observable, and needs to be interpreted and collaboratively defined. The critical realist perspective allows the

researcher to try to understand the phenomenon which is under scrutiny, rather than to simply take for granted that it exists and can, epistemologically, be measured; (and the pragmatist allows this mismatch of paradigms to be accepted, in the interests of utility).

Critical realism also provides a rationale for criticising what has become socially accepted (Robson, 2002). This study was borne out of an awareness that evidence-based interventions to support the mental health of CYP with LD were in short supply. One of the reasons for this arguably is that it is difficult to measure the effects of an intervention as it is experienced by participants if they do not have the language skills to express their experience. Does this mean that we should not use experiment to explore anxiety in an LD population? Accepting this view would leave people with LD vulnerable to interventions which were at best ineffectual and at worst harmful. However, by finding creative ways to enable the experience to be translated in a measurable way, we can challenge the assumption that it cannot be achieved. The critical realist perspective does not merely ask ‘does this work’, but also ‘what can we do to find out?’ and can therefore be emancipatory.

By expanding the study to examine the circumstances under which change occurs, we can introduce situational variables and hypothesise about whether these might affect the outcome. However, it is not proposed that this will be done with the aim of demonstrating linear causation, but rather that it will be carried out in an exploratory way. In this sense the research question goes beyond pragmatic queries around utility e.g. ‘does it work for this person in this context?’, to explore the question ‘what is happening?’ so that outcomes are interpreted, and the scene is set for future research. Frederickson argues (2002) that to establish the effectiveness of a particular intervention there is a need for RCTs, however she also makes the case that single-case studies which are descriptive and information-rich, e.g. describing the participants, the context, how the intervention was administered etc, enable individual practitioners to use the information intelligently to decide whether an intervention might be suitable for a particular pupil. Effectiveness studies of this

nature can form the first exploratory stage of a larger-scale more tightly controlled experiment.

3.3 Research Design

Given its purpose to assess the effectiveness of the Feelings Detectives programme, this study takes the form of 'Evaluation research', which incorporates the fixed design of single-case experiments and a qualitative component to enable the research to explore the mechanisms which may underpin the quantitative data. This may highlight issues with the programme that will need to be changed to increase its likelihood of being effective, and thus although 'summative' by design it may have a formative effect on, for example, how the intervention is delivered in the future (Robson, 2002). It will involve the systematic collection of information to investigate whether the intervention reduces pupils' anxiety, and if so, discuss what might have been happening to enable this to take place.

3.3.1 Case Studies

This research comprised a series of six case studies. Case study methodology enables the researcher to investigate a particular phenomenon whilst retaining the holistic and meaningful characteristics of real-life events (Yin, 2003). A particular advantage of the case study is that it is able to draw from a range of evidence to help answer the research questions. Yin (2003, p.13) defines a case study as "*an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*." They are not limited to one method of enquiry, but can draw upon both quantitative and qualitative data.

Each case study in this research incorporated a single-case experiment, a comparison of pre-post- data and a qualitive component involving structured interviews with participants and teaching staff.

3.3.2 Single-case experiments

Single-case experiments (SCEDs) originated in the work of Skinner (1938, 1953), and his interest in collecting data at the level of the individual rather than the group. They involve repeatedly measuring the effects of an intervention on

the same person, before, during and after the intervention, and collecting observational data on behaviours that occur over these specific periods of time.

Single-case studies have been widely used in special education, since, by employing experimental control, they are useful in providing evidence-based information about non-homogenous populations (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). They are particularly useful when designing educational practices and interventions for individual learners (Horner et al., 2005). The task of the researcher (or 'investigator', Barlow, Nock & Herson, 2009) is to discover functional relations among treatments "*over and above the welter of environmental and biological variables impinging on the [subject] at any one time*" (Barlow et al., 2009, p. 32). The variability of a person's behaviour is subject to a great number of factors, therefore it is crucial to the validity of the SCED that systematic, repeated measures are taken, both prior to and during the course of the intervention, so that this variability can be scrutinised and interpreted.

This is done by comparing within- and between-subject data to control for threats to internal validity, with each participant serving as their own control (Horner et al., 2005). This can be achieved through introducing and then withdrawing the independent variable (an A-B-A or 'reversal' design); staggering the introduction of the independent variable at different points in time (e.g. a multiple base-line design); or manipulating (i.e. changing) the independent variable (or levels of the independent variable) across the observation period (Horner et al., 2005).

3.3.2.1 A-B design

In this study, an A-B, or two-condition design was employed. In an A-B design, data is collected during a base-line phase (A) and across an intervention phase (B), and the researcher analyses the patterns of behaviour between the two phases. Morgan and Morgan (2009) suggest that the baseline measures are continued long enough to establish a "steady state" in which neither a significant upward nor downward trend in the targeted behaviour is observed. The single-case designs technical documentation (Kratochwill, Hitchcock, Horner, Levin, Odom, Rindskopf & Shadish, 2010) recommends that at least three but ideally five data points should be included, so that there is sufficient opportunity to

observe variation. In this study the baseline phase (treatment as usual) continued for four weeks prior to the intervention commencing following the half term break. A longer period was not possible due to the length of the programme, which required twelve weeks for its delivery and would not have permitted the researcher sufficient time for data analysis were it to commence at a later date.

3.3.2.2 Alternative SCED designs

An A-B-A design was not considered to be appropriate for this study since it was assumed that, given the learning that had taken place, it would not be possible to revert back to the pre-intervention baseline condition. However, given more time, a third phase 'C', constituting a phase following learning would have been introduced to investigate whether the effects were *maintained.*

A multiple base-line design involves the application of the intervention at different points of time across settings, behaviours or participants. This was not possible in the present study, due to participants receiving the intervention as part of a group, and therefore at the same time. Although the intervention was delivered to two separate classes, time constraints relating to the length of the programme rendered a staggered starting point impractical.

3.3.3 Independent and Dependent Variables

The Independent Variable was the Feelings Detectives programme which was introduced during the intervention phase (B) of the SCED. The Dependent Variable was pupil anxiety, which was measured in two different ways across the SCED: through repeated self-assessment in order to capture participant experience of anxiety and through staff measurement of observed anxiety-related behaviour. It was important to operationally define this behaviour, so that it could be validly and consistently assessed (Horner et al., 2005). The behaviours were repeatedly recorded throughout the base-line and intervention periods so that patterns of behaviour could be identified and compared prior to and across the intervention phase. In addition, a pre-post- measure of pupil's anxiety was taken employing teacher, parent and pupil questionnaires, to triangulate the data.

3.3.4 Procedure

The study incorporated a single-case experimental design, within two contexts. In the first context, three pupils received the Feelings Detectives as a stand-alone intervention within two 30-minute sessions each week for 12 weeks. This was delivered by the researcher to their whole class (n=12) (class 'B') as a universal preventative programme. The second context involved three pupils in a different class (n=11) (class 'A') receiving the same intervention programme delivered by the researcher to their whole class, but with the explicit involvement of the class teacher and teaching assistant who attended the sessions. The latter learned strategies and techniques from the programme alongside the pupils, and then reinforced them across the week and when circumstantially relevant, thereby 'embedding' them into class practice. Classes in the school are grouped according to learning ability, with pupils in class 'B' being judged to be of higher ability than those in class 'A'.

3.3.5 Interviews

As an effectiveness study employing a critical realist perspective, a qualitative component was deemed necessary to the researcher's epistemological position to assist her in interpreting the quantitative data. To this end, three questions were devised, which were verbally posed to all six participants. These were:

1. What did you think of the Feelings Detectives programme?
   (What did you like? What didn't you like?)
2. What are the main things you have learned?
3. What (if anything) will you be doing differently in the future?

In addition, three questions were also posed to the teacher and teaching assistant in Class 'A'. These were:

1. What did you think of the Feelings Detectives programme?
   (What worked well: ; Even better if:)
2. To what degree do you think that taking part in the programme affected pupil behaviour?
3. What (if anything) will you do differently as a result of the programme?

Responses were recorded and transcribed verbatim (Appendices E and F).

3.3.6 Alternative Research Designs

In traditional experiments, results are given as group averages rather than as individual data. The ‘gold standard’ (Robson, 2002) is the RCT in which participants are randomly assigned to an intervention group and a control group. This was not possible in the current study, due to the researcher delivering the intervention to whole classes to which participants were already allocated. The limited sample size (n=6) meant that a quasi-experimental design was also inappropriate, due to a large number of participants being required for adequate statistical power (Odom, Brantlinger, Gersten, Horner, Thompson, & Harris, 2005). More importantly however, a group design would have eliminated the possibility to gain an understanding of the phenomena under scrutiny, since it is able only to report group means and associated effect sizes, which does not, for example, enable analysis of the *process* of change, only the outcome (Horner et al., 2005). Neither can a group design enable analysis of ‘non-responders’- those for whom the intervention was not effective (Horner et al., 2005). These analyses can be helpful when attempting to identify adaptations to an intervention that may be necessary if it is to be effective for a larger population (Horner et al., 2005).

3.4 Participants and Recruitment

The study took place within a specialist provision for pupils with complex needs, for whom the primary need is learning and cognition. Therefore, although the level of learning difficulty for each participant was not formally assessed in this study, it was reported by the Head Teacher that the admission of all pupils to the school is dependent on their academic functioning being significantly below age expectations.

The school was chosen due to its locational proximity to the researcher, which enabled the intervention to be feasibly delivered twice per week for twelve weeks by the researcher, during her employment as a trainee EP for the Local Authority (LA) Educational Psychology Service (EPS). The school did not have a service level agreement with the LA EPS, and the intervention was delivered during time allocated to university study. Access to the school was achieved formally through a letter (Appendix G). The researcher, having worked in the school previously, approached members of staff whom were known to have a

particular interest in supporting the SEMH needs of pupils, and two teachers volunteered to take part in the study. In considering the potential power imbalance of senior leader involvement, the researcher met with them independently, and any decision making was collaboratively discussed and agreed before seeking approval from the Deputy and Assistant Head Teachers.

The two teachers who agreed to be involved in the study, were, at the initial preparatory stages of the research, the form tutors of classes consisting of pupils in Years 9-11 (i.e. aged between 13-16 years). Although this was slightly above the age range deemed appropriate for the programme, it was decided that the pupils' additional language and communication difficulties might make them suitable recipients of the intervention.

The teachers were asked to select participants from their classes to take part in the study whom they identified as experiencing anxiety, due to their elevated scores on the Strengths and Difficulties Questionnaire (SDQ, Goodman, 2001). Pupils receiving external targeted support via CAMHs for anxiety were not included in the study. Six pupils, three in each class, were chosen and consent for participation was sought from parents (Appendix H) and the pupils themselves (Appendix I). All six received and gave written consent to take part. A description of each participant can be found in Table 6. The names given are pseudonyms.

Table 6- Participant Information

Name	**Class**	**Age at beginning of intervention**	**Gender**	**Learning difficulties and additional needs (information taken from most recent EP reports used in identifying needs for EHCPs). Primary and additional SEN taken from EHCP.**	**Level of anxiety:** **(Emotional Symptoms on SDQ:** **0-4 Average;** **5 Raised; 6 High;** **7-10 Very High)**
Tony	A	15 years, 10 months	M	GCA range for core abilities, (BAS2): non-verbal reasoning- 'below average'; verbal and spatial abilities-'very low'. Word reading (WIAT-II): <0.1st percentile.	Emotional Literacy Checklist (ELC) (Jan 2019) 'Well below average'

				Additional hearing difficulties. Primary SEN: Moderate learning difficulty.	SDQ : 5
Hannah	A	15 years, 3 months	F	GCA range for core abilities, (BAS3): verbal abilities- 'very low'. Word reading and spelling (WIAT-II): 3 years below age expectations. Has a diagnosis of global developmental delay due to a genetic disorder. Primary SEN: Moderate learning difficulty. Additional need: SEMH	ELC (Jan 2019) 'Well below average'; SDQ: 7
Alice	A	15 years, 9 months	F	GCA range for core abilities, (BAS3): verbal abilities- 'very low'. Primary SEN: Cognition and learning. Additional diagnoses: ASD and Epilepsy.	ELC (Jan 2019) 'Below average' SDQ: 6
Libby	B	15 years, 10 months	F	BAS: verbal ability-0.3rd percentile; non-verbal reasoning-0.6th percentile; spatial ability-16th percentile; GCA-0.5th percentile. Primary SEN: Speech, Language and Communication difficulties	SDQ: 5
Caitlin	B	15 years, 10 months	F	Information from EHCP- reading and maths assessed to be at 1st percentile. Primary SEN: Moderate learning difficulty.	SDQ: 5
Jason	B	15 years, 9 months	M	WRIT verbal comprehension- 0.01st percentile; expressive language-1st percentile; non-verbal reasoning-2nd	SDQ: 6

				percentile; visual-spatial ability-14th percentile. BAS2 word reading-0.4th percentile; spelling-1st percentile; number skills-1st percentile. Primary SEN: Cognition and learning. Additional diagnoses: ADHD and Epilepsy. Has had a brain tumour removed.	

EP: Educational Psychologist; EHCP: Education, Health and Care Plan; SEN: Special Educational Need; ELC: Emotional Literacy Checklist; SDQ: Strengths and Difficulties Questionnaire; GCA: General Cognitive Ability; BAS2: British Ability Scales, 2nd Edition; WIAT-II: Wechsler Individual Achievement Test, 2nd edition; ASD: Autism Spectrum Disorder; ADHD: Attention Deficit Hyperactivity Disorder.

3.5 Ethical Considerations

The British Psychological Society (2014) provides guidelines for conducting ethical research. This highlights four key underlying principles which were adhered to in the current study. The first of these relates to respect for the autonomy, privacy and dignity of individuals and communities (BPS, 2014, 2.1). Specifically, this involved gaining valid consent for pupil participation and ensuring that data was managed confidentially.

In this study, six pupils and their parents (being under the age of 16) were invited to take part. Detailed information (as described on pp18-19, BPS, ibid.) on what the research study would involve was provided in a letter and information sheet, and consent was formally requested (Appendix H). Once parental consent was received, participants were informed of what would take place by reading or listening to the information sheet (Appendix I), including that they would be able to discontinue their participation at any point in the study without providing a reason. This was done using language that was accessible, and with the involvement of their school form tutor, to ensure full understanding. They were then asked to sign a consent form, that was devised to maximise accessibility in terms of the language used, font type and size (Appendix I).

The co-operation of staff was sought informally through conversation, and formally through an information sheet and consent form (Appendix J) which

acknowledged their voluntary involvement and ability to withdraw at any point, to ensure that they did not feel under obligation to take part.

No real names were used in the study, as these were replaced by pseudonyms. The name of the school has not been referenced. Any data collected on participants e.g. paper copy questionnaires, has been stored in a locked filing cabinet. Any digital data has been kept on an encrypted computer and encrypted memory stick. All data will be destroyed following the viva.

The fourth BPS principle observed (BPS, 2014, 2.4) relates to a researcher's responsibility to maximise benefit and minimise harm. In the present study, the intervention was delivered to whole classes of 11 (class A) or 12 (class B) pupils. The FRIENDS programme (from which the Feelings Detectives programme has been developed) was created as a universal preventative intervention. Criticisms of universal programmes include factors such as cost and difficulties regarding accessibility (Farrell & Barrett, 2007). Nevertheless, they have also been defended as measures to target anxiety. This is because anxiety has been identified as an internalising disorder, and it may therefore be the case that adults around the child are not aware that s/he is experiencing anxiety (Donovan & Spence, 2000). It is therefore postulated that a universal intervention may both target unidentified pupil anxiety, and work as a preventative tool for increasing resilience against anxiety in the future. The participants in this study received the intervention as part of their weekly curriculum, alongside their classmates. The study was designed to fit in with the school structure and curriculum (the intervention was delivered within time allocated to Personal, Social and Health Education [PSHE]) so that it was practically achievable, and would not require any structural changes to the timetable nor interfere with other subject delivery.

The third of the BPS ethical principles (BPS, 2014, 2.3) refers to the researcher's social responsibility, to ensure that participants are treated safely and fairly, and that their wellbeing is protected throughout the research. This required consideration of a number of factors. Firstly, the participants were required to carry out a weekly self-rating of their anxiety, using the Paediatric Index for Emotional Distress (PI-ED, O'Connor et al., 2010) which was

specifically chosen due to its limited number of questions, or through a simplified rating scale (Appendix K). These were undertaken with school staff support, e.g. in the reading of the questions if necessary, and with specific guidance given to staff that they should not influence the participant's response in any way. Time was put aside for this weekly task so that it did not interfere with lessons or the participant's recreation time.

Participants were selected by staff who knew them well, and whom had been identified as experiencing or being at risk of experiencing anxiety. This did not include those receiving medical, psychiatric or clinical attention for an identified disorder. This was not to exclude them from the study, but to ensure that all pupils taking part felt safe to discuss issues throughout the sessions and could be appropriately supported. The involvement of the Pastoral Support team in the school was sought, both to provide them with an awareness that the intervention would be taking place at a given time each week along with its potential for evoking an emotional response in participants, and to prepare them that their services may be sought following each session to support pupils in calming/relaxation techniques should they require it. Participants and their parents were informed of this in the letter and information sheets (Appendices H and I). The Pastoral Support team were made aware of the content of the programme, so that they had an understanding of the topics covered. Members of the Pastoral Support team had been trained as Emotional Literacy Support Assistants (ELSAs) and therefore had experience in and understanding of how to support pupils who may be experiencing emotional difficulties.

The intervention incorporated group discussion activities, which may have provoked discussion topics that were emotionally evocative. The researcher had a long experience of working as a teacher in the research setting and was fully cognisant of de-escalation techniques employed when students become upset or argumentative with each other. In addition, the researcher ensured that she was up-to-date with the system in place in the school for requesting the intervention of the in-school Behaviour Support team should it be required, which involved telephoning the school office and the team being alerted via a walkie talkie.

Pupils were instructed to restrict topics shared during the intervention to the confines of the classroom, and to not discuss anything shared at different times other than during each session. This is the procedure employed during all PSHE lessons within the school, and pupils were familiar with and practiced in complying with this rule.

The second BPS ethical principle (BPS, 2014, 2.2) relates to the scientific integrity of the research, with which it is hoped that the present study is consistent, thorough its design quality and contribution. It should be acknowledged at this point, that although this study has not been commissioned by the programme developers, the resources were supplied in the interests of supporting this research. However, this will not influence, nor adversely affect the integrity and honesty with which research outcomes are reported.

Approval from the University of Nottingham Ethics Committee was gained on the 26.03.19, and then on the 30.10.19 following amendments to the project (Appendix L). Approval from the Local Authority Ethics Committee was received on 17.05.19.

3.6 Measures

3.6.1 Pre-post- measures

The pre-post-test of anxiety was assessed using standardised measures, which were triangulated to include the perspective of the pupils, their parents and their teachers. Teacher assessments were measured using the School Anxiety Scale-Teacher Report (SAS-TR, Lyneham, Street, Abbott & Rapee, 2008; downloadable from the website address provided in the references), and pupils and parents completed the Spence Child Anxiety Scale (SCAS), Child version (Spence, 1997) and Parent version (Spence, 1999; downloadable from the website address provided in the references). The SCAS child version is a 44-item questionnaire in which participants answer on a Likert scale ranging from never, sometimes and often to always. It demonstrates good concurrent validity and high internal consistency, as well as good internal reliability and high internal validity (Spence, Barrett & Turner, 2003). It was administered to participants by a teaching assistant, who read any questions which were inaccessible due to literacy difficulties. The SCAS parent version is a 38-item questionnaire in which statements are rephrased as observable behaviours. It

has been shown to have satisfactory to excellent reliability, and good convergent and divergent validity (Nauta, Scholing, Rapee, Abbott, Spence & Waters, 2004). The SAS-TR is a 16-item questionnaire which has been found to have high internal consistency and satisfactory test-retest reliability (Lyneham et al., 2008). It was completed by the pupils' form tutors.

3.6.2 Behavioural measures

The single-case experiment incorporated repeated measures of observable behaviours which were construed as being indicative of anxiety by the staff who worked closely with the students on a daily basis. These behaviours were operationally and explicitly defined for each participant, to ensure that they could be recognised as objectively as possible by staff. A pilot phase of the study trialled the recording of these behaviours on observation schedules for a specified duration and at a specific time of the week for each participant. This proved to be problematic, due to issues such as staff absence, and a procedure which was more conveniently and consistently achievable was therefore employed during the study. This took account of an existing computer system for recording behaviours in the school, called 'Behaviour Watch', with which all staff were familiar, since the practice of recording behaviours has been embedded into the school behaviour management structure. Prior to the study, it was used to record, track and monitor 'externalising', 'challenging' behaviours, rather than those which could be construed as 'passive' behaviours that might be indicative of internalised emotional difficulties. This system enabled the anxiety behaviours defined for the purposes of this study to be recorded across the whole week rather than on a specific time-limited occasion. This was useful since, during the pilot, one teacher raised the issue that anxiety behaviours were less likely to be observed whilst pupils were contained within the safe, predictable setting of the classroom, and more frequent during less structured times of day, whilst pupils were monitored by different members of staff. The system enabled all staff to record these behaviours whenever and wherever they were observed, and, to ensure consistency they were modelled by the teacher in a staff meeting, and explained in a written description that was emailed to staff.

One drawback to the system was that only one record of a behaviour could be made per lesson, since the recording process involved indicating via a designated letter of the alphabet that the 'anxiety' behaviour had been observed, during a particular period of the day as opposed to on multiple occasions within each period. Nevertheless, this enabled data to be accumulated across different lessons and periods between lessons over a whole week, and thus each week constitutes a data point. In order to accommodate pupil absence, the number of anxiety behaviours recorded across the week was divided by the number of days the pupil was in attendance, with this information being accessed from participant attendance records. The consistency with which the recorded behaviours complied with the definition was assessed using interobserver agreement between teachers and teaching assistants. The behaviours are described in Table 7.

Table 7- Behaviours identified as being indicative of anxiety

Pupil*	***Operationally defined behaviour***
Tony	Moves his jaw repeatedly due to chewing his tongue.
Hannah	Leaves seat to talk to a member of staff or ask them a question unrelated to the learning task.
Alice	Puts her hands over her ears and hunches her shoulders.
Libby	A defined frown and pursed lips, folded arms, hunched over and looking downwards.
Caitlin	Talking to members of staff about her worries.
Jason	Going red, rocking and 'rolling' his hands.

*Names given are pseudonyms.

3.6.3 Self-reports

One difficulty with recording a behavioural measurement of anxiety is that it may reasonably be contended that it is not possible to objectively state that a particular behaviour is indicative of anxiety, and as such this constitutes a threat to construct validity. It was therefore deemed necessary to triangulate behavioural data with repeated measures that could capture the subjective

experience of anxiety. This was attempted through gathering pupil self-ratings of anxiety, using the Paediatric Index for Emotional Distress (PI-ED, O'Connor et al., 2010), which was chosen specifically for its simplicity both in terms of the language it employs and its limited number of questions (14 in total). It was also deemed suitable as a weekly measure in respect of asking pupils to tick a box that described them best 'over the last week'. The PI-ED was developed for use with paediatric populations from the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983), and has been standardised on more than 1100 CYP in the UK. It measures symptoms of depression (seven items) and anxiety (seven items), however, although the questionnaires were completed in their entirety, only the questions relating to anxiety were employed in the present analysis.

The PI-ED was found, during a pilot phase, to be too difficult to complete weekly for those pupils within the study who had the most limited language skills. For this reason, three participants employed a scaling system (Appendix K) involving the numbers 1-5 representing the phrases: 'Fine', 'Not very worried', 'A bit worried', 'Quite worried' and 'Very worried', and faces at either end of the scale demonstrating a happy or worried expression. This was administered by the class teaching assistant to the pupils in Class 'A' with the instruction to record how worried they had felt that week on random occasions during the baseline and intervention phases.

There are difficulties associated with the use of pupil self-reports, which include the pupil-researcher power imbalance, potentially resulting in pupils responding in a way that they believe is expected (Punch, 2002); and pupil's reports of anxiety being influenced by the effect of familiarity due to being repeatedly asked about it. For these reasons, pupils were reminded to answer the questions or complete the scale honestly and in accordance with how they were feeling on that particular occasion.

The questionnaires/rating scales were administered to pupils once per week, at random times to ensure that other factors such as lesson type or time of day did not influence their ratings.

3.7 Stakeholders

The stakeholders in this research include:

- The University of Nottingham
- The Local Authority (LA)
- The school community, including pupils, parents and staff
- The developers of the Feelings Detectives programme
- EPs and researchers interested in the programme and in cognitive behavioural interventions in general for CYP with LD

The researcher was supported through supervision by her university tutor and by her LA practice placement supervisor. A written report on the outcomes of the study will be transmitted within an annual Educational Psychology Service (EPS) newsletter and a verbal presentation will be delivered at an EPS development day. Research findings (in the form of a report summary) will be shared with the school, the participants and their parents.

The researcher has received additional support from the programme developers, including free access to the programme manual and pupil resources. In appreciation of this and as an expression of gratitude, a report summary of findings will be shared with these stakeholders.

3.8 Implementation

The programme was delivered by the researcher on Monday and Wednesday mornings at 9.15 and 9.45 for 12 weeks, from 28.10.19-03.02.20. The intervention took place in the pupils' usual classrooms. The researcher was trained in implementing the FRIENDS programme (from which the Feelings Detectives programme has been developed) and had gained experience in using strategies from the Special FRIENDS programme to support individual pupils in other schools. Class A were supported by their teacher and two/three teaching assistants. Class B was supported by one teaching assistant.

Each pupil was provided with an activity booklet, and the programme was delivered in accordance with the manual. Some adaptations were made with the approval of the manual, "*feel free to adapt the delivery of the intervention to meet the needs of the group*" (p. 6, The Psychology Tree, 2019), however skills were taught with strict adherence to the order in which they were laid out in the

manual, and lesson plans were monitored by a colleague to ensure treatment fidelity. The skills were taught in accordance with the following sequence:

- Learning about feelings
- Learning about the worry feeling
- Learning relaxation techniques
- Learning about Stop and Go thoughts
- Changing Stop thoughts into Go thoughts
- Problem Solving

There were lots of opportunities to revisit and embed previous learning throughout the programme, and in a range of contexts to support the generalisation of skills; and taught concepts were simplified using clear language and reinforced through the use of visual resources.

Lessons were differentiated and adapted according to the language and literacy levels of the group. For example, within the less academically able group, understanding about emotions was assisted through role play and drama, whereas in the more able group, simple worksheets were used to practice learning objectives (see examples, Appendix M).

3.9 Reliability and Validity

3.9.1 Reliability

The reliability of the single-case experiment rests upon whether it is possible to demonstrate that the phenomenon under scrutiny is being measured in a valid way. The purpose of measurement in an experiment is to gain an accurate estimate of something. To be useful, the instruments used for data collection must be stable and consistent. The extent to which they are free from error indicates their reliability (Mertens, 2010, p.380). The reliability of the measures used in this study is reported in section 3.6.

Errors relating to a participant's performance on a measure instrument are the result of factors which fall into three categories:

- Those within the person being measured.
- The conditions of the administration of the measurement.
- Changes in the measurement instrument.

(Mertens, 2010, p. 381)

In this study, the phenomenon being measured was anxiety. The pupils' subjective experience of anxiety was measured using the PI-ED questionnaire. However, as previously stated, this was found to be inappropriate for those pupils who did not have the level of language skills to make it independently accessible. Therefore, a scaling system which incorporated a picture of a 'worried' face and a picture of a 'happy' face at each end of the scale was introduced (Appendix K) to try to capture these pupils' experience of anxiety.

The measurement of anxiety was triangulated by including a second method, in order to strengthen the reliability of the findings. This was done by examining the pupils' patterns of behaviour, to look for ways in which they might be physically expressing their anxiety in a recognisable way. Class teams of at least three people (teachers and teaching assistants) discussed each pupil in detail, to come to a collaborative agreement about what their anxiety 'looked' like. This involved talking about potential stimuli or triggers for behaviours, and the regularity with which particular behaviours were displayed. Once a consensus had been reached, these behaviours were described in writing, and demonstrated behaviourally by the teacher to all the staff (who would be identifying and recording the behaviours on a school computerised system) to ensure consistency.

3.9.2 Internal Validity

Since the research was carried out in the real-world setting of a school, there was the potential for confounding variables to affect the validity of findings. In this experiment participants served as their own control, and the dependent variables were repeatedly measured across the two phases to establish a pattern of performance prior to the intervention and a comparison of performance during the intervention. Threats to internal validity for SCEDs can be controlled by demonstrating that experimental effects (i.e. a decrease in anxiety) are due (i.e. that there is a real and direct link, Robson, 2002) to the intervention and not to anything else. Most threats are addressed through the structure of the design and 'systematic replication of the effect' within the experiment (Kratochwill et al., 2010). The A-B design has been criticised for being weak and compromised by various validity threats (Kratochwill et al.,

2010) which may offer alternative explanations for observed effects. These are outlined below, and will be considered as potential limitations to the research findings in the Discussion section. The A-B design can therefore be regarded as 'pre-experimental' (Robson, 2002).

Table 8 demonstrates the threats, taken from Mertens (2007) and Kratochwill et al, (2010), that are relevant to the present study.

Table 8- Potential threats to internal validity

• History, such as other interventions (within the whole class curriculum or at an individual level) taking place at the same time.
• Maturation such as the pupils changing psychologically with age during the intervention.
• Novelty and Disruption effects, in terms of the intervention producing positive effects by nature of its novelty rather than its efficacy, or negative effects because of it disrupting the normal curriculum.
• Testing, whereby exposure to a test can affect scores on subsequent exposures to the test.
• Experimenter Effect, in terms of the effectiveness of the intervention being related to the particular delivery ability of the researcher.
• Interaction of History and Treatment Effects, in terms of the intervention taking place at a particular time in a particular setting.

3.9.3 External Validity

Single-case experiments are used to evaluate a particular intervention, however, being idiographic, they can only really validate the intervention for the individual within the study. Nevertheless, it is hoped that an effect documented in that study will have relevance for those looking for an effective intervention for a similar population. Therefore, it is important for the researcher to provide detailed information about the intervention, research procedures, participants and setting so that the research can be replicated. External validity is enhanced when documented effects are replicated across different participants, different

conditions and/or different measures of the dependent variable (Horner et al., 2005). It is diminished however, when only certain participants are selected or only successful results are presented (attrition) since this removes the opportunity for identifying participants for whom an intervention may not be appropriate (Horner et al., 2005).

3.9.4 Social Validity

Social validity within the context of single-case experiments relates to a study's ability to demonstrate that an intervention is able to effect change in a dependent variable via procedures which are practically achievable (Horner et al., 2005). Horner and colleagues identify four principles for enhancing social validity which include: selecting a dependent variable that is socially important; demonstrating that an intervention can be applied with fidelity within typical real-world conditions; demonstrating that those who might administer the intervention consider it to be acceptable feasible and effective; and demonstrating that the intervention produced an effect that met the defined need.

3.10 Summary

This study employs a post-positivist experimental methodology, but in measuring the impact of an intervention on anxiety, adopts a relativist ontology that anxiety is experienced subjectively, and in different ways by different people. It adopts a critical realist epistemology that theories can be formulated to explain this phenomenon, and that explanations can help us to understand how it is experienced, or indeed, how it can be reduced. Furthermore, it critically acknowledges the *need* for research which can help to inform the development of and increase the access to effective, evidence-based interventions for CYP with LD. The research employs idiographic case studies, within which participants' anxiety is measured in different ways, in response to an intervention which was designed to reduce anxiety. This exploration will help to answer the research questions and discover whether the Feelings Detectives programme was successful, for these participants, in reducing their anxiety. The next chapter presents the results of this investigation.

Chapter 4. Results

4.1 Introduction

This chapter begins by exploring different methods of analysing SCED data, including visual and statistical means, and considers the relative merits of discerning change absolutely or by effect size. The results for this study are then presented and interpreted as individual case studies, in response to the three research questions. The section concludes with an evaluation of intervention fidelity and inter-rater reliability.

4.2 Data Analysis

There has been much debate around how to formulate the 'standard of proof' that an independent variable has actually influenced a change in behaviour (Barlow, Nock & Hersen, 2009, p. 271). Kazdin (1984, cited in Barlow et al., 2009) proposes that there are two criteria for this: experimental and therapeutic. The former signifies a reliable difference between behaviours under experimental conditions, which can be identified through a graphical analysis and, if the researcher uses statistical procedures to evaluate an experiment, can be labelled statistical significance (Barlow et al., 2009). The therapeutic significance of a behavioural change however, is where the effect is meaningful and beneficial to the subject (Barlow et al., 2009), which may not be apparent in a visual or statistical analysis of the data. In this research, both will be considered.

4.2.1 Visual Analysis of SCED data

The collection of the same variable over time in a SCED is called a time-series. These can be continuous (i.e. uninterrupted) or discrete (i.e. at equal intervals across the course of the experiment), (Barlow et al., 2009). Line graphs are the most common format for presenting ongoing data (Lane & Gast, 2013). In this study, discrete behavioural observations were recorded daily throughout the experiment on a computerised system, and the number of behaviours observed across a week were averaged to allow for participant absence (i.e. number of observed behaviours/attended days). In addition, self-report measures were recorded (once each week) across the base-line and intervention phases. These data resulted in information which was both specific to each individual

participant and dynamic across the course of the experiment. The data was plotted on individual line graphs.

The visual analysis of SCED data involves "*reaching a judgement about the reliability or consistency of intervention effects by visually examining graph data*" (Kazdin, 1982). To examine data patterns visually, six features are outlined in the Single-Case Design Technical Documentation (Kratochwill et al., 2010), which can be used to assess the data individually and collectively. These are:

- Level: The mean score for the data within a phase.
- Trend: The slope of the best-fitting straight line for the data within a phase (i.e. the rate of increase or decrease).
- Variability: The fluctuation of the data around the mean, reflected by its range or standard deviation.
- Immediacy of the effect: The change in level between the last three data points in one phase and the first three data points in the next phase.
- Overlap: The proportion of data from one phase that overlaps with data from the previous phase.
- Consistency of data patterns across similar phases: The extent to which there is consistency in the data patterns from phases with the same conditions.

The data can be inspected through within-condition and between-condition analysis (Lane & Gast, 2013). In the former, variability or 'bounce' is evaluated (Parker, Vannest & Brown, 2009), which is particularly important during the baseline phase, since high variability might motivate researchers to extend this condition until stability is observed (Lane & Gast, 2013). Between-condition analysis refers to the comparison of data between phases. The relevance of different methods of analysing the data depends upon the research question/s and nature of the intervention (Lane & Gast, 2013). For example, in the present study, the intervention programme taught different skills across the twelve weeks, therefore it was unlikely that an immediate effect, if observed, would have been due to the introduction of the intervention.

The integration of the information gleaned from these different comparisons and assessments is used to make a judgement about whether a functional relationship exists between the independent and dependent variables (Horner et al., 2005). There has been (and still remains) controversy as to whether visual inspection or statistical analysis be used to evaluate the data (Barlow et al., 2009). The former has been advocated as an appropriate means of communicating the results to both other researchers and to stakeholders. However, a number of problems with this method exist which are largely related to effects being falsely identified, an issue referred to as Type 1 errors. In such cases, there may be disagreement between researchers regarding their interpretation of the data (DeProspero & Cohen, 1979), and judgements are likely to be conservative since only large effects with obvious significance will be identified (Brossart, Parker, Olson & Mahaevan, 2006). As Kazdin points out (1982, p.239), visual inspection would seem to actively encourage subjectivity and inconsistency, and for this reason, statistical analysis is often recommended.

4.2.2 Statistical Analysis of SCED data

Kazdin (1982) asserts that statistical analysis may be of further value when: there is no stable baseline; expected treatment effects cannot be well predicted; and statistical control is needed for extraneous factors in naturalistic settings. A number of possible tests are available for statistically analysing SCED data. For example, some researchers use conventional *t* and *F* tests to evaluate the statistical significance of the difference between the mean level of baseline observations compared with those in the intervention phase. However, Barlow et al., (2009) identify three reasons why this method is problematic. Firstly, when observations of a DV centre around a value of zero with only some non-zero values, this violates the assumption of normality, and inferences could be biased. Secondly, there are mathematical issues with observing a DV repeatedly over time, whereby observations occurring temporally close to each other tend to be more related than those occurring far apart, a phenomenon called ‘autocorrelation’. Thirdly, these tests, being based on means and variance, are unable to identify trends within a phase.

A second method involves randomisation tests, which assume that the independent variable is randomly assigned to the measurement occasions which may reduce the threats to internal validity (Barlow et al., 2009). This was not possible in this study. A third method which, not being reliant on parametric assumptions, has been considered for the analysis of SCED data, is interrupted time-series analysis (ITSA). This requires at least 50 observations per phase (Barlow et al., 2009) and was therefore unsuitable for the present study.

4.2.3 Effect-size estimates

Effect sizes are a standardised expression of the amount of behaviour change between phases (Parker et al., 2009). Within the field of SCED analysis there are no agreed-upon methods for effect size estimation (Kratochwill et al., 2010) however a number of quantitative methods have been proposed.

Nonparametric methods such as the Percentage of Nonoverlapping Data (PND) can be helpful if the researcher is merely wanting an approximate effect size without formal statistical justification, however the data required does not take into account the other information which a more holistic visual analysis would achieve (such as differences in trend and mean, behaviour changes at onset or delay in response to intervention) (Parker et al., 2009).

Standardised mean difference methods have been advocated (e.g. Manolov & Solanas, 2008), however, without a clear 'gold standard' model (Kratochwill et al., 2010) other commentators have criticised the lack of a *single* authentic process for carrying out statistical analysis of the mean level shift, which results in a diversity of methods contributing different conclusions (Parsonson & Baer, 1992).

The focus on effect size has shifted the emphasis from *statistical* significance to *practical* significance, and this has brought some to question what size of an effect this might require (Brossart et al., 2006). These authors advocate therefore the employment of a means of analysing client improvement, defined as 'clinical significance', in addition to analysing graphs visually. This will be carried out in this study by analysing pre- and post- data.

4.2.4 SCED analysis used in this study

For the reasons outlined above, statistical tests were not deemed suitable for this research. Furthermore, reliance on statistical analysis has been criticised as being 'insensitive' to the intervention effects that can appear through visual inspection, which may prove to be clinically and educationally important (Parsonson & Baer, 1986). However, descriptive statistics were used in terms of 'eyeballing' data to analyse trends.

An effect is claimed when three demonstrations of an effect are documented at different points in time (Kratochwill et al., 2010). This effect can be seen when the level and/or variability of the dataset decreases when an intervention is introduced (Horner et al., 2005). However, the validity of this effect is dependent on demonstrating experimental control, which is achieved through the withdrawal of the intervention, or the staggered introduction of the intervention at different points in time or the interactive manipulation of the intervention across the experiment (Horner et al., 2005). Experimental control, for reasons detailed in section 3.3.2.2, was not possible in this study, and thus a full experimental analysis involving statistical testing would not have been appropriate. Nevertheless, the analyses presented provide what Horner and colleagues (2005) term 'case-study descriptions', which can offer useful information for the field.

These pay heed to recommendations provided by Parsonson and Baer (1992) which include:

- Considering the context of a particular client and intervention
- Making use of multiple interacting data characteristics (e.g. variability, mean levels, trends)
- Drawing conclusions of practical significance
- Judging the degree or amount of intervention effectiveness rather than making dichotomous yes/no judgements.

For each case study, data will be presented in graphs which highlight the changes in mean level and the changes in trend between the baseline and intervention phases. In addition, a table of results will quantitively and descriptively report the observed changes between the baseline and

intervention phases, following steps recommended by Lane and Gast (2013). These are:

Step 1. Determine the number of variables that changed between conditions. (NB this is not relevant to the present study, since only one independent variable was introduced throughout the experiment).

Step 2. Change in trend direction between adjacent conditions ("progress over time", Gast, 2005). The trendline (or line of 'best fit') will be calculated in Microsoft Excel, and demonstrated on each graph. The trend stability will be given as an R-squared value. This is the correlation coefficient, which states the strength of the linear relationship. For example, a value of 1 means that there is a perfect (stable) relationship between the two variables, x and y. The closer to 1, the better the data shows the correlation between the x and y variables, therefore the assumption is that the predictive trend is more accurate.

Step 3. Change in stability. Lane and Gast (2013) suggest that a 'stability envelope' can be created for each phase, and provide an example in which the criterion involves 80% of data points falling within +/- 25% of the median, which will be used in the current analysis.

Step 4. Level change between conditions ("relative value of the data pattern on the dependent variable", Woolery & Harris, 1982).

Step 5. Overlap of data between conditions.

The percentage of mean change from the baseline to the intervention phase will be calculated by dividing the difference between the two phases by the mean of the baseline phase (Bodnar Castle, Harris & Ottenbacher, 1991). This will generate an effect size which will enable judges to evaluate the degree or amount of intervention effectiveness (Brosssart et al., 2006). Cohen (1988, cited in Brosssart et al., 2006) suggested that there might be 'ballpark' descriptors for effect sizes, such that (r^2= .25) indicates a 'large' effect, (r^2= .09) indicates a medium effect and (r^2= .01) indicates a small effect. However, these will be viewed with caution and only in combination with the other methods.

In order to improve the reliability of the visual analyses of the SCED data, an assessment of inter-rater agreement on all of the graphs will be carried out,

which will involve a colleague and fellow trainee being asked to decide whether or not each graph demonstrates a significant reduction in anxiety. The degree of agreement will be calculated using Cohen's kappa, and this result will be evaluated using Landis and Koch's guidelines (1977) which state that a score of

0.01-0.20 = slight agreement

0.21-0.40 = fair agreement

0.41-0.60 = moderate agreement

0.61- 0.80 = substantial agreement

0.81-1.00 = almost perfect or perfect agreement

4.2.5 Pre- and Post- Measures

Since the treatment effects from the SCEDs were compromised by a lack of experimental control, a second method of comparison was deemed necessary. This was proposed in order to evaluate the therapeutic effects which may not have been apparent in the visual analysis of the SCED data. The clinical significance of a treatment refers to "its ability to meet standards of efficacy set by consumers, clinicians and researchers" (Jacobson & Truax, 1991, p.13). This can be achieved through various means including a high percentage of clients improving, an elimination of presenting problems and normative levels of functioning by the end of the intervention (Jacobson & Truax, 1991). Jacobson, Follette and Revenstorf (1984) offered a statistical approach to establishing whether a client can be classified as 'changed' or 'unchanged' by an intervention on the basis of clinical significance. The reliable change index (RCI; Jacobson et al., 1984) calculates whether the change between two single points is statistically and clinically significant, by accounting for measurement error. This was later amended by Christenson and Mendoza (1986), and then supported by Jacobson and Truax (1991) who defined it as

$$RC = \frac{x_2 - x_1}{S_{diff}}$$

where X_1 = the pre-test score, X_2 = the post-test score and

$$S_{diff} = \sqrt{2(SE)^2}$$

the standard error or difference between the two test scores.

The standard error is calculated thus:

$$SE = s_1\sqrt{1 - r_{xx}}$$

where s_1 = the standard deviation of the control group or normal population and r_{xx} = the test-retest reliability.

$$RC = \frac{x_2 - x_1}{\sqrt{2\left(s_1\sqrt{1 - r_{xx}}\right)^2}}$$

If RCI is the same or larger than 1.96 then it is likely that the change was reliable (p <.05) (Jacobson & Truax, 1991).

The following table gives the psychometric properties for the pre-post-measures used in this study.

Table 9- Psychometric properties of the pre- and post- measures

Measure	Standard deviation of control group	Test-retest reliability
Spence Childrens Anxiety Scale, Parent version (SCAS-P) (Nauta et al., 2004)	Boys (12-18 years): 8.3 Girls (12-18 years): 9.1	Cronbach's alpha= 0.86
Spence Childrens Anxiety Scale, Child version (SCAS) (Spence, Barrett and Turner, 2002)	Boys (13-14 years): 13.07 Girls (13-14 years): 13.37	Cronbach's alpha= 0.92
School Anxiety Scale-Teacher report (SAS-TR) (Lyneham et al., 2007)	Community sample: 8.43	Cronbach's alpha=0.93

A criticism of this method relates to whether the dysfunctional population should be viewed as separate from but overlapping with the functional population or whether they represent a sample from the extreme end of the population distribution (Speer, 1992). The more extreme the scores, the more chance there is of the scores regressing to the mean and influencing the RCI, (Speer, 1992). Nevertheless, others have asserted that this should not be viewed as problematic (Hageman & Arrindell, 1993) and many recommend the Jacobson-Truax method due to its widespread use and relative ease of calculation (Bauer, Lambert & Nielsen, 2003).

4.2.6 Therapeutic change

Kazdin (2001) asserted that "*it is not clear that what we refer to as clinically significant on most measures or by most criteria reflects genuine or, indeed, any differences in the everyday lives of the clients*" (p.456). In order to assess whether participants in this study genuinely felt that the programme had been helpful, three questions were asked of them:

1. What did you think of the Feelings Detectives programme?
(What did you like? What didn't you like?)
2. What are the main things you have learned?
3. What (if anything) will you be doing differently in the future?

Their answers will be reported verbatim.

4.3 Case Study 1

4.3.1 Analysis of Tony's SCED data

Table 10- Contextual Information for Tony

Participant	Tony, age: 15:10 years. Primary SEN: Moderate learning difficulty. Class 'A' (Class-based; teacher involved in learning the programme).
Target Behaviour	Anxiety
Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Self-reported anxiety rating scale (Appendix K) b) Computerised behaviour monitoring system (Behaviour Watch).

4.3.1.1 Self-reported anxiety

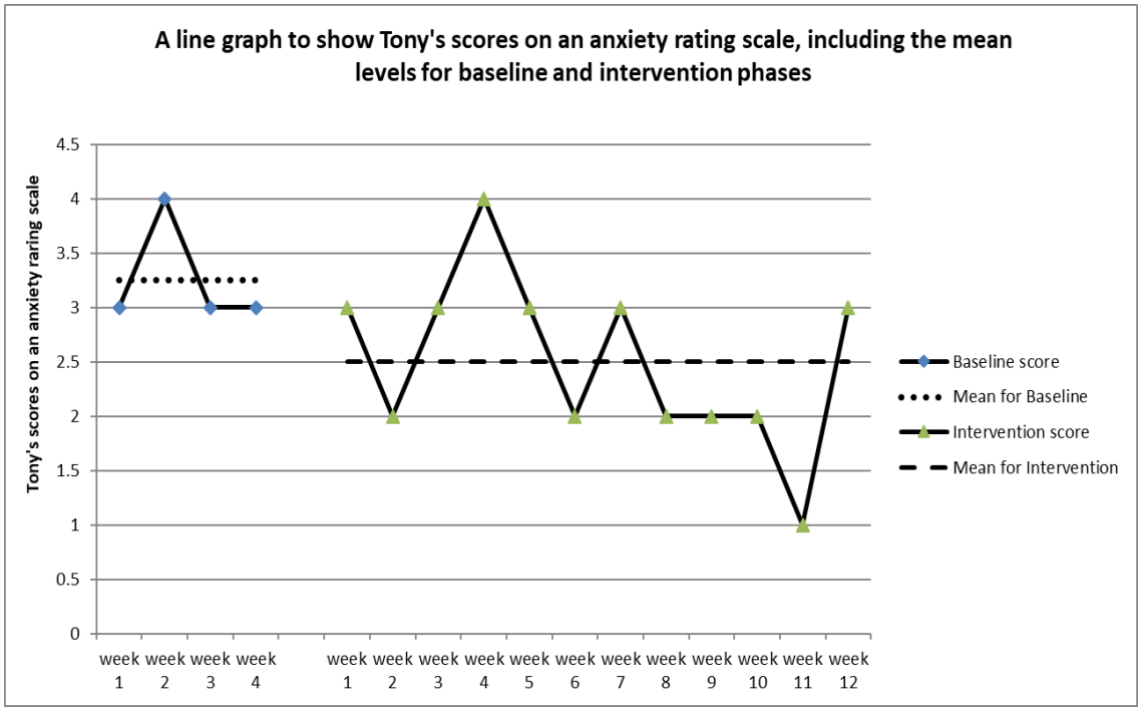

Figure 2: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Tony)

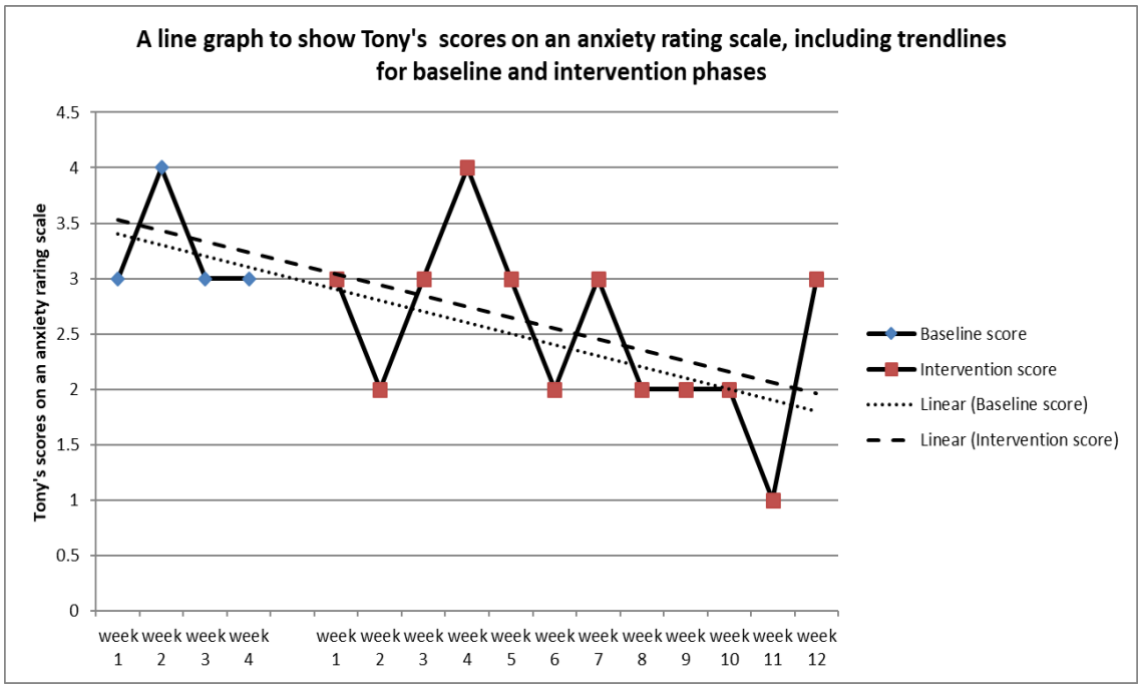

Figure 3: Line graph to show the change in trend between baseline and intervention phases (self-reported data for Tony)

Table 11- Visual Analysis of Tony's self-rated scores on an anxiety scale, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported levels of anxiety between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating-improving trend during baseline to a decelerating-improving trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.07) Intervention (R^2=0.196).
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 3 (variable) Median value of B: 2.5 (stable) Median level change: 0.5
Step 4b: Mean level change. (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 3.25 Mean value of B: 2.5 Difference: 0.75 Improving Mean level shift: 0.23 (large)
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	50%
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	50%

4.3.1.1.1 Summary of Findings

Figure 2 shows a decrease in mean level from 3.25 to 2.5, however, there is a smaller decrease in median level, from 3 to 2.5. Although both analyses suggest an improvement, it is difficult to assert that there has been a significant change given that 50% of data is overlapping, particularly in light of the improving trendline during the baseline phase, which decelerates during the intervention phase. This suggests that there is some evidence of improvement, however, not to the degree that would indicate a significant change in a therapeutic direction between baseline and intervention phases.

4.3.1.2 Observed anxiety-related behaviour

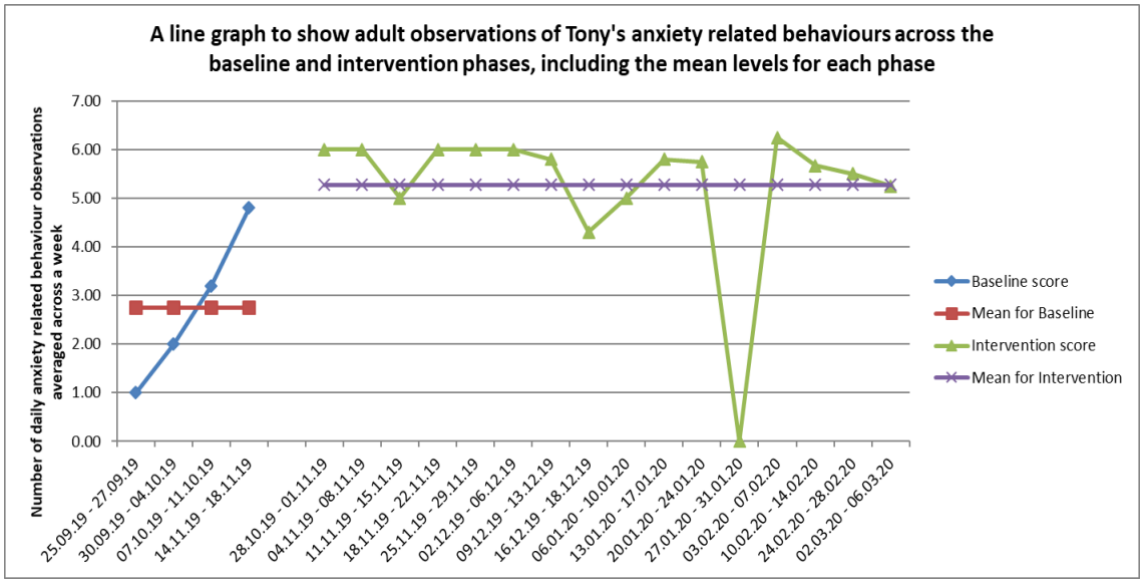

Figure 4: Line graph to show the mean level change between baseline and intervention phases (anxiety-related behaviour data for Tony)

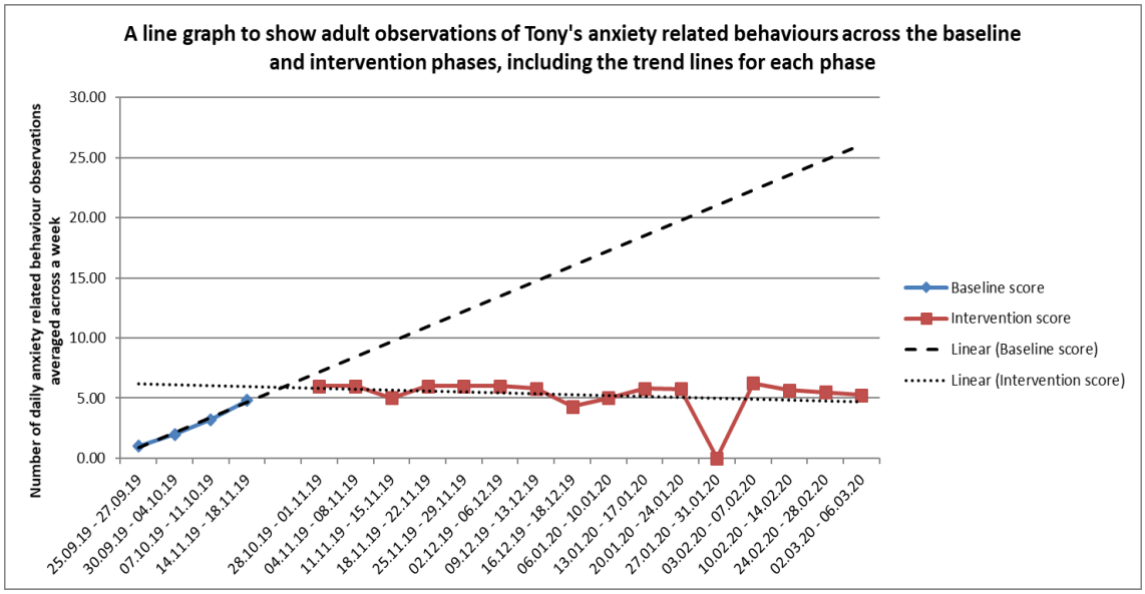

Figure 5: Line graph to show the change in trend between baseline and intervention phases (anxiety-related behaviour data for Tony)

Table 12- Visual Analysis of adult ratings of Tony's anxiety related behaviour, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating-deteriorating trend during the baseline, to a decelerating-improving trend during the intervention.
Step 3: Trend stability.	Baseline (R^2= 0.99) Intervention (R^2= 0.06)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 2.6 (variable) Median value of B: 5.775 (stable) Median level change: -3.175
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values	Mean value of A: 2.75 Mean value of B: 5.27

divided by the mean of the baseline phase).	Difference: -2.52 deteriorating Mean level shift: -1.22
Step 5a: Percentage of non-overlapping data (PND)) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	6.25 %
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	93.75 %

4.3.1.2.1 Summary of Findings

Figure 4 shows an increase in mean level from 2.75 to 5.27, which, in addition to the rise in median level from 2.6 to 5.775 and high percentage of overlapping data, suggests that there has been a deterioration in anxiety related behaviour between baseline and intervention phases. There is an improving trendline during the intervention phase, however given its variability (R^2= 0.06), it is unlikely that this may be predictive of continued improvement, were there to be a follow-up phase.

4.3.2 Analysis of Tony's pre-post- data

Table 13- Tony's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	15	16	19
Post	15	12	25

Difference	0	4	-6
Improvement?	No	Yes	No
RCI		0.76	
Clinically significant?		No	

4.3.3 Interview

The interview was recorded, and Tony's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?

It was good

What did you like?

What feeling you're in.

Was there anything you didn't you like?

No

2. What are the main things you have learned?

Stop thoughts and Go thoughts

3. What (if anything) will you be doing differently in the future?

Having helpful thoughts.

4.3.4 Interpretation of findings

4.3.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

The repeated measures observational data, as well as teacher-reported pre- and post- data suggests that the implementation of the programme had a negative impact on Tony's anxiety related behaviour. Nevertheless, the reliability of this finding, given the variability of the baseline data, is questionable, and will be evaluated in the Discussion section. What appears to be shown, particularly in light of the Parent-reported pre- and post- data, is that the intervention did not reduce Tony's anxiety related behaviour.

4.3.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

Due to the 50% overlap in data points which are the same or above the lowest value within the baseline phase, it is difficult to assert with any confidence that the intervention reduced Tony's self-reports of anxiety, despite the mean and median level improvement between phases. When comparing Tony's pre- and post- self-report data, we can see an improvement, however not to the degree that it could not have occurred by chance.

Tony's qualitative data suggests that he enjoyed taking part in the programme, and that learning about 'stop' and 'go' thoughts may help him to think in more helpful ways in the future. This will be discussed during the next chapter.

4.4 Case Study 2

4.4.1 Analysis of Hannah's SCED data

Table 14- Contextual Information for Hannah

Participant	Hannah, age: 15:3 years. Primary SEN: Moderate learning difficulty. Class 'A' (Class-based; teacher involved in learning the programme).
Target Behaviour	Anxiety
Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Self-reported anxiety rating scale (Appendix K) b) Computerised behaviour monitoring system (Behaviour Watch).

4.4.1.1 Self-reported anxiety

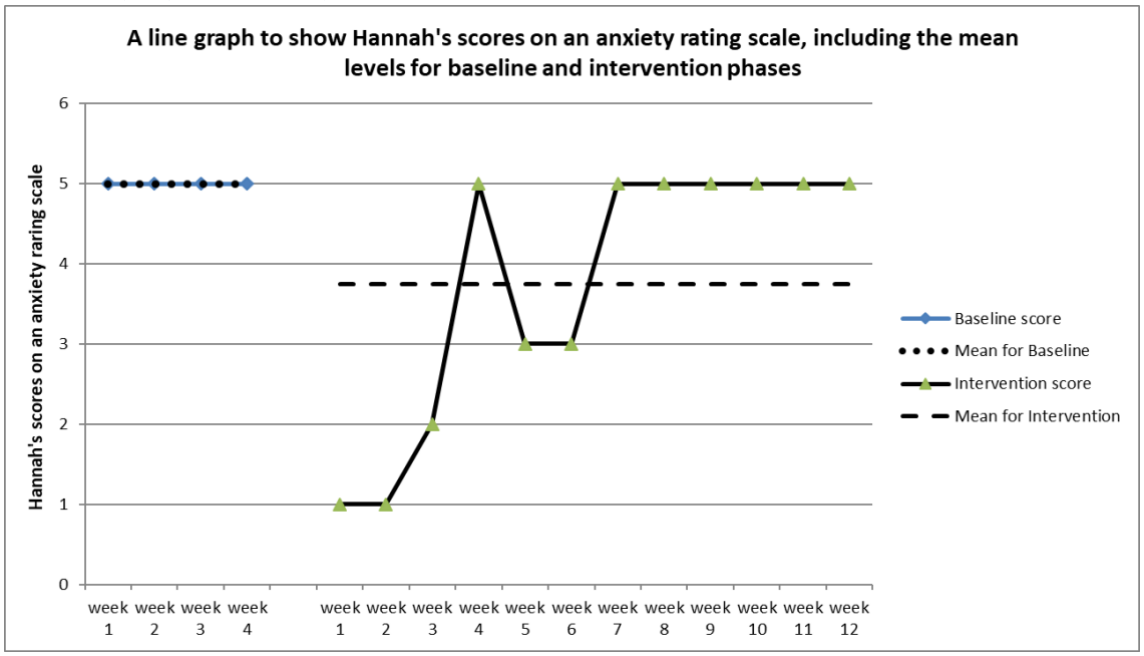

Figure 6: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Hannah)

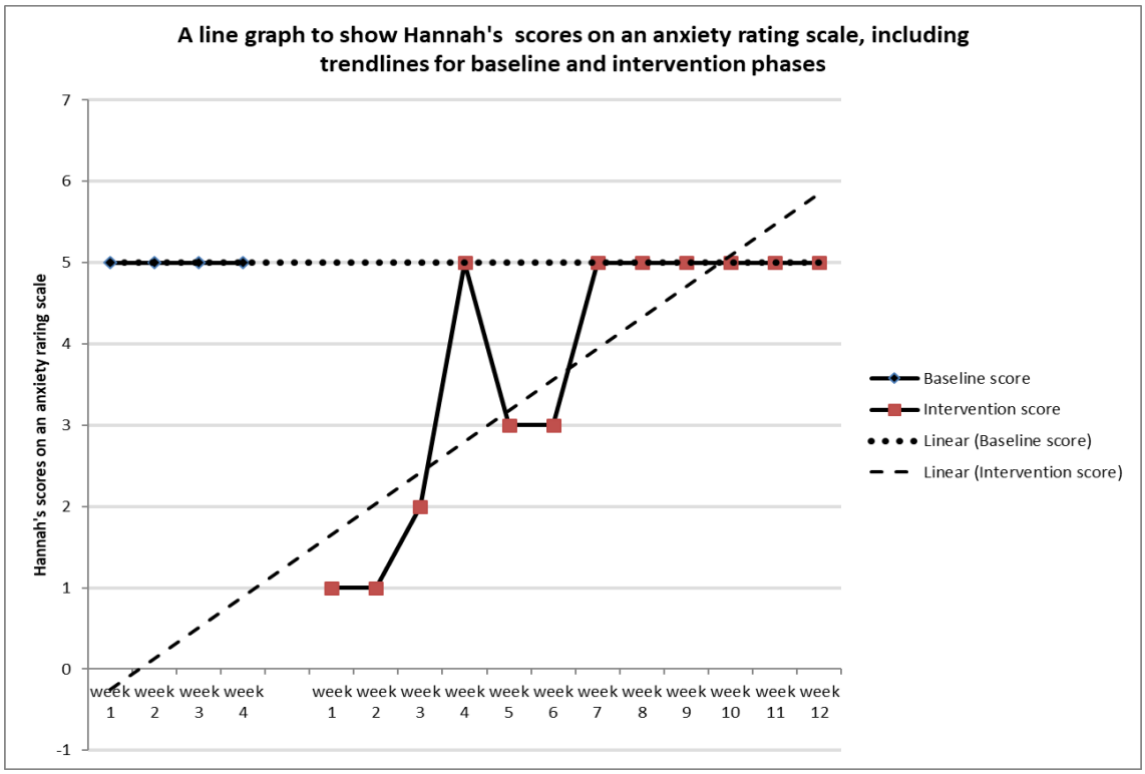

Figure 7: Line graph to show the change in trend between baseline and intervention phases (self-reported data for Hannah)

Table 15- Visual Analysis of Hannah's self-rated scores on an anxiety scale, comparing baseline and intervention phase data

Criteria (Taken from Lane and Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from zero-celerating trend in baseline to accelerating-deteriorating trend during intervention.
Step 3: Trend stability.	Baseline (R^2= NA) Intervention (R^2= 0.69)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 5 (stable) Median value of B: 5 (variable) Median level change: 0
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 5 Mean value of B: 3.75 Difference: 1.25 Improving Mean level shift: 0.25 (large)
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	41.7 %
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	58.3 %

4.4.1.1.1 Summary of Findings

Figure 6 shows a decrease in mean level from 5 to 3.75, however, there is no decrease in median level. In addition, there is an accelerating trend in a non-therapeutic direction during the intervention phase, and only 41.7 % of data is non-overlapping. Therefore, taking all of the methods of analysis into consideration, the data suggests that there is no significant improvement between baseline and intervention phases.

4.4.1.2 Observed anxiety-related behaviour

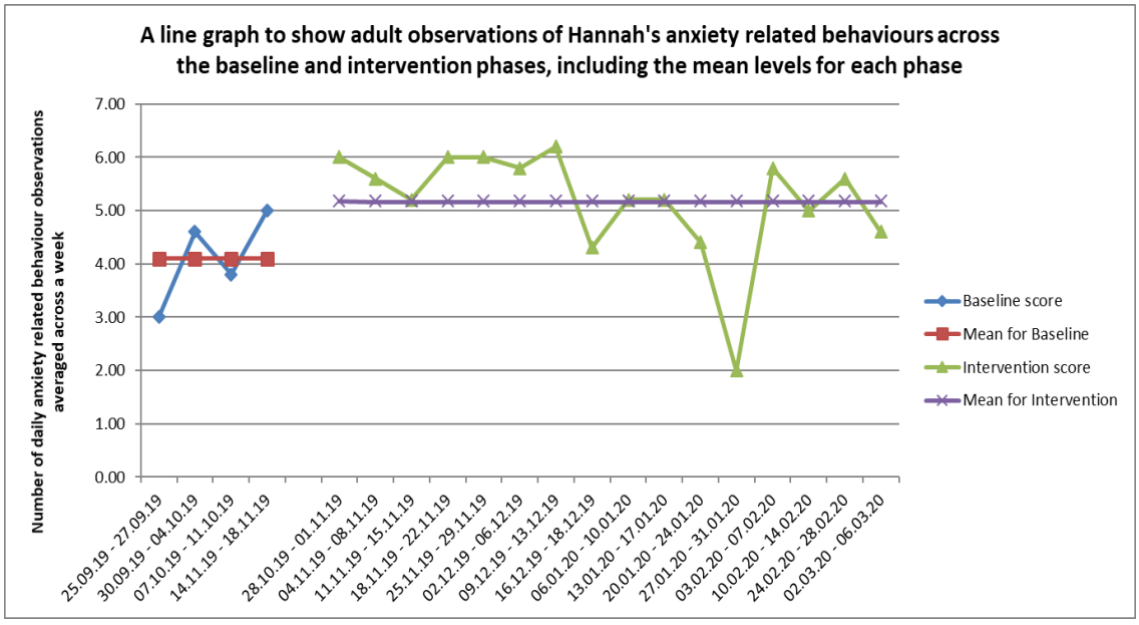

Figure 8: Line graph to show the mean level change between baseline and intervention phases (anxiety-related behaviour data for Hannah)

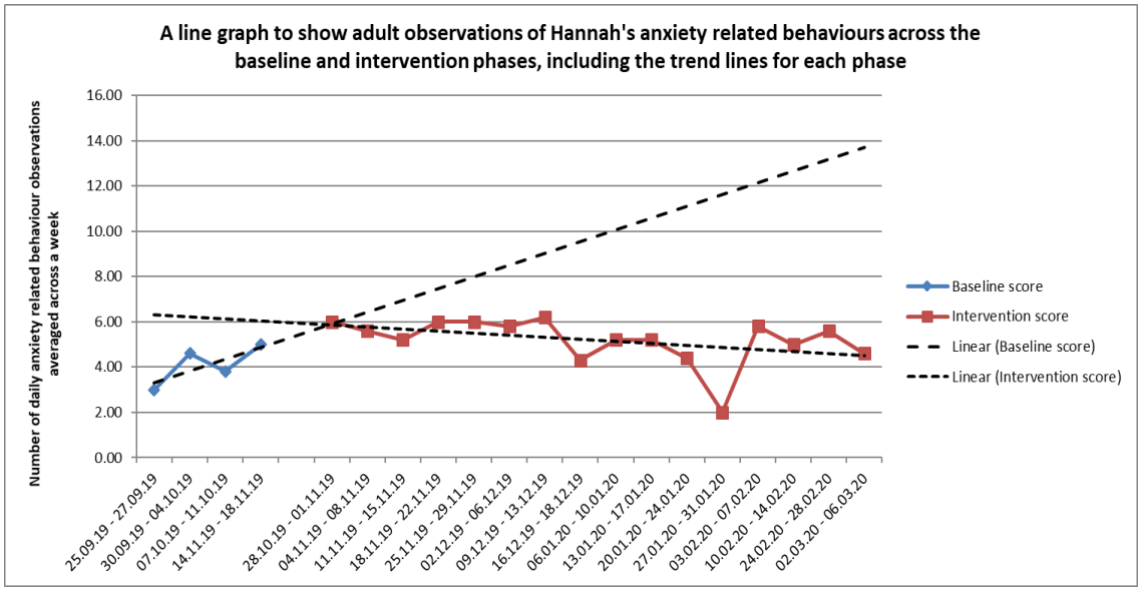

Figure 9: Line graph to show the change in trend between baseline and intervention phases (anxiety-related behaviour data for Hannah)

Table 16- Visual Analysis of adult ratings of Hannah's anxiety related behaviour, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change in an accelerating-deteriorating trend during baseline to a decelerating-improving trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.57) Intervention (R^2= 0.18)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 4.2 (variable) Median value of B: 5.4 (stable) Median level change: -1.2
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the	Mean value of A: 4.10 Mean value of B: 5.18

mean values divided by the mean of the baseline phase).	Difference: -1.08 deteriorating Mean level shift: -0.263
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	6.25 %
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	93.75 %

4.4.1.2.1 Summary of Findings

Figure 8 shows an increase in mean level from 4.10 to 5.18, which, in addition to the rise in median level from 4.2 to 5.4 and high percentage of overlapping data, suggests that there has been an increase in anxiety related behaviour between baseline and intervention phases. There is an improving trendline during the intervention phase, however given its variability (R^2= 0.18), it is unlikely that this may be predictive of continued improvement, were there to be a follow-up phase.

4.4.2 Analysis of Hannah's pre-post- data

Table 17- Hannah's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	35	59	11

Post	20	84	13
Difference	15	-25	-2
Improvement?	Yes	No	No
RCI	3.12		
Clinically significant?	Yes		

4.4.3 Interview

The interview was recorded, and Hannah's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?

It was good

What did you like?

I liked it when you had to find out what stop thoughts and go thoughts are.

Was there anything you didn't you like?

Yeah. I didn't like that 'tense and relax'

(You didn't like that relaxation technique?)

No because it doesn't work on me

2. What are the main things you have learned?

Let me think, that's quite hard. Errm, I'd say…wait can you say it again?

(question is repeated)

Errr…how to keep control of your feelings.

3. What (if anything) will you be doing differently in the future?

I don't know.

(Do you think you'll use anything you've learned from Feelings Detectives in the future?)

I might.

(What do you think you'll use?)

The pizza massage.

4.4.4 Interpretation of findings

4.4.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

The repeated measures observational data, and Teacher-reported pre- and post- data suggest that the implementation of the programme had a negative impact on Hannah's anxiety related behaviour. Nevertheless, the reliability of this finding, given the accelerating-deteriorating trendline during the baseline phase, is questionable, and will be evaluated in the Discussion section. Contrary to the teacher-rated deterioration in anxiety post intervention, Hannah's parent's pre- and post- data shows a significant improvement, suggesting that, from her foster mother's perspective the intervention had a positive impact on reducing Hannah's anxiety. Nevertheless, the overall conclusion must be that the programme did not reduce Hannah's anxiety related behaviour.

4.4.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

Due to the absence of any change in median level and the 58.3% overlap in data points which are the same or above the lowest value within the baseline phase, it is not possible to state that the intervention reduced Hannah's self-reports of anxiety, despite the mean level improvement between phases. Indeed, when comparing Hannah's pre- and post- data, we can see a large increase in her self-reported anxiety, which may be the result of 'testing', i.e. changes occurring due to participants' experience and/or practice on pre-tests (Robson, 2002), or to the over-endorsement of anxiety symptomology due to increased emotional awareness following the intervention (Neil & Christensen, 2010), or wanting to 'please' the researcher (Kendall & Flannery-Schroeder, 1998). Issues relating to pupil self-reports will be discussed during the next section.

Hannah's qualitative data suggests that she enjoyed finding out about 'stop' and 'go' thoughts, and that the programme will help her to keep control of her feelings. She also identifies that one of the relaxation techniques she learned may be helpful to her in the future.

4.5 Case Study 3

4.5.1 Analysis of Alice's SCED data

Table 18- Contextual Information for Alice

Participant	Alice, age: 15:9 years. Primary SEN: Cognition and learning. Class 'A' (Class-based; teacher involved in learning the programme).
Target Behaviour	Anxiety
Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Self-reported anxiety rating scale (Appendix K) b) Computerised behaviour monitoring system (Behaviour Watch).

4.5.1.1 Self-reported anxiety

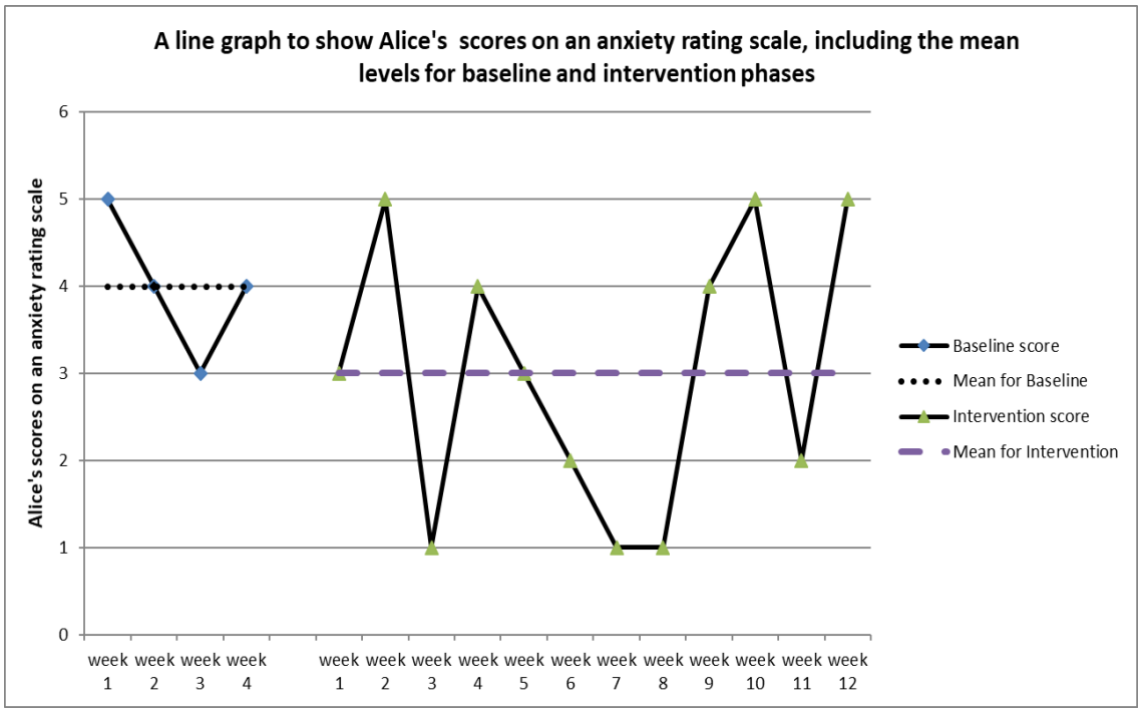

Figure 10: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Alice)

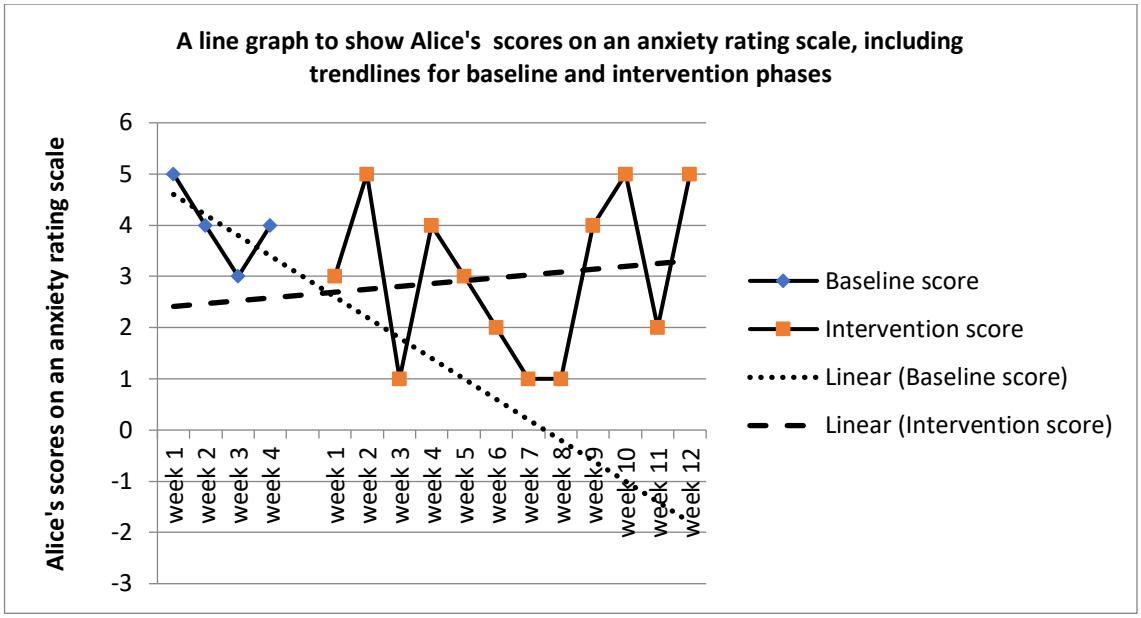

Figure 11: : Line graph to show the change in trend between baseline and intervention phases (self-reported data for Alice)

Table 19- Visual Analysis of Alice's self-rated scores on an anxiety scale, comparing baseline and intervention phase data

Criteria (Taken from Lane and Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating improving trend during baseline to a decelerating deteriorating trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.4) Intervention (R^2= 0.02)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 4 (variable) Median value of B: 3 (variable) Median level change: 1

Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 4 Mean value of B: 3 Difference: 1 Improving Mean level shift: 0.25 (large)
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	41.7 %
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	58.3 %

4.5.1.1.1 Summary of Findings

Figure 10 shows a decrease in mean level from 4 to 3, and there was the same decrease in median level. However, Figure 11 shows an accelerating trend during the intervention phase, which despite being variable, is in a non-therapeutic direction. In addition, only 41.7 % of data is non-overlapping. Therefore, the data suggests that there is no significant improvement between baseline and intervention phases.

4.5.1.2 Observed anxiety-related behaviour

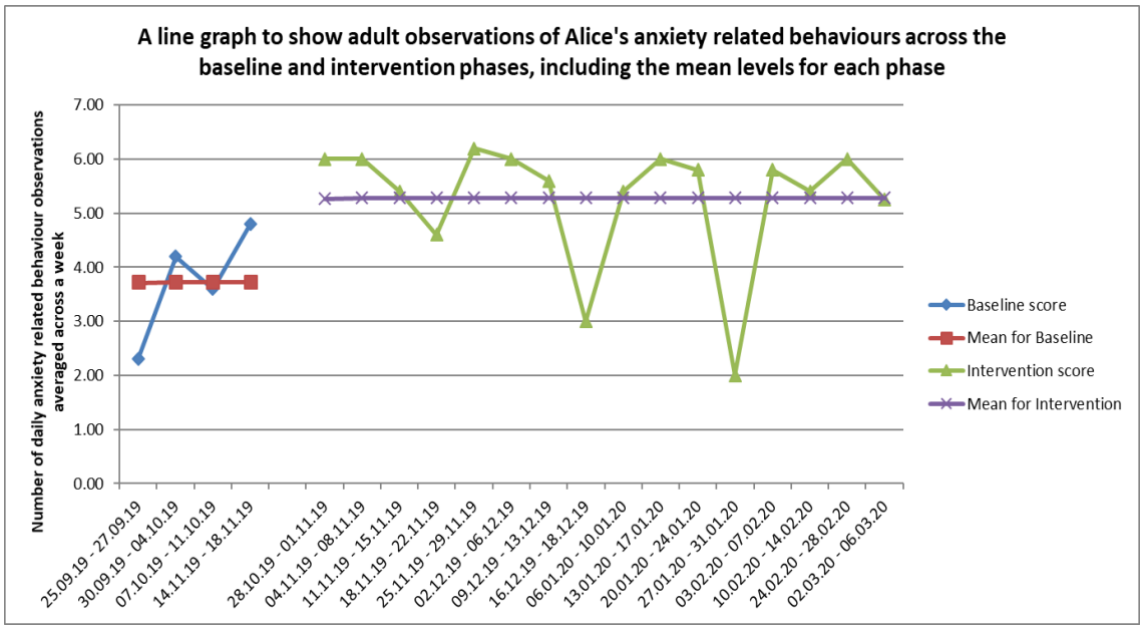

Figure 12: Line graph to show the mean level change between baseline and intervention phases (anxiety-related behaviour data for Alice)

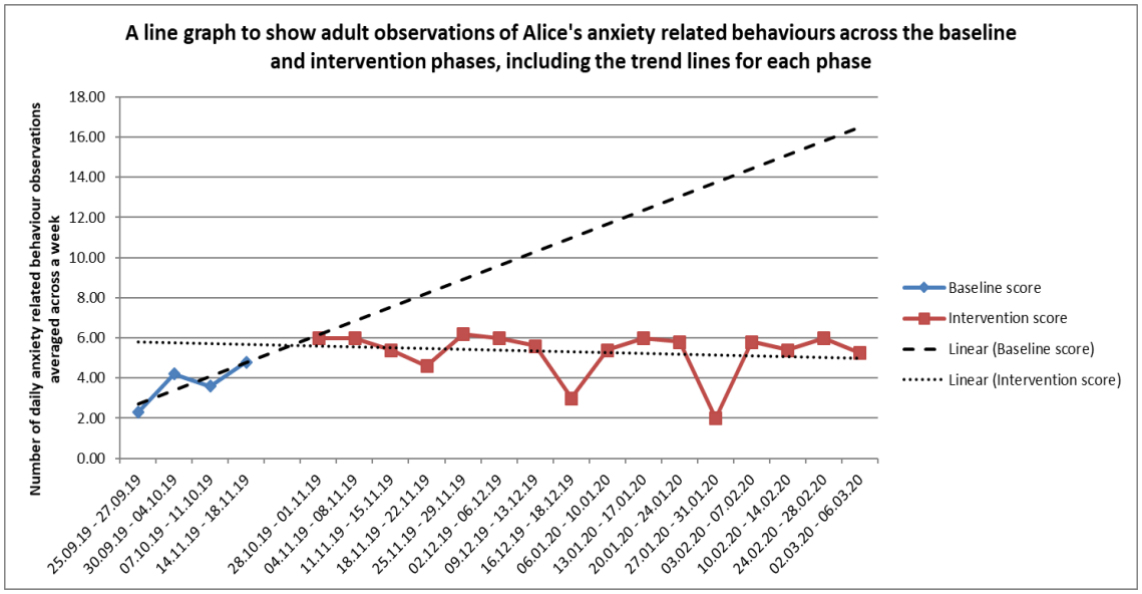

Figure 13: Line graph to show the change in trend between baseline and intervention phases (anxiety-related behaviour data for Alice)

Table 20- Visual Analysis of adult ratings of Alice's anxiety related behaviour, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change in an accelerating-deteriorating trend during baseline to a decelerating-improving trend during intervention.
Step 3: Trend stability	Baseline (R^2=0.69) Intervention (R^2= 0.03)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 3.9 (variable) Median value of B: 5.7 (stable) Median level change: -1.8
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 3.73 Mean value of B: 5.28 Difference: -1.55 deteriorating Mean level shift: -0.410
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	6.25 %
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the	93.75 %

same or above the lowest value within baseline phase).	

4.5.1.2.1 Summary of Findings

Figure 12 shows an increase in mean level from 3.73 to 5.28, which, in addition to the rise in median level from 3.9 to 5.7 and high percentage of overlapping data, suggests that there has been an increase in anxiety related behaviour between baseline and intervention phases. There is an improving trendline during the intervention phase, however given its variability (R^2= 0.03), it is unlikely that this may be predictive of continued improvement, were there to be a follow-up phase.

4.5.2 Analysis of Alice's pre-post-data

Table 21- Alice's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	16	37	20
Post	30	50	26
Difference	-14	-13	-6
Improvement?	No	No	No
RCI			
Clinically significant?			

4.5.3 Interview

The interview was recorded, and Alice's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?
   Errm, good.
   What did you like?
   Errm I liked when they said all the feelings inside errm, like angry and worried, I liked that.
   Was there anything you didn't you like?
   Yeah. I didn't like the one that, I didn't like the menu that said all the numbers. I didn't like that.
   (What do you mean?)
   I didn't really have a clue what numbers to pick and stuff
   (do you mean on the menu of relaxation techniques?)
   Yeah
   (Did you like any of the relaxation techniques?)
   Yeah, the one that goes like that (shows the movements of the pizza massage)
   (Do you mean the pizza massage?)
   Yeah it goes like that! (repeats movements)
2. What are the main things you have learned?
   Errrm, happy..it makes you feel calm.
3. What (if anything) will you be doing differently in the future?
   I can't remember, no I can't remember.
   (Will you be using any of the strategies you've learned?)
   Yeah.
   (What will you be using?)
   Actually I didn't like the angry thing.
   (You didn't like thinking of things that made you feel angry?)
   Yeah like that (demonstrates lifting up her shoulders and tensing her fingers)
   (Oh, you mean the 'tense and relax' relaxation technique?)
   Yeah, I didn't like that.

4.5.4 Interpretation of findings

4.5.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

The repeated measures observational data, and Parent and Teacher reported pre- and post- data suggest that the implementation of the programme had a negative impact on Alice's anxiety related behaviour. Nevertheless, the reliability of this finding, given the accelerating-deteriorating trendline during the baseline phase, is questionable, and will be evaluated in the Discussion section.

4.4.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

The improvement in mean and median levels between baseline and intervention phases suggests that the intervention was successful in reducing Alice's self-reports of anxiety. However, given that only 41.7 % of the data points during the intervention phase fell below the lowest value in the baseline phase, and that there was a deteriorating (although variable) trendline during the intervention phase, this conclusion is not convincing. Furthermore, there is a large increase in Alice's post intervention self-report of anxiety, confirming that the programme did not reduce her self-reports of anxiety.

Alice's qualitative data suggests that she found it difficult to recall what she had learned, although she expressed that the programme had made her feel calm and that she had enjoyed talking about her feelings. She also identified a relaxation technique that she hadn't enjoyed, as well as one that she preferred.

4.6 Case Study 4

4.6.1 Analysis of Libby's SCED data

Table 22- Contextual Information for Libby

Participant	Libby, age: 15:10 years. Primary SEN: Speech, Language and Communication difficulties. Class 'B' (Move-around class; Form tutor not involved in learning the programme).
Target Behaviour	Anxiety

Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Paediatric Index for Emotional Distress (PI-ED, O'Connor et al., 2010) b) Computerised behaviour monitoring system (Behaviour Watch).

4.6.1.1 Self-reported anxiety

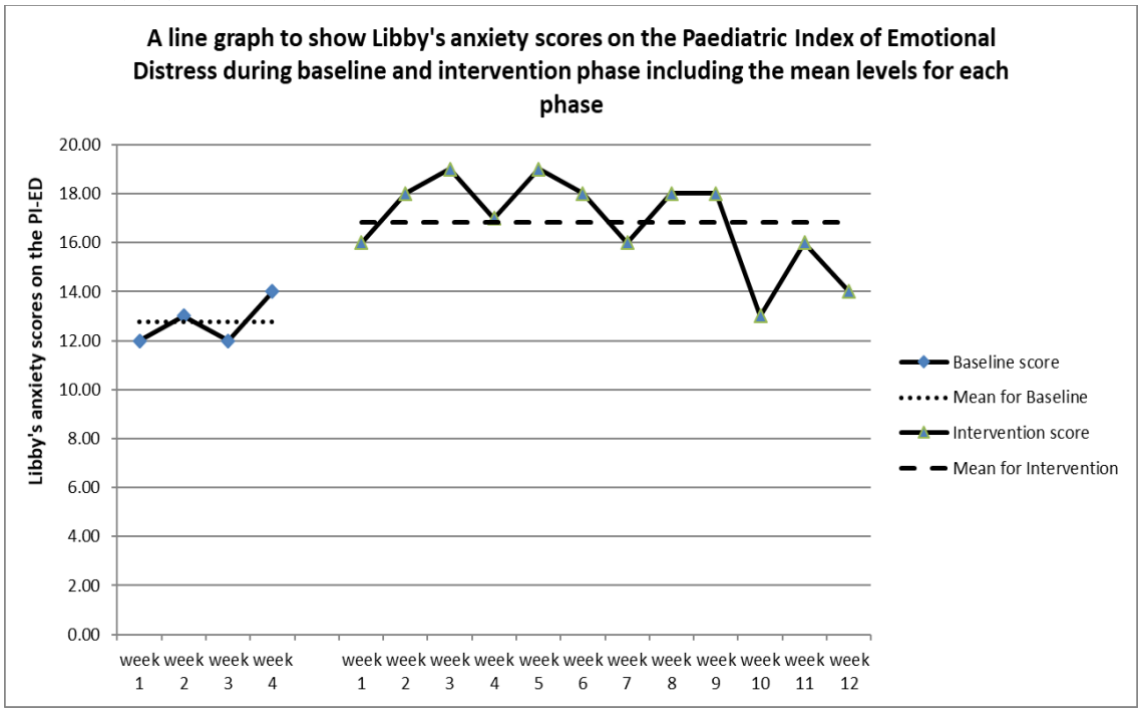

Figure 14: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Libby)

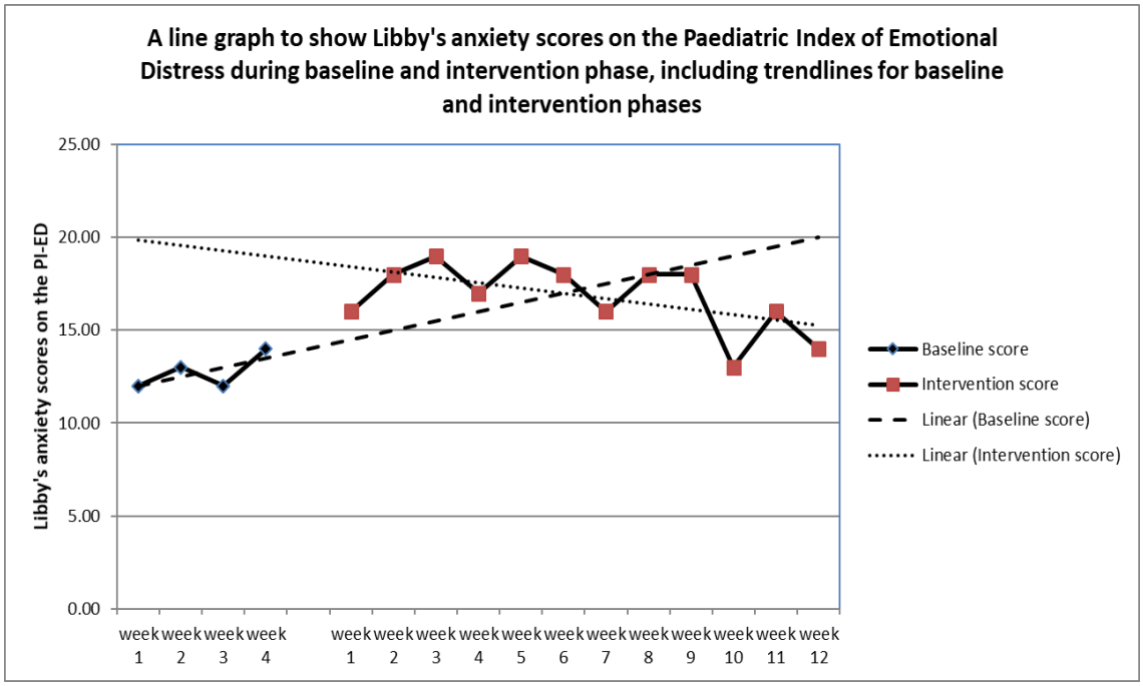

Figure 15: : Line graph to show the change in trend between baseline and intervention phases (self-reported data for Libby)

Table 23- Visual Analysis of Libby's self-rated scores on the Paediatric Index of Emotional Distress, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating deteriorating trend during baseline to a decelerating improving trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.45) Intervention (R^2= 0.3)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 12.5 (stable) Median value of B: 17.5 (stable) Median level change: -5
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values	Mean value of A: 12.75 Mean value of B: 16.83

divided by the mean of the baseline phase).	Difference: -4.08 Deteriorating Mean level shift: -0.32
Step 5a: Percentage of non-overlapping data (PND) (i.e. percentage of values within intervention phase that are below the lowest value within baseline phase).	0
Step 5b: Percentage of overlapping data (POD) (i.e. percentage of values within intervention phase that are the same or above the lowest value within baseline phase).	100%

4.6.1.1.1 Summary of Findings

Figure 14 shows an increase in mean level from 12.75 to 16.83, and there was a similar deterioration in the median levels, from 12.5 to 17.5. In addition, 100% of data is non-overlapping. Therefore, the data suggests that there is no significant improvement between baseline and intervention phases. However, given the relatively stable improving trend during the intervention phase (R^2= 0.3), one might predict that this may continue were there to be a follow-up phase.

4.6.1.2 Observed anxiety-related behaviour

Only 14 reports of anxiety-related behaviour were recorded on the Behaviour Watch system across the entire experimental period. Therefore, there was not enough data to analyse. This finding will be discussed in the next chapter.

4.6.2 Analysis of Libby's pre-post- data

Table 24- Libby's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	66	43	20
Post	Not returned	38	18
Difference		5	2
Improvement?		Yes	Yes
RCI		0.94	0.63
Clinically significant?		No	No

4.6.3 Interview

The interview was recorded, and Libby's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?

It helped

What did you like about it?

It keeped me calm.

Was there anything you didn't like?

I liked everything.

2. What are the main things you have learned?

Errm, tensing up and relaxing myself…I done that yesterday.

3. What (if anything) will you be doing differently in the future?

Without getting worried….a lot…I always get worried (laugh).

(Have you learned some strategies for dealing with that now?)

Yes.

4.6.4 Interpretation of findings

4.6.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

It is difficult to draw any conclusions about the effects of the programme on Libby's anxiety related behaviour without any SCED data. Libby's teacher's pre- and post- data suggest that an improvement was seen, however not to the extent that this could not have occurred by chance.

4.4.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

The increase in mean and median levels between baseline and intervention phases suggests that the intervention had a negative impact on Libby's self-reports of anxiety. However, the improving trendline during the intervention phase, coupled with Libby's reduced self-reports of anxiety in the post intervention measure suggests that the trend might be predictive of a reduction at follow-up.

This view is supported by Libby's qualitative data, in which she expresses that the programme has helped to keep her calm, and that she won't get so worried in the future. She also shares that one of the relaxation techniques from the programme has been a strategy that she has already employed to assist her.

4.7 Case Study 5

4.7.1 Analysis of Caitlin's SCED data

Table 25- Contextual Information for Caitlin

Participant	Caitlin, age: 15:10 years. Primary SEN: Moderate learning difficulty Class 'B' (Move-around class; Form tutor not involved in learning the programme).
Target Behaviour	Anxiety
Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Paediatric Index for Emotional Distress (PI-ED, O'Connor et al., 2010) b) Computerised behaviour monitoring system (Behaviour Watch).

4.7.1.1 Self-reported anxiety

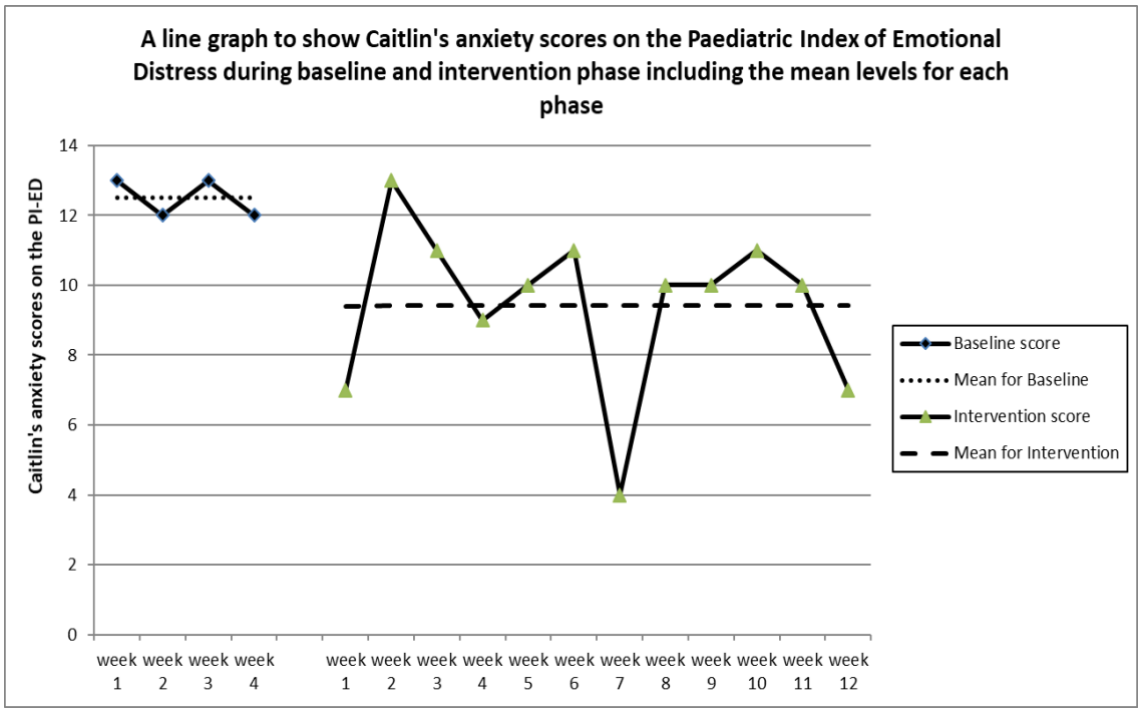

Figure 16: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Caitlin)

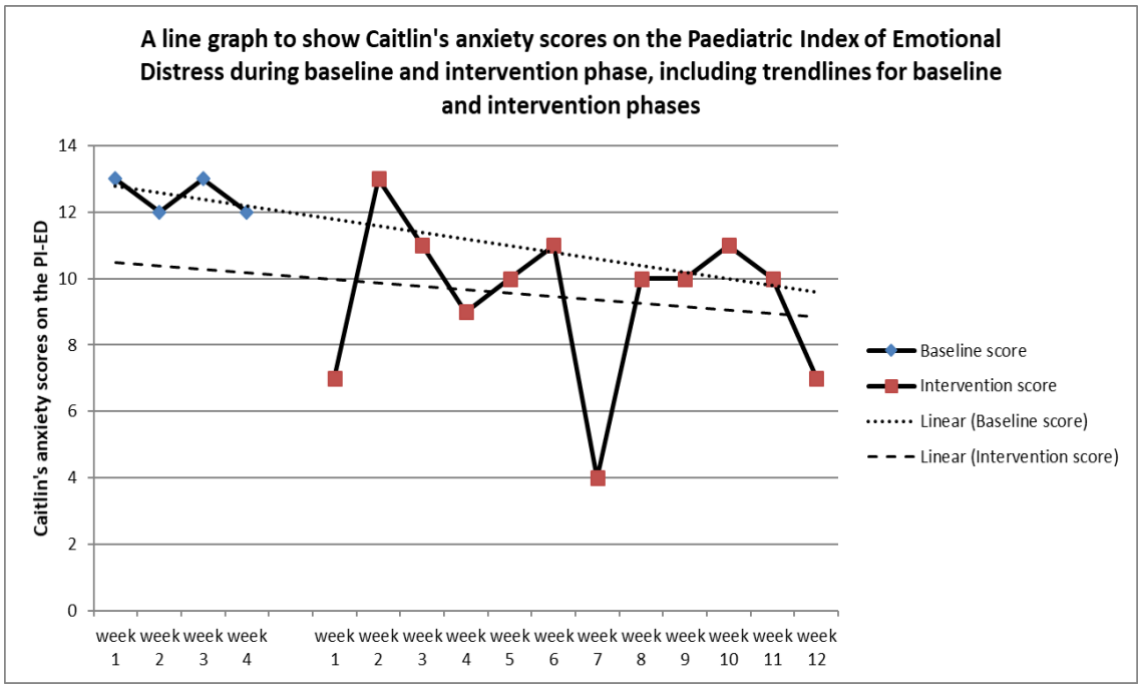

Figure 17: Line graph to show the change in trend between baseline and intervention phases (self-reported data for Caitlin)

Table 26- Visual Analysis of Caitlin's self-rated scores on the Paediatric Index of Emotional Distress, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating-improving trend during baseline to a decelerating-improving trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.2) Intervention (R^2= 0.02)
Step 4a: Median level change Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median value of A: 12.5 (stable) Median value of B: 10 (variable) Median level change: 2.5
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 12.5 Mean value of B: 9.42 Difference: 3.08 Improving Mean level shift: 0.246 (large)
Step 5a: Percentage of non-overlapping data (PND)	91.7 %
Step 5b: Percentage of overlapping data (POD)	8.3 %

4.7.1.1.1 Summary of Findings

Figure 16 shows an improvement in the mean level from 12.5 to 9.42, and there was also an improvement in the median level from 12.5 to 10. Although the improving trendline is variable (R^2= 0.02) and decelerates during the intervention phase, 91.7% of the data falls below the lowest score in the

baseline phase. Therefore, taking all the methods of analysis into consideration, the data suggests that there has been a significant improvement between baseline and intervention phases.

4.7.1.2 Observed anxiety-related behaviour

Only six reports of anxiety-related behaviour were recorded on the Behaviour Watch system across the entire experimental period. This meant that there was not enough data to analyse. This finding will be discussed in the next chapter.

4.7.2 Analysis of Caitlin's pre-post- data

Table 27- Caitlin's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	22	40	18
Post	24	53	15
Difference	-2	-13	3
Improvement?	No	No	Yes
RCI			0.95
Clinically significant?			No

4.7.3 Interview

The interview was recorded, and Caitlin's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?

It was alright

What did you like?

That we can learn how to do problem solving.

What didn't you like?

The hand massage.

2. What are the main things you have learned?

How to calm yourself down if you're angry and how to do problem solving.

3. What (if anything) will you be doing differently in the future?

Calming myself down if I'm angry.

4.7.4 Interpretation of findings

4.7.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

The lack of any SCED data makes it difficult to answer this question. Caitlin's teacher's pre- and post- data suggest that Caitlin's anxiety related behaviour decreased as a result of the programme, however, her father's pre- and post- data suggests the contrary. Furthermore, the lack of clinical significance in Caitlin's teacher's data forces one to conclude that that the programme did not reduce Caitlin's anxiety related behaviour.

4.7.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

The repeated measures data suggests that the intervention was successful in reducing Caitlin's self-reports of anxiety, nevertheless, the validity of this finding is limited by the threats (such as history and maturation) which will be discussed in the next section. It is noteworthy also, that a comparison of Caitlin's pre- and post- self-report measures demonstrates an increase in anxiety following the intervention. Unfortunately, the post measure was administered on the same day that Caitlin received some distressing information relating to her family, which may have detrimentally affected her anxiety levels causing her to respond negatively to the questionnaire. This will be discussed in the next chapter.

4.8 Case Study 6

4.8.1 Analysis of Jason's SCED data

Table 28- Contextual Information for Jason

Participant	Jason, age: 15:9 years. Primary SEN: Cognition and learning. Class 'B' (Move-around class; Form tutor not involved in learning the programme).
Target Behaviour	Anxiety
Time Frame	Baseline phase: 4 weeks; Intervention phase: 12 weeks
Data collection instrument	a) Paediatric Index for Emotional Distress (PI-ED, O'Connor et al., 2010) b) Computerised behaviour monitoring system (Behaviour Watch).

4.8.1.1 Self-reported anxiety

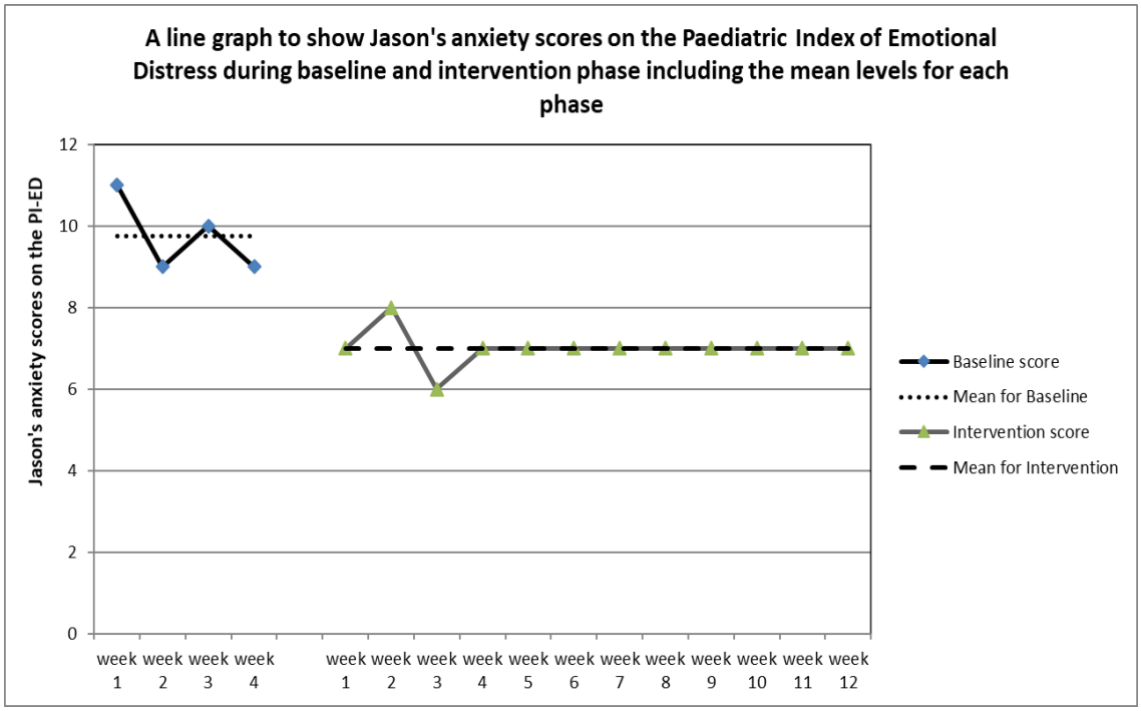

Figure 18: Line graph to show the mean level change between baseline and intervention phases (self-reported data for Jason)

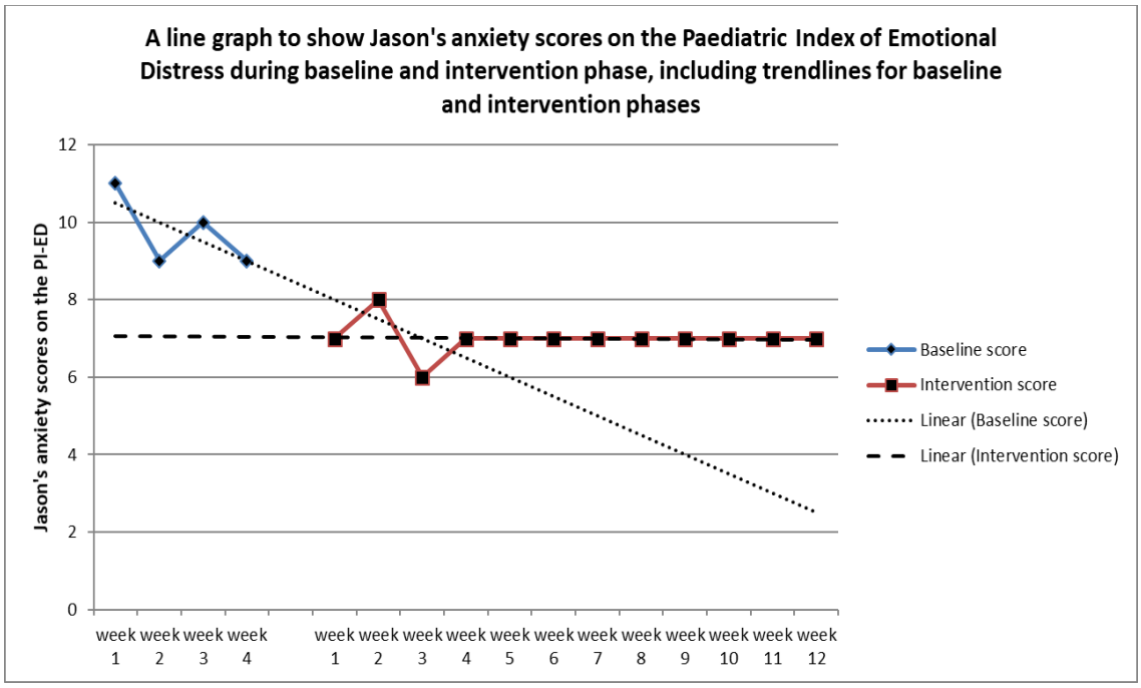

Figure 19: Line graph to show the change in trend between baseline and intervention phases (self-reported data for Jason)

Table 29- Visual Analysis of Jason's self-rated scores on the Paediatric Index of Emotional Distress, comparing baseline and intervention phase data

Criteria (Taken from Lane & Gast, 2013)	Analysis of change in self-reported behaviour between baseline (A) and intervention (B) phases
Step 2: Type of change in trend direction.	A change from an accelerating-improving trend during baseline to a zero-celerating trend during intervention.
Step 3: Trend stability.	Baseline (R^2=0.45) Intervention (R^2= 0.004)
Step 4a: Median level change	Median value of A: 9.5 (stable) Median value of B: 7 (stable)

Median stability (Stability criterion is 80% or more of data points within +/- 25% of the median).	Median level change: 2.5
Step 4b: Mean level change (Percentage of change or 'mean level shift' is the difference between the mean values divided by the mean of the baseline phase).	Mean value of A: 9.75 Mean value of B: 7 Difference: 2.75 Improving Mean level shift: 0.282 (large)
Step 5a: Percentage of non-overlapping data (PND)	100%
Step 5b: Percentage of overlapping data (POD)	0

4.8.1.1.1 Summary of Findings

Figure 18 shows an improvement in the mean level from 9.75 to 7, and there was also an improvement in the median level from 9.5 to 7. Although there is an improving trendline during the baseline phase, which flattens out during the intervention phase, 100 % of the data points fall below the lowest score in the baseline phase. Therefore, taking all the methods of analysis into consideration, the data suggests that there has been a significant improvement between baseline and intervention phases.

4.8.1.2 Observed anxiety-related behaviour

Only two reports of anxiety-related behaviour were recorded on the Behaviour Watch system across the entire experimental period. This meant that there was not enough data to analyse. This finding will be discussed in the next chapter.

4.8.2 Analysis of Jason's pre-post- data

Table 30- Jason's Pre- and Post- Intervention Scores on the Spence Children's Anxiety Scales and School Anxiety Scale-Teacher Report

	Spence Childrens Anxiety Scale, Parent version (SCAS-P)	Spence Childrens Anxiety Scale (SCAS) (self-report)	School Anxiety Scale-Teacher report (SAS-TR)
Pre	34	45	43
Post	33	53	40
Difference	1	-8	3
Improvement?	Yes	No	Yes
RCI	0.23		0.95
Clinically significant improvement?	No		No

4.8.3 Interview

The interview was recorded, and Jason's responses are reported verbatim in italics.

1. What did you think of the Feelings Detectives programme?

It was good.

What did you like?

Errm….seeing how other people feel.

Was there anything you didn't like?

No

2. What are the main things you have learned?

How to…control your feelings and your thoughts.

3. What (if anything) will you be doing differently in the future?

Finding something to keep myself calm.

4.8.4 Interpretation of findings

4.8.4.1 Research Question 1: Does the Feelings Detectives programme reduce pupils' anxiety related behaviour?

Without any repeated measures data, it is difficult to make a judgement about whether the programme reduced Jason's anxiety related behaviour. Nevertheless, a comparison of the pre- and post- data from Jason's parent and teacher suggests that their perception was that his anxiety had reduced following the intervention. Nevertheless, neither of these reductions in scores were large enough to have been classed as clinically significant.

4.8.4.2 Research Question 2: Does the Feelings Detectives programme reduce pupils' self-reports of their anxiety?

The repeated measures data appears to show that the programme reduced Jason's self-reports of anxiety. However, the validity of this conclusion is compromised by possible threats in the form of confounding variables which may have affected the outcome. It is also significant that Jason's pre- and post-measures indicate that his anxiety increased following the intervention, although, as previously stated, this may relate to an increase in his awareness of his anxiety (Neil & Christensen, 2010).

Jason's qualitative data suggests that Jason viewed the programme positively and has learned how to 'control his feelings and thoughts', by for example, finding something to keep himself calm. This will be discussed in the next section.

4.9 Reliability

4.9.1 Inter-rater Reliability

The level of agreement between raters using Cohen's kappa was 100%. Using Landis and Koch's (1977) guidelines, this indicates a perfect agreement suggesting that the reliability of the judgements can be increased.

4.9.2 Intervention Fidelity

The intervention was delivered in accordance with the guidance provided in the Feelings Detectives Manual (The Psychology Tree, 2019), which instructed that skills should be taught in the prescribed order. To ensure fidelity, an

independent observer chose two lesson plans at random, and checked that the lesson objectives matched the manual instructions. Both plans were judged to be consistent with manual-prescribed lesson objectives.

4.10 Staff interviews

The interviews were recorded and transcribed verbatim (Appendix F). Some students were referenced during the interviews who were not included in the study, requiring sections in which their behaviour was described to be omitted.

The following data is presented due to its relevance to Research Question 1: Does the Feelings Detectives Programme reduce pupils' anxiety related behaviour?

4.10.1 Interview 1 Class Teaching Assistant

What did you think of the FD programme? (What worked well? Even better if…)

- *Hannah obviously thrived on it*
- *It probably has worked for some of the others, and the sheets you gave me [pupil self-rated scaling sheets], most of them said they were really worried still and that is just them. I don't think that's ever gonna change.*
- *Hannah talks everything out aloud, and we all know how she's feeling, but sometimes she does try and 'right I need to stop it', she tries to rein herself in a bit, so whether this has helped her, it may well have.*
- *I don't think from doing this they're gonna change.*
- *Alice can definitely express herself, she can definitely tell you, but she could beforehand. So, no I don't think, sorry, that sounds really negative, I mean we might find, a month, two months down the line, sometimes it needs that processing time.*
- *oh but then they have a couple of times said in class 'oh that's a stop thought or that's a go thought' so we have heard that.*
- *And they liked the relaxation strategies, that was like a treat really, and again Hannah, her response was she loved it. Yes, I think the relaxation was really a good thing to do, coz we can put that in place if they get a bit anxious, clenching your fists clenching your legs that sort of thing, yeah I think that'll be good, so we can definitely put that in place.*

To what degree do you think that taking part in the programme affected pupil behaviour?

- *For the odd one or two.*
- *Tony no, no, I think it was too abstract for him.*
- *Hannah, yes she's got a good understanding of what's going on around her and how she's feeling, coz as I say, she'll tell us all how she's feeling,*
- *Alice also has got a good understanding but that's not, is the word alleviated? It's not alleviated their anxieties, coz if you look at the [scaling] sheets I think Hannah and Tony, they've sort of jumped about a bit, but Alice she's always anxious isn't she, she's always very worried. She doesn't come across as being anxious, she obviously has her fits and starts where she comes across a bit grumpy, but she seems to have had a nice time.. but looking at that sheet you'd think, oh dear.*

4.10.2 Interview 2 Class Teacher

What did you think of the FD programme? (What worked well? Even better if…)

- *I think the stop and go thoughts are a really strong point of the programme. If you notice the feedback from the students, it was the stop and the go thoughts.*
- *And of course, the relaxation was very good.*
- *But I particularly liked those stop and go thoughts. I thought we could particularly use them.*

To what degree do you think that taking part in the programme affected pupil behaviour?

- *if we hadn't had the Zones of Regulation I think it would have been ok, I mean I think it was good, but I can't say that I've significantly seen the effects.*

4.11 Research Question 3

Is the Feelings Detectives intervention more effective in reducing pupils' anxiety when its' taught strategies are revisited and embedded by the pupils' teacher and teaching assistant?

An evaluation of the SCED data would appear to suggest that the Feelings Detectives programme was more effective in reducing the anxiety of those pupils who were in the class where the teacher and teaching assistant (TA) were *not* involved in embedding strategies throughout the week. This finding however, is confounded by the fact that pupils were not randomly distributed between the two classes. Instead, pupils in the school are grouped according to ability, with those receiving teacher and TA involvement in this study being identified as 'less academically able' than those within the other group. This will be discussed in the following chapter.

4.12 Summary

This chapter evaluated the findings from the SCED data, pre- and post- data and qualitative data, and used all of this to draw individual case-based conclusions in response to the research questions. In the next chapter, these conclusions will be discussed in relation to threats to the validity and reliability of the study. In addition, the *process* as well as the *outcomes* of the intervention will be explored, within the context of evaluating the effectiveness of cognitive behavioural interventions with pupils with LD.

Chapter 5 Discussion

5.1 Introduction

In this chapter the findings from chapter 4 will be explored, with reference and in relation to theory and research presented in the literature review in chapter 2, and methodological and procedural aspects of the study outlined in chapter 3. It will begin by discussing the extent to which the data supported each research question hypothesis, comparing the findings with previous research regarding the effectiveness of CBT for treating anxiety in children, and in people with LD. It will go on to discuss the methodological flaws and problems, as well as the strengths, inherent in this study; and will conclude by exploring implications for Educational Psychologists, and possible directions for further research, alongside personal reflections on the research experience.

5.2 Interpretation of findings

5.2.1 Research Question 1

Does the Feelings Detectives intervention reduce pupils' anxiety-related behaviour?

5.2.1.1 Key findings

The data from the Behaviour Watch system in school which recorded staff observations of participants' anxiety-related behaviour across the baseline and intervention phases of the experiment was presented graphically for three of the six participants. That the system itself was not successful in recording data for the other three participants was a difficulty which, along with other methodological issues related to behavioural observations, will be discussed in section 5.3. With regards to Tony, Hannah and Alice's SCED data, it would appear that the intervention increased, rather than reduced their anxiety-related behaviour. Similarly, teacher post-intervention measures of the anxiety of these three participants suggest that this increased following the intervention, as did two parent post-intervention measures (for Alice and Caitlin), whilst one parent did not report any improvement (for Tony). This contrasts however, with the post-intervention measures completed by Jason's father and Hannah's foster mother, which suggested that an improvement was observed (which was clinically significant in Hannah's case), as well as the those completed by the form tutor for the three participants in class B, which indicated that there was a

(non-clinically significant) reduction in their anxiety-related behaviours; although, as will be discussed, reductions in scores could have been related to factors other than the intervention.

Qualitative data from the interviews with Tony, Hannah and Alice's teacher and teaching assistant suggests that they did not on the whole view the intervention as being effective in reducing the pupils' anxiety-related behaviour. This is demonstrated in the following statements: "*I don't think from doing this they're gonna change*"; "*Tony no, no, I think it was too abstract for him*"; "*It's not alleviated their anxieties*"; "*I can't say that I've significantly seen the effects*". However, other statements appear to question this view, for example: "*Hannah obviously thrived on it*", "*It probably has worked for some of the others*", "*for the odd one or two*" and "*Hannah yes*". It would seem likely therefore that the intervention was more effective in reducing the anxiety-related behaviour of some pupils than for others. This will be discussed further in the next section.

5.2.1.2 Findings in relation to hypothesis 1: The Feelings Detectives intervention will reduce pupils' anxiety-related behaviour.

There is partial support for the research hypothesis for two, possibly three, but not all of the pupils.

5.2.1.3 Interpretation of findings in relation to the literature

The finding that pupils' anxiety-related behaviour increased rather than reduced post-intervention is at odds with the literature from reviews evaluating group CBT targeting anxiety for children without LD (Briesch et al., 2010; Maggin & Johnson, 2014; Higgins & O'Sullivan, 2015; Ac et al., 2013; Neil & Christensen, 2009). Whilst it is proposed by some of these authors (Briesch et al., 2010; Maggin & Johnson, 2014; Higgins & O'Sullivan, 2015) that the methodological rigour required to validate positive findings is lacking in some of the studies reviewed, the positive impact on group outcome measures of anxiety compared with control groups is a universally reported finding. Similarly, studies investigating the effectiveness of CBT in reducing anxiety in adults with LD have found a significant decrease in post-intervention self-rated measures (Lindsay, 1999; Ghafoori et al., 2010; Lindsay et al., 2015).

One possible explanation for this disparity, is that the majority of the studies reviewed relied solely on self-report measures in assessing anxiety levels pre-

and post-intervention, which may be a more accurate, valid way of portraying anxiety than through parent and/or teacher reports. In a study which compared child self-reports with parent and teacher ratings of anxiety (Miller, Martinez, Shumka & Baker, 2014), there was a high level of agreement between parents and teachers, but a much lower agreement between parents and teachers, and child self-reports. The authors suggest that this may have been due to the internalising nature of anxiety which can 'manifest in ideosyncratic ways' (p.38). It is possible that the observational and checklist methods used to assess levels of anxiety were deficient in their construct validity, as will be discussed in section 5.3. Alternatively, they may have been an appropriate measure due to their objectivity. In another study which measured both child self-reports and parent ratings of anxiety pre- and post-intervention (Bernstein, Layne, Egan & Tennison, 2005) only parent ratings were found to show a significant treatment effect, suggesting that studies relying on child self-reports may have *under*-estimated the positive effects of CBT.

In the afore-mentioned study (Bernstein et al., 2005), parents were involved in one condition of the experiment, by being trained in CBT techniques alongside their children. The finding that this condition incurred a significantly greater reduction in child anxiety suggests that parental involvement may be a factor which can have a positive impact on the effectiveness of CBT, which may not have occurred in the present study (the Feelings Detectives programme encourages but does not stipulate parent involvement). The importance of parental input is postulated in a study which investigated the effectiveness of CBT with children with LD (Hronis et al., 2019), which found a similar divergence in post-intervention teacher-ratings of anxiety to the present study. These authors suggest that the lack of improvement for some participants may have been due to the pupils' difficulties in generalising concepts without parent support outside of the classroom. The benefits of additional support is also discussed in the adult literature. Marwood and Hewitt (2012), for example, involved 'support partners' in the CBT sessions, who knew the participants well, and offered cognitive support by helping them to understand information during the group and assisting afterwards with homework. The researchers suggested

that this support may have helped the participants to retain information and to maintain coping strategies.

It is possible that the intervention was more effective in reducing particular pupils' anxiety-related behaviour than for others. The benefit of an idiographic study is that it can highlight the individuals for whom a treatment is not effective. The disparity in outcomes for different individuals can also be seen in case studies evaulating CBT with adults with LD. For example, Marwood and Hewitt (2012) found a post-intervention decrease in anxiety in five out of eight participants, of which only two were clinically significant; and in another study (Douglass et al., 2007) three out of six participants demonstrated decreased anxiety, only two of which with clinical significance. In the present research, qualitative data suggests that the programme may have been "too abstract" for pupils with lower language comprehension abilities, such as Tony and Alice. This was also the finding in Marwood and Hewitt's study (2012), wherein they postulate that the variety and range of cognitive abilities within the group meant that occasionally participants were unable to fully understand group discussions. Similarly, Hassiotis et al. (2013) found no effects of CBT on anxiety assessment measures, which they postulate may have been due to the impact being reduced by participants' cognitive limitations.

An alternative explanation is that some of the pupils weren't anxious prior to the intervention, a possibility which might account for Tony's parent's equivalent pre- and post-intervention anxiety ratings. This was also demonstrated in studies evaluating CBT with typically developing children (e.g. Briesch et al., 2010), which found a greater effect size for those diagnosed with anxiety disorders (ES=0.84) than those in the general population (ES=0.24), and which, as the authors point out, is unsurprising given the likely floor effect for participants demonstrating low symptomatology initially. This finding, replicated in the study involving pupils with LD (Hronis et al., 2019) highlights the difficulty for parents or teachers in being able to accurately identify anxiety in children, due to its internalised symptomatology. As will be discussed, the 'anxiety-related behaviour' identified in this research, may not actually have been an indication of anxiety at all. Alternatively, the teacher and TA of the pupils in class A may not initially have recognised the full extent of their students' anxiety

(due to their mutual unfamiliarity at the beginning of term), which became more evident as the term progressed and they developed a greater awareness and understanding of each student's particular presentation.

Finally, it is possible that the lack of improvement observed in the anxiety-related behaviour of Tony, Alice and Hannah between baseline and intervention may have been due to a delay in the effect. This delay is reported in much of the literature on CBT for pupils without LD. One study (Mostert & Loxton, 2008) for example found that, whilst there was no statistically significant difference in anxiety symptoms immediately following the intervention, a significant effect was seen at both a 4-month and 6-month follow-up. A greater reduction in anxiety at a 4-month follow-up was also evidenced in a study by Rogers and Dunsmuir (2015) and at a 3-month follow-up in a study by Stallard and colleagues (2007). This delay is explained by Rogers and Dunsmuir (2015) as the time required for pupils to internalise what has been learnt and to practise the CBT skills and techniques. Mostert and Loxton (2008, p.93) similarly suggest that it is "only once children become more accomplished at using these skills will they become effective in reducing their anxiety symptoms". The qualitative data from interviews with the teacher and TA in the present study suggests that they held a similar view. This is demonstrated for example in the following statement: "*I mean we might find, a month, two months down the line, sometimes it needs that processing time*".

5.2.2 Research Question 2:

Does the Feelings Detectives intervention reduce pupils' self-report of their anxiety?

5.2.2.1 Key Findings

The SCED data relating to pupils' self-reports of anxiety across the baseline and intervention phases of the experiment suggests that the intervention was effective in reducing the anxiety of two participants (Caitlin and Jason), but that it raised the anxiety of one pupil (Libby) and did not convincingly reduce the anxiety of the other three pupils (Tony, Hannah and Alice). This finding is triangulated by the pre-post- measures, which indicate that Hannah and Alice's reports of their anxiety increased following the intervention. In contrast to the SCED data however, Caitlin and Jason's post-intervention self-report measures

indicate that their anxiety increased, whilst Libby and Tony's scores decreased. It is therefore impossible to say with any certainty that the intervention reduced pupils' self-reports of their anxiety.

5.2.2.2 Findings in relation to hypothesis 2: The Feelings Detectives intervention will reduce pupils' self-report of their anxiety.

The triangulated data provides conflicting and therefore inconclusive support for the research hypothesis.

5.2.2.3 Interpretation of findings in relation to the literature

As previously stated, there is a discrepancy between the findings in this study, and the outcomes of studies investigating the effectiveness of CBT in reducing self-reports of anxiety in typically developing children, and adults with LD. One possible explanation is that results from studies which rely exclusively on self-report data may lack the reliability and validity which is increased by incorporating triangulation methods. Briesch and colleagues (2010) for example question the validity of self-report data, due to the possibility that participants may provide what they perceive to be socially desirable responses. Other authors have postulated that children may respond in ways that they believe to be expected, due to the adult-child power imbalance (Punch, 2002), a validity threat termed 'participant bias' (Robson, 2002). This might, in part, explain the universally positive results identified in studies in which wait-list or usual care, as opposed to alternative or placebo controls are employed (Maggin & Johnson, 2014), and in which within-treatment variance is found to exceed between-treatment variance (Pugh, 2010).

It is possible that the intervention was not more effective in reducing pupils' self-reports of anxiety due to it being implemented by the researcher as opposed to the class teacher. A review of school-based interventions for anxiety by Neil and Christensen (2009) for example found that a higher percentage of trials in which the intervention was delivered by teachers demonstrated a significant treatment effect (88%) than those in which it was implemented by other programme leaders such as mental health practitioners, graduate students or researchers (75%). Nevertheless, this and other reviews found that effect sizes were smaller in those trials involving teachers as programme leaders, (Mean ES=0.22, compared with mean ES=0.56, Briesch et al., 2010) suggesting that training

and guidance might be required to support teachers in their delivery of interventions such as CBT.

Another possible explanation for its limited effect is that the CBT was delivered to a group, as opposed to individuals. In the adult literature reviewed in this study, most research investigates the effectiveness of CBT delivered to individuals with LD. These studies highlight the importance of the therapist responding to individual need, in terms of adapting the programme to both target the specific type of anxiety experienced by the client (e.g. Chapman & Shedlack, 2006; Cowdrey, 2014) and to increase its accessibility with regards to the cognitive abilities of the client. Cooney et al., (2017) for example, report positive outcomes of a study which investigated the effects of computerised CBT on anxiety, which was accessed by individuals with the support of a therapist. The researchers draw on Vygotskian theory to describe the benefits of supporting adults with LD to 'scaffold' their thinking about their thoughts, feelings and behaviours within the *collaborative relationship* established between the individual client and the therapist.

It is noteworthy that there was an *increase* in the self-reported post-intervention measures of anxiety for four participants, and during the intervention phase in the SCED data for one pupil (Libby). This has been the finding in other studies investigating the impact of CBT on children with autism (e.g. Slack, 2013) and on typically developing children, along with, as previously stated, a delay in effect. This is explained by Neil and Christensen (2009) by suggesting that participants may have to "pass through a period of elevated risk" for effects to emerge, and that this may take some time. Thornberry (2012), adds to this by proposing that this period, given its temporal location to the intervention, may be a point at which children are more likely to report higher levels of anxiety due to a greater awareness of their emotional wellbeing engendered by their learning within the programme. She goes on to suggest that a reduction may only emerge once the programme contents have had time to be consolidated. This possibility is suggested by Libby's SCED data, which demonstrates an improving trend during the intervention phase.

5.2.3 Research Question 3:

Is the Feelings Detectives intervention more effective in reducing pupils' anxiety when its' taught strategies are revisited and embedded by the pupils' teacher and teaching assistant?

5.2.3.1 Key Findings

This question requires a comparison to be made between the intervention effects for Tony, Hannah and Alice, and those for Libby, Caitlin and Jason. When considering their respective teachers' post-intervention responses, the conclusion must be that teacher and TA involvement did not improve intervention effectiveness. Similarly, participant self-report measures demonstrate that, on the whole, the effect was greater in the condition in which there was no teacher and TA involvement.

5.2.3.2 Findings in relation to hypothesis 3: The Feelings Detectives intervention will be more effective in reducing pupils' anxiety when its' taught strategies are revisited and embedded by the pupils' teacher and teaching assistant.

The data refutes the research hypothesis.

5.2.3.3 Interpretation of findings in relation to the literature

This finding is incongruent with theoretical perspectives espoused in the research literature, relating to the therapeutic gains in CBT for people with LD. A number of studies have shown that outcomes are improved when staff and/or carers are included in the training (e.g. Rose et al., 2005; Marwood & Hewitt, 2012; Douglass et al., 2007) due to the facility that this affords in supporting the retention of learned skills. There are two possible reasons why the inclusion of staff did not incur improved results in Class A. Firstly, it is possible that the teacher and TA did not revisit and embed the learning at other times during the week, due potentially to other curricular and non-curricular objectives taking priority. This seems to be reflected in statements implying that some strategies *would*, rather than *had* been implemented ("*we can put that in place if they get a bit anxious, clenching your fists clenching your legs that sort of thing yeah I think that'll be good, so we can definitely put that in place*"; "*But I particularly liked those stop and go thoughts. I thought we could particularly use them*"). Furthermore, the likelihood of learning being revisited was reduced during the period 21.01.20-31.01.20 due to the health-related absence of the teacher.

The second reason relates to a design limitation called ‘differential selection’ (Kratochwill et al., 2010), which highlights the difficulty of the pupils in class B differing from those in class A before the study began, thereby confounding the staff involvement variable. It is a practice in the school to group pupils into classes according to ability, and therefore it is very possible that the intervention was more effective for the participants in class B due to their higher language comprehension and general cognitive abilities.

5.3 Strengths and Limitations of Research Methods

5.3.1 Research Design

5.3.1.1 Limitations

The first two research questions relate to ‘cause’ (Odom et al., 2005), i.e. was there a systematic effect on the outcome measures for each participant? To demonstrate an effect convincingly, there is a need to control for threats to internal validity, and the most scientifically applauded way of achieving this is through a rigorously conducted RCT study. However, this is extremely difficult to engineer within special education, due to the variability of the participants, and the problems involved therefore in establishing equivalent groups (Odom et al., 2005). In order to build the statistical power required for analyses, it is necessary to recruit a large number of participants. Additionally, when conducting research in schools, one is restricted by pupils being ‘clustered’ in a pre-existing class, requiring the class rather than the individual participant to become the unit for analyses and power estimates (Odom et al., 2005). In the present research, it would not have been ethically or practically possible to group individual students away from their classes, due to issues relating to individuals’ curriculum entitlement and timetabling restrictions; and the researcher would not have been able to deliver the programme to more than two classes, due to time limitations.

Therefore, a single-case experimental design was chosen, since it was a feasible way of investigating whether the intervention was effective in reducing the anxiety of six pupils with LD. In addition, the SCED design offered the researcher the means of examining the variability of the behaviour of the participants over time. This was particularly important in the cases of Jason and Caitlin, whose post-intervention measures demonstrated an increase in anxiety,

which was not reflected in their SCED data. This highlights the difficulty of relying on pre-and post- self-report measures of anxiety which can be affected by the mood of the participant on that particular moment in time (which in Caitlin's case was affected by concurrent family issues). The SCED data was scrutinised for any patterns of behaviour across the different participants which may correspond with the introduction of particular aspects of the programme. No pattern could be detected however, which may reflect the various lengths of time that individuals required to process and internalise the learning. The benefit of the SCED design is that the researcher can manipulate the independent variable and observe the results. This faculty was without advantage in the present study, since the intervention was long and complex, incorporating overlearning and the revisiting of skills, meaning for example, that it was highly unlikely that an immediate effect would be seen.

This study adopted an A-B design, which has been described as 'weak' due to being compromised by various threats to internal validity (Kratochwill et al., 2010) which were outlined in section 3.9.2. The main threat was posed by the interaction of the 'history' and 'treatment' effects of other extraneous variables occurring in the same school and at the same time as the intervention. This could have been controlled for by applying a multiple base-line design at different points in time across different participants, were the participants to have received the intervention individually as opposed to being part of a group, or were it possible to stagger the starting points of the two class interventions. As this was not possible, attempts were made to ensure that individual participants were not receiving any other SEMH interventions, and that the groups were not receiving additional programmes as part of their curriculum, that co-occurred with the intervention phase of the study.

Other threats could have been controlled for by employing within-subject comparisons across different additional phases of the experiment. For example, the potential effect of 'maturation' could have been controlled for had it been possible to observe the effect of withdrawing the intervention (as can be achieved in an A-B-A design), which could not have been achieved in the present study once the learning had taken place. Other threats such as 'novelty', 'disruption' and 'experimenter effect' could have been controlled for by

introducing additional phases in which alternative interventions were trialled, or alternative programme leaders were introduced. For these reasons, the study design cannot provide enough experimental control to qualify as true single-case research, although it is hoped nevertheless, that it can contribute some useful information.

The purpose of the baseline phase is to establish that a pattern of behaviour has sufficiently consistent level and variability, with little or no trend (Kratochwill et al., 2010). This is similar to a 'treatment as usual' condition in a group design (Horner et al., 2005). This was a further weakness in the present study, since time limitations made it impossible to continue the baseline phase until a consistent pattern could be observed. The notable exceptions are in the self-reported baseline data for Hannah, Libby, Caitlin and Jason which were 'stable', although in Jason's case, there was an already improving trend, and the effect is therefore compromised (Horner, et al., 2005). However, in the SCED graphs which demonstrate anxiety-related behaviours (Figures 5, 9 and 13) the base-lines were all 'variable', with an accelerating, deteriorating trend, suggesting that a longer period was necessary to allow staff the time to familiarise themselves with the system. For this reason, it is impossible to make a valid judgement about whether the intervention had an effect on anxiety-related behaviours.

5.3.1.2 Strengths

The *external* validity of the design was in some ways easier to demonstrate in this study, given the fact that it incorporated single cases rather than groups. This enabled the researcher to describe the individual participants, setting and recruitment procedures for the benefit of other researchers and to enable other practitioners to consider the relevance of this research for young people with whom they might be working. The involvement of six single cases enhanced the external validity of the design, and would have increased the reliability of the findings had it been possible to demonstrate a decrease in anxiety across the different participants and the different measures.

The single case design was also suitable for investigating the effects of an intervention on pupils with LD, since it was able to highlight and allow the researcher to investigate possible explanations for the "non-responders" (Horner et al., 2005), including their particular characteristics and whether these

may have affected the outcomes. This would not have been possible had a group design been adopted, which was a limitation in studies from the adult research literature (e.g. Hassiotis et al., 2013) which found no effect of CBT on assessment measures, but could not explore the reasons for this.

5.3.2 Defining and Measuring Anxiety

5.3.2.1 Limitations

There is a difficulty with measuring a concept such as 'anxiety', since it is experienced internally and potentially in different ways by different individuals. As the dependent variable (DV) in both the single-case experiments and pre- and post-measures this was problematic for a number of reasons. Firstly, it was difficult to operationally and precisely define it, so that it could be objectively recognised by different observers. Despite collaboratively construed definitions of the pupils' 'anxiety-related behaviours' being described verbally and visually, and reiterated in writing, there may have been disagreement or confusion as to how the pupils' anxiety was being expressed and demonstrated, which could have impacted the way that it was recorded (or not recorded) on the Behaviour Watch system. Furthermore, judgements may have been subject to observer bias (Robson, 2002), if staff were, consciously or unconsciously, wishing to demonstrate a reduction or increase in pupils' anxiety as a result of the intervention. This must be taken into consideration when considering the validity of the outcomes of the pre-and post-data, which could have been improved by asking both teacher and teaching assistant, and where possible, both parents to complete the questionnaires in order to gain inter-rater reliability.

Secondly, it is difficult to construe anxiety in a way that enables it to be measured 'with a procedure that generates a quantifiable index' (Horner et al., 2005), both because it is difficult to define it objectively, and because of the contextual difficulties involved with measuring it in the real-world setting of a school, which may give rise to observer error. In the pilot stage of this study, observation schedules were created for each participant, on which staff were asked to record the frequency of the pupils' anxiety-related behaviours, during specified time periods each week across the baseline and intervention phases. However, feedback highlighted the practical and ethical difficulties that this request posed for staff whose efforts and attention were otherwise deployed. It

was for this reason that the Behaviour Watch system was introduced, since it offered a practical, accessible and familiar procedure for recording behaviours. Nevertheless, due perhaps to the internalising nature of anxiety, the system was not conducive to reliably recording anxiety-related behaviours, evidenced both in the limited data produced for the participants in class B, and in the lack of validity demonstrated in the baseline data for the participants in class A.

It is argued that the consistency with which dependent variables are recorded in SCEDs should be monitored through frequent measures of interobserver agreement (Horner et al., 2005). Whilst this was requested, the researcher was unable to ascertain whether this occurred during this research, and it is suspected that due to time constraints, teachers and TAs recorded the observed anxiety-related behaviours independently. Indeed, the noticeable drop in the number of anxiety-related behaviours observed during the week beginning 27.01.20 is explained by the absence of the class TA. Although her absence was covered by a different TA who also received the training in how to recognise the pupils' anxiety-related behaviours, it is likely that they were not recorded with the same consistency during this period.

The reliability of the teacher and parent pre- and post-measures of anxiety is questionable given the necessity for participants to have vocally communicated their worries or physical symptoms (e.g. 'having a funny feeling in his/her stomach') to enable checklist completion, since only a minority of the items related to observable symptoms (e.g. 'starting to tremble or shake when there is no reason for this'). This meant that some questions may have been unanswerable, for example, Caitlin's father left 4/38 items blank. It may be that anxiety is more accurately measured therefore by creating ways of enabling participants to express what they are experiencing internally. This was attempted in this study by employing different types of self-report measures. However, this was also problematic. Firstly, the single-case experiments required the measures to be *repeatedly* taken across the baseline and intervention phases. This may have contributed a threat to the validity of the experiments known as 'testing' (Robson, 2002). For example, due to the repeated exposure to the questionnaires/rating scales, participants may have learned what to expect, potentially causing them to respond in the same way or

randomly each time, due to familiarity, fatigue or boredom. As such, this may have constituted what is known as 'participant error' (Robson, 2002). There may also have been participant error in the way that pupils recorded their anxiety, were they to have been influenced by a concurrent event which had made them feel anxious at the moment at which they completed the questionnaire/rating scale, as opposed to reflecting upon their levels of anxiety for that week. As such, the difficulty of this request for CYP with LD, highlights the lack of reliability of the self-reported questionnaires/ratings scales as weekly measures. Secondly, they may have responded in ways which were subject to 'participant bias', as discussed in section 5.2.2.3.

In essence, it was difficult to ascertain whether the measures chosen had 'construct validity', i.e. whether they were actually measuring the participants' anxiety. This problem highlights the mismatch in this study between measuring a concept which could not be objectively defined and empirically observed, and employing a positivist experimental methodology. As Horner and colleagues advise (2005), dependent variables which are defined subjectively are not acceptable for single-case experiments. In the case of the anxiety-related behaviours, given that they were collaboratively and contextually defined for each individual participant in a constructivist way, it arguably follows that they should have been measured using a qualitative methodology. This will be explored in section 5.4.

Finally, the question remains of whether anxiety should be the focus of an effectiveness evaluation of CBT, since, by measuring it as a quantifiable dependent variable, one is necessarily reducing it to its categorical definition (either the participant is anxious or not) rather than its dimensional definition. This was done by comparing baseline with intervention phase in the SCED, and pre- and post- data from questionnaires and making a judgement about whether or not a significant/clinical improvement had occurred. This gives rise to the fallacy of circular argument around how anxiety is defined, and is meaningless for the participants who have been identified as experiencing anxiety, since, by 'anxiety' we are necessarily referring to a 'whole thing which must be reduced', rather than a specific, or group of specific challenges that are regularly experienced. Checklists as dependent variables blur the significance and

meaningfulness of a particular experience by comparing the *quantity* of 'anxiety symptoms' as well as the frequency of a particular experience. This will be further explored in section 5.4.

5.3.2.2 Strengths

In an attempt to improve the construct validity of the measurement of anxiety and objectivity of the study, multiple ways of measuring anxiety were employed. This meant that findings could be triangulated, and reported with a higher degree of confidence, and discrepancies could be discussed.

5.3.3 The Intervention

5.3.3.1 Limitations

It is possible that the Feelings Detectives programme was unable to effect a change in the pupils' levels of anxiety due to their learning having already reached a plateau as a result of a different intervention within the school. A framework called 'Zones of Regulation'- designed to foster self-regulation and emotional control had, according to the data provided in the teacher's interview (Appendix F), been introduced three years previously. This had taught the pupils to be aware of their emotions, and therefore, it is likely that a substantial section of the programme was superfluous to what had already been learned. This is implied in the comment "*So if we hadn't had the 'Zones of Regulation' I think it would have been ok, I mean I think it was good, but I can't say that I've significantly seen the effects*". Although the intervention, being active across the intervention and baseline phases, did not pose a 'history' threat, it may have incurred a ceiling effect on the pupils' learning.

5.3.3.2 Strengths

5.3.3.2.1 Social Validity

It is believed that the social validity of this study was enhanced by demonstrating, using the qualitative data drawn from interviews with the participants, teacher and teaching assistant (TA), that particular aspects of the intervention were viewed as being 1) effective, 2) useful and 3) likely to be employed in the future. This is evidenced in statements displayed in the following table:

Table 31- Qualitative data from interviews

NB See example pages from Feelings Detectives Pupil Book, Appendices A and B.

	Statement and speaker
Effectiveness, i.e. helpfulness in reducing anxiety	• *It probably has worked for some of the others* (TA) • *so whether this has helped her, it may well have* (TA) • *For the odd one or two* (TA) • *Hannah, yes* (TA) • *It helped* (Libby)
Usefulness, i.e. with regards to pupils developing skills to cope with anxiety	• *they have a couple of times said in class 'oh that's a stop thought or that's a go thought' so we have heard that* (TA) • *I think the stop and go thoughts are a really strong point of the programme. If you notice the feedback from the students, it was the stop and the go thoughts*. (Teacher) • *And of course, the relaxation was very good* (Teacher) • *the idea and the philosophy behind [the problem-solving], very good* (Teacher). • *But standing out from the Feelings Detectives is the stop and the go thoughts, I think that's a really powerful tool* (Teacher). • *And the diagram of the link between feelings and the stop and go thoughts* (Teacher) • *Stop thoughts and Go thoughts* (Tony) • *how to do problem solving*. (Caitlin) • *How to…control your feelings and your thoughts*. (Jason)

Likely to be employed in the future	• *Yes, I think the relaxation was really a good thing to do, coz we can put that in place if they get a bit anxious, clenching your fists clenching your legs that sort of thing, yeah I think that'll be good, so we can definitely put that in place*. (TA) • *I think, yeah the relaxation techniques coz they do show anxieties, I think that's quite a good thing to work on* (TA) • *The stop and go thoughts definitely, definitely* (Teacher) • *and relaxation* (Teacher) • *Having helpful thoughts* (Tony) • *The pizza massage* (Hannah) • *tensing up and relaxing myself…I done that yesterday*. (Libby)

The acceptability of the intervention is further demonstrated in the purported enjoyment of the programme expressed by the participants (e.g. four pupils articulated that it was "good"). Pupils appeared to be actively involved in the learning of skills, which was evidenced in the following reflection by the class teacher "*they were all as engaged as they could be*". However, two aspects of the programme were identified to be inappropriate for the participants in this study. The involvement of the 'Feelings Monkey' character for example was viewed to be "*confusing*" and "*hard to relate to*" by the TA. This may have been due to it being "*too abstract*" for those with social communication difficulties, who, the teacher reflected, might benefit more from seeing "*human faces*" to help them understand "*human emotions*"; and to it lacking 'age appropriateness' for a teenage audience (although it should be noted that the programme was designed for a younger age group).

A number of features of the programme increased its accessibility. The structured opportunities for overlearning and repetition, and for the

generalisation of skills helped the teaching of new concepts to be embedded. This is evidenced for example in the frequent references to ‘stop and go thoughts’ by the participants during interviews. It is possible however, that the level of abstract language comprehension required to make the programme accessible was too high for some of the pupils in class A. It is doubtful whether a programme modelled on the principles of ‘CBT’ could be better adapted for CYP with LD without removing some of the defining features. It is likely that the verbal reasoning skills needed to be able to, for example, solve problems, categorise feelings and thoughts and infer meaning from described situations would have to be at least equivalent to Blank Level 4 (Blank, Rose & Berlin, 1978). Indeed, when discussing the appropriateness of an evaluated online CBT-based intervention for CYP with LD, Hronis and colleagues (2019) suggest that it might be suitable for CYP with mild to moderate, as opposed to more severe learning difficulties. This will be discussed further in section 5.4.

5.3.3.2.2 Treatment integrity

The social validity of a study is said to be increased if the intervention can be applied with fidelity within real-world settings (Horner et al., 2005). This is facilitated by the intervention being manualised, since it enables the practitioner to follow a prescribed protocol. This is likely to be helpful to those who lack the experience of working with young people with LD, and who, research suggests, therefore lack confidence in delivering a therapeutic intervention such as CBT to these pupils (Hronis et al., 2019). A manualised procedure also ensures that the independent variable is operationally defined, which is important in a SCED, in order to allow valid interpretation of the results and replication of the procedure by other researchers (Horner et al., 2005). This is particularly significant to an intervention such as CBT, which can incorporate different features. These are listed for example by Pugh (2010) as including: training to reflect upon patterns of negative automatic thought, somatic management (e.g. through relaxation techniques), problem solving, finding alternative explanations, and exposure and relapse prevention. All of these features are implicitly built in to the Feelings Detectives programme apart from the last two items, which would be appropriate for individual therapy as opposed to a group intervention. Moreover, they are included and revisited in a specified order in the manual, which was

adhered to in this research (and verified by a colleague monitoring lesson plans). The delivery of the programme was fairly straightforward, and it is likely therefore that a teacher or TA, following training and perhaps with ongoing supervision, would be able to implement the intervention with a high degree of fidelity.

5.3.4 Researcher Role

In this study, the researcher has, as a result of having delivered the intervention, been entirely involved in the research process in a way that would not have been permittable under more controlled conditions. However, the researcher role, both through the experience of actively engaging with the pupils' learning and in the endeavour to tease apart and speculate about what may have been occurring during and as a consequence of the experiments, has afforded insights which place the research within the critical realist paradigm. The possible reasons outlined in sections 5.2 and 5.3 for why the experiments did not evidence a reduction in anxiety for all of the participants, are in effect a set of proposals (Robson, 2002), which might serve to focus future research. These will be explored in the next section.

5.4 Implications of the Findings: Reflections and Future Research

It is suggested that single-case experimental designs and qualitative research methods are well placed to investigate the 'process' rather than the outcome of a therapeutic intervention such as CBT (Pugh, 2010). Commentators on the appropriateness of different research methods to evaluate interventions have, as early as the 1970s, endorsed SCEDs in their ability to focus on the individual. Bergin and Strupp for example (1970, cited in Barlow et al., 2009) proposed that the SCED was able to isolate 'mechanisms of change' which could then be followed up by investigating their effectiveness as individual independent variables in future research. This is visually expressed in Salkovskis' Hourglass model (1995, cited in Frederickson, 2002), wherein ideas are tested in single case study research initially (at the upper pear-shaped section), which can thereafter (at the apex) be more rigorously investigated (e.g. through RCTs) ensuring that considerations of internal validity take precedence, and then (at the lower pear-shaped section) be generalised at the phase of the research which is focused on establishing the externally validity of the findings.

As Barlow and colleagues assert, “one of the more important functions of the case study is the generation of new hypotheses, which later may be subjected to more rigorous experimental scrutiny” (Barlow et al., 2009, p.22).

In this research, it has not been possible to conclusively demonstrate the effectiveness of the Feelings Detectives programme in reducing the anxiety of individuals with LD. However, it has been possible to explore potential reasons for this, as well as to isolate particular components of the programme which could be investigated further. These are highlighted in the qualitative data by frequent reference to their usefulness or helpfulness. Two aspects in particular, the relaxation techniques and the ‘stop and go thoughts’ may therefore be viewed as potential ‘mechanisms of change’ that could be investigated in isolation. However, to be more systematic, it would be beneficial to employ a rating system, similar to that used in Burke et al.’s evaluation of the ‘Friends for Life’ programme (2017) to investigate which specific strategies the participants found helpful. Interestingly, in Burke et al.’s study, awareness of ‘red and green thoughts’ was, like their ‘stop and go’ counterparts in the Feelings Detectives programme, identified as being the most helpful strategy.

The difficulties involved with measuring ‘anxiety’ as an internally experienced and externally defined construct have been discussed, including how a reduction in symptoms on a checklist might not reliably and validly demonstrate benefit to an individual. Future research may therefore consider the importance of identifying and measuring the impact of the Feelings Detectives programme on a specific area of anxiety experienced by an individual participant. For example, a child may be scared of spiders, or of going to school, or may find it difficult to get ‘bad or silly thoughts out of his/her head’. Once this had been determined, the frequency or intensity of the experience could be measured at baseline, during and post intervention, thereby making the measurement relevant, and meaningful to the child, and giving it greater social validity.

Alternative to measuring whether the intervention causes a reduction in anxiety, one might consider other ways in which participants may benefit from participating in the Feelings Detectives programme. Moving the objective from reducing anxiety to increasing the way in which the experience of anxiety is

coped with, might make the dependent variable more objectively quantifiable, and be more in keeping with the theoretical underpinnings of CBT, which sets out to positively influence the way in which individuals think about perceived threat. Two studies for example, have investigated the effects of CBT on improving participants' coping strategies. This was achieved using the Children's Coping Strategies Questionnaire – Revised (CCSQ-R; Sandler & Ayers, 2000) as a pre- and post- measure in a study investigating the impact of the Friends for Life programme with typically developing children (Thornberry, 2012). It was also demonstrated, through carer reports, homework diaries and observations of individual behaviour during sessions, in a study which explored the effects of using a cognitive behavioural intervention within an anxiety management group for adults with LD (Douglass et al., 2007).

Hypotheses which are focused on measuring an increase in coping strategies draw attention to the potential long-term gains from a cognitive behavioural intervention such as Feelings Detectives, both for those experiencing anxiety and for those who might experience it in the future. Limitations of the present research relating to a failure to measure outcomes at follow-up have been discussed, and further research to explore a possible delay in effect must therefore be fundamental to establishing the effectiveness of the Feelings Detectives programme in reducing anxiety, but also to demonstrating a beneficial as opposed to an augmentative effect on anxiety symptomatology. A focus on increasing coping strategies, as opposed to reducing anxiety, might demonstrate the programme's effectiveness as both a targeted and a universal preventative intervention. This would arguably have been a more appropriate focus for the present study given its starting point and rationale of equipping CYP with the skills to cope with potentially anxiety-provoking challenges in the future.

A strength of this study was to triangulate measures, employing both participant self-reports and parent and teacher measures. The difficulties which have been discussed relating to the use of checklists might, in future research, be remedied by asking pupils (who have the adequate literacy skills) to record their anxieties (and how they cope with them) in a diary throughout the experiment. This may have been a particularly effective strategy with the pupils in class B.

This could be triangulated by teachers and parents recording how well the pupils cope when they encounter anxiety-provoking situations or events, and/or how often they are witnessed to employ the learned strategies. Nevertheless, such a measurement system can be time consuming and demanding, and as discussed, difficult therefore to employ in a systematically rigorous way in a real-world setting.

The difficulties involved with operationalising anxiety behaviours so that they can be repeatedly measured have also been discussed. It is evident from this research, that this should ideally be engineered in a way that more effectively permits empirical summary, however, it is arguably unfeasible in the real-world setting of a school to carry out multiple observation schedules in a class of eleven or twelve pupils. It may therefore benefit future researchers to investigate the effectiveness of cognitive behavioural approaches with CYP with LD through individual delivery of a programme. This format would have additional benefits, such as: enabling particular types of anxiety to be specifically targeted; allowing the impact of the intervention to be measured at different points in time across different participants increasing the internal validity of the experiments; and permitting the exploration of process variables such as pupil motivation and the therapeutic relationship between pupil and practitioner. Although individual delivery would require adaptation to the Feelings Detectives programme, this would not be unfeasible, and would make it accessible and usable as a resource for TAs and emotional literacy support assistants (ELSAs) in schools.

5.5 Implications for Educational Psychologists

This study contributes to the evidence-base for the use of cognitive behavioural approaches with CYP with LD, as well as exploring the theoretical underpinnings of the psychology behind them, how they might be adapted to optimise their effectiveness whilst retaining this psychology, and the type of pupil for whom they might be appropriate. Having demonstrated some promising findings, the next step involves establishing the external validity of the effectiveness of the Feelings Detectives programme by evaluating its capacity to achieve SEMH outcomes for other pupils.

Whilst the EP's input is significant in providing the psychological knowledge base underpinning cognitive behavioural approaches, the challenge lies in facilitating access to evidence-informed programmes by the CYP who are most in need. As a manualised procedure which can be implemented following one-day training, Feelings Detectives is an intervention which might be delivered in a school setting, within a consultation model of service delivery in which it is the consultee who will implement the intervention. This may be more feasible, given the length of the intervention (biweekly sessions for 12 weeks), than via EP delivery. It could, for example, be implemented by a teacher within the PSHE curriculum, or by an ELSA with EP supervision.

This study has also highlighted some of the difficulties associated with evaluating outcomes in a real-world setting, and it will be important for EPs to ensure that appropriate and achievable frameworks for evaluation are collaboratively instigated as part of an intervention plan (Dunsmuir, Brown, Iyadurai & Monsen, 2009). Given the association between the experience of anxiety and a physical or cognitive stimulus (DSM-5, American Psychiatric Association, 2013) there may be improved construct and social validity in employing a scale (such as the one used by pupils in class A, Appendix K) which asks the pupil to rate the severity of their anxiety in relation to the stimulus which has been identified (through discussion with their parents/carers and teachers) to cause the most anxiety. E.g. *how worried have you felt this week about PE?* Similarly, a scale could be used by parents/carers and teachers to rate the severity of the pupil's anxiety according to their observation of behaviours occurring in temporal proximity to the stimulus e.g. on the morning prior to or just before a PE lesson. To enhance validity, reflecting the SCED design, scaling would be carried out prior to, during and following completion of the intervention.

5.6 Summary

This chapter has considered the possibility that there may have been a "block" to the hypothesised effects (Robson, 2002, p. 38), which could have resulted from reasons which can be categorised into three areas:

Firstly, the chapter has discussed methodological limitations which may have affected the outcomes. These include: the limited reliability and validity of the

instruments of measurement; the inadequacy of the measurement recording systems; failure to extend the baseline periods to ensure stability; possible floor and ceiling effects incurred by participants not being anxious prior to the experiment or to being already equipped by other interventions to cope with anxiety; a failure to carry out follow-up measurements which may have evidenced a delayed effect; and a difficulty in measuring 'anxiety' as a construct. Indeed, this last issue highlights the epistemological difficulty of employing a positivist experimental methodology to measure a dependent variable which is conceptualised using a relativist ontology.

Secondly, there may have been procedural limitations to acquiring a hypothesised effect. These include a lack of adult support to help embed and generalise learning; a possible reduction in therapeutic relationship due to the unfamiliarity between participants and programme deliverer; and the 'group' rather than 'individualised' delivery of the programme.

Finally, there may have been factors inherent to the intervention itself which limited the effect. The length and complexity of the programme, incorporating the revisiting of learnt concepts and skills, whilst necessary to a programme which is both based on the principles of CBT and designed for pupils with LD, makes it a difficult intervention to evaluate using a single-case experimental design, and it was unlikely therefore that a significant difference between baseline and intervention phases would have been observed, unless all of the skills had been adequately embedded well before the end of the intervention phase of the experiments. Secondly, the qualitative data suggests that the programme was too linguistically and conceptually complex to be accessible to two of the participants, and it is possible therefore that cognitive behavioural interventions are not appropriate for CYP with very low verbal reasoning abilities.

5.7 Contribution of this study

At the point of writing, a systematic literature review suggests that there have been just two studies (Mirnaalini, 2014; Hronis et al., 2019) which have researched the effectiveness of a cognitive behavioural intervention to reduce anxiety in CYP with LD. In the first of these, positive findings were severely compromised by the design limitations of the study. In the second however,

results identified reductions in anxiety, particularly for older adolescents who had been identified with higher levels of anxiety at baseline. The present study then contributes to this nascent field of research, and offers a unique contribution to the evidence-base for cognitive behavioural interventions with pupils with LD.

5.8 Conclusion

This research set out on an exploratory journey to investigate whether cognitive behavioural interventions were able to reduce anxiety in pupils with LD. It has set the scene, by proposing possible mechanisms which may have been at work in limiting or preventing an effect, for further research into 'what works best' for CYP with LD. It has explored whether the Feelings Detectives programme in particular was able to reduce the anxiety of six pupils who attend a special schooI for CYP whose primary need is learning and cognition. The quantitative data indicates that for five of the six participants there was a decrease in at least one outcome measure of anxiety. Key design limitations detrimentally affect the internal validity of these findings, however, placed alongside the views of participants and staff which reflect the positive aspects of the programme, this suggests that further research into the effectiveness of the Feelings Detectives programme is warranted.

Chapter 6 References

6.1 Primary Sources

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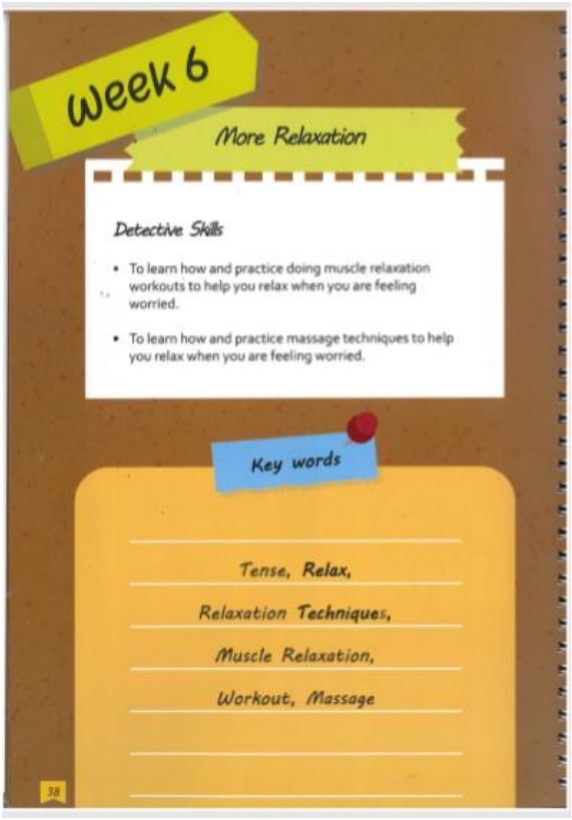
Chapter 7 Appendices

7.1 Appendix A: Feelings Detectives Pupil Book. Relaxation.



Week 6

More Relaxation

Detective Skills

- To learn how and practice doing muscle relaxation workouts to help you relax when you are feeling worried.
- To learn how and practice massage techniques to help you relax when you are feeling worried.

Key words

Tense, Relax,
Relaxation Techniques,
Muscle Relaxation,
Workout, Massage

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Session 11

Activity 1:
Muscle Workout

What do I have to do?
Listen to the Lead Detective and follow the muscle relaxation workout.
Tense and relax each body part.

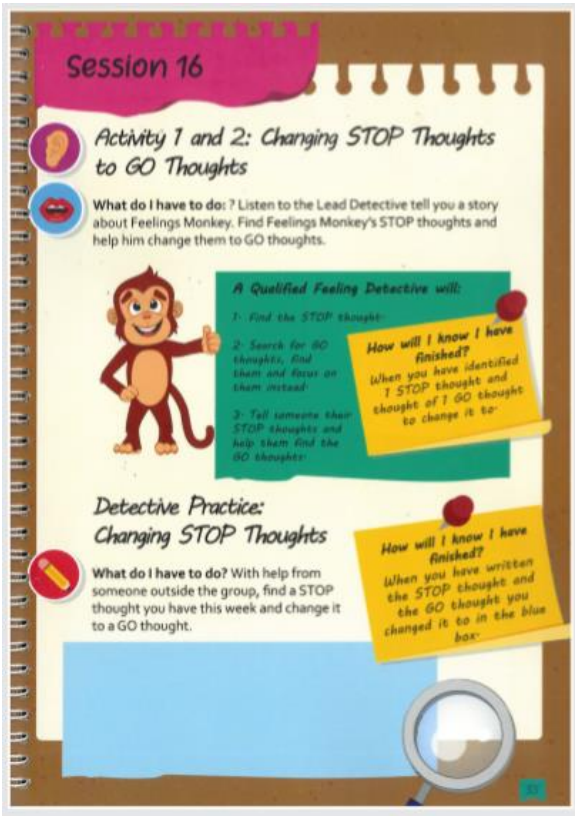
How will I know I have finished?
When you have had a go at the muscle workout.

Activity 2: Neck Massage

What do I have to do?
Listen to the Lead Detective and try the self neck massage.

How will I know I have finished?
When you have had a go at neck massage.

7.2 Appendix B: Feelings Detectives Pupil Book. Stop and Go thoughts.



Session 16

Activity 1 and 2: Changing STOP Thoughts to GO Thoughts

What do I have to do: ? Listen to the Lead Detective tell you a story about Feelings Monkey. Find Feelings Monkey's STOP thoughts and help him change them to GO thoughts.

A Qualified Feeling Detective will:

1. Find the STOP thought.
2. Search for GO thoughts, find them and focus on them instead.
3. Tell someone their STOP thoughts and help them find the GO thoughts.

How will I know I have finished?
When you have identified 1 STOP thought and thought of 1 GO thought to change it to.

Detective Practice: Changing STOP Thoughts

What do I have to do? With help from someone outside the group, find a STOP thought you have this week and change it to a GO thought.

How will I know I have finished?
When you have written the STOP thought and the GO thought you changed it to in the blue box.

7.3 Appendix C: Methodological Characteristics and Key Findings of Studies Selected for Systematic Review

Study (First author)	Participants and sample size	Length of Inter-vention	CBT Techniques	Design	DV Measures	Findings and Follow up	Notes	Effect Size
1. Lindsay (1999)	N=15 Age: Not given LD: Not given	Average of 23 sessions (range: 15-47)	Simplified form of Beck's Cognitive Therapy.	Quantitative case series	Self-reported frequency and intensity of problematic cognitions (BAI or ZAS) Pre-, post- and follow-up measures.	Significant decrease in BAI or ZAS (from 75% to around 40% of total score possible on each scale). Effect maintained at follow-up.	This study is a brief case report based on clinical experience.	Not given
2. Chapman (2006)	N (relevant to this review)=2 Age:67-year old man, 32-year old woman.	Not reported.	Stop-think-relax adaptation of CBT delivered individually by therapist.	Two case studies.	Staff-rated checklist of observable behaviours using the Aberrant Behaviour Checklist (ABC:	Significant decrease in scores of 'irritability' and 'hyperactivity' for both participants.	Descriptive reports of case studies.	Not given

	LD: Mild Intellectual Disability				Aman and Singh, 1986) Pre- and post-measures.			
3. Douglass (2007)	N=7 Age:22-65 LD: Mild-moderate. 2 men, 4 women.	12 weekly, 2-hour sessions.	Group CBT delivered by assistant and trainee psychologists, LD nurse and OT. Details of techniques provided.	Mixed methods. One group.	GAS-ID (plus self-rating interview and carer-rated impact on anxiety) Pre- and post-measures.	Decrease in GAS-ID scores for three participants, of which two clinically significant.	Presence of carers at intervention thought to be influential to positive outcome.	Not given
4. Ghafoori (2010)	N=8 Age: 19-22, Mean 20 LD: Mild-borderline.	9 weekly, 90 minute sessions.	Group CBT delivered by clinical psychologist. Details of techniques	One group. Pilot study.	Symptom Checklist 90-Revised (SCL-90) Pre- post and 4-month follow-up measures.	Significant decrease in anxiety ($p<.05$) post-intervention. Improvement at follow-up but not	Only one session specifically focussed on anxiety management.	Post 0.87 Follow-up 0.83

	2 men, 6 women		provided (targeting anger, depression and anxiety managemen t).			statistically significant.	Lack of repeated measures through baseline and intervention.	
5. Marwood (2012)	N=8 Age:7-73 LD: Mild 5 men, 3 women.	6 weekly, 1-hour sessions.	CBT adapted for LD. Details provided. Delivered to group by trainee and assistant clinical psychologist s.	Mixed methods. One group.	Glasgow Anxiety Scale (GAS, Mindham and Espie, 2003) Pre- and post- measures.	5 participants showed decreased anxiety, but only 2 with clinical significance. Qualitative reports of decrease in anxiety.	Presence of a 'support person' at intervention. Group social support highlighted as influential in positive outcome.	Not given
6. Hassiotis (2013)	N=32 (randomise d to M-iCBT group n=16	All 16 M-iCBT participan ts	Treatment manual developed specifically	RCT Feasibility Study.	Self-reported Beck Anxiety Inventory Youth (BAI-Y) tested	No statistically significant difference found in	Random allocation to groups using single	Not given

	Age: Mean 33.7 5 men, 11 women; or control TAU group (n=16) Age: Mean 38 7 men, 9 women). LD: Mild-moderate.	attended between 5 and 16 sessions (M=12) Each session 1hr	for study and reported in full elsewhere (Hassiotis et al. 2011) Delivered by 2 accredited therapists.	2 groups-intervention and TAU.	for comprehension in pilot study, and read to participants if required. Administered at baseline, post-test and 6 months follow-up.	main effects or interactions.	blind protocol. Anxiety assessed using standardised tool. High treatment fidelity. Measures not validated for people with ID.	
7. Cowdrey (2014)	N=1 Age: 39 LD: Mild Female.	11 sessions	Exposure therapy + additional cognitive components. 'Think-feel-do' resource.	Single case A-B design.	Spider Phobia Questionnaire (Olatunji et al. 2009)	10/15 over 3-week baseline, 2/15 at session 11. Staff report that had not been called out to	Positive outcome could have been related to mindfulness-skills group which	Not given

			Delivered by researcher.			support for 2 months.	participant had previously attended.	
8. Lindsay (2015)	N=12 adults in each group Age: treatment group mean: 28.9 Control group mean: 33.1 LD: Mean IQ of treatment group 62.4, mean IQ of control group 63.9	Weekly sessions for 8-14 sessions (M=11)	Trans-diagnostic treatment manual (5 modules) developed by authors used as a procedural guideline (Details provided). Delivered individually by therapist.	'Waiting list controlled design'. Small 'pilot' study. Quasi-experimental design.	Brief Symptom Inventory (BSI) factors of Global Severity Index (GSI), Anxiety and Depression. Details provided. Glasgow Anxiety and Depression scales (self- and carer-reports).	No significant difference between groups at baseline. Marginally significant effect of treatment group on BSI of Anxiety; significant effect of group on BSI GSI scores. No statistically significant change between post-treatment and follow-up at 3- and 6-months.	Outcomes measured by BSI (reliability and validity established for populations with mental health conditions, and for people with ID). Participants for each group came from	GSI d =2.05 Anxiety d =1.10

	6 men, 6 women.						different services (not randomised), with control group being selected retrospectively (may have been differences in two populations).	
9. Cooney (2017)	Treatment group: N=25 Age: Mean 42.0	7-weekly 1-hr sessions.	CBT computer game developed for adults with LD, to address symptoms	2 x 3 (group x time) RCT vs TAU	Glasgow anxiety scale (GAS) for LD Pre-, post and 3- month follow-up.	Significant reduction in group x time interactions for anxiety, and both its worries and physiological	Randomised using Microsoft XL random list generator function.	Time 1 v. Time 2 0.67 Time 1 v. Time 3 1.10

	8 men, 16 women. TAU group: N=26 Age: Mean 39.2 11 men, 14 women LD: Mild-moderate		of anxiety and depression. Participants played game alongside clinical psychologist			symptoms subscales.	Clinical recovery of anxiety in 40% of treatment group, 3 months after intervention.	CBT v. TAU Time 2 -0.51 CBT v. TAU Time 3 -1.09

7.4 Appendix D: Process for calculating the 'Weight of Evidence'

Evidence from each study is weighed based on the following criteria, and each tick is measured as one point. Studies were scored as follows:

• Weight of Evidence A – 0-12 (low), 13-16 (medium), 17-20 (high)

• Weight of Evidence B – 0-2 (low), 3-4 (medium) 5 (high). It was decided that a study must be an RCT in order to gain a weighting of medium or high.

• Weight of Evidence C – 0-2 (low), 3 (medium), 4 (high)

Weight of Evidence D was calculated as the total score across the three subsections. 0-18 (low), 19-23 (medium), 24-29 (high)

The studies are numbered as follows:

1. Lindsay, W. R. (1999) Cognitive Therapy
2. Chapman, R. A. and Shedlack, K. J. (2006) Stop-Think-Relax: An Adapted Self-Control Training Strategy for Individuals with Mental Retardation and Coexisting Psychiatric Illness.
3. Douglass, S., Palmer, K. and O'Connor, C. (2007) Experiences of running an anxiety management group for people with a learning disability using a cognitive behavioural intervention.
4. Ghafoori, B., Ratanasiripong, P. and Hollady, C. (2010) Cognitive Behavioural Group Therapy for Mood Management in Individuals with Intellectual Disabilities: A Pilot Study.
5. Marwood, H. and Hewitt, O. (2012) Evaluating an anxiety group for people with learning disabilities using a mixed methodology.
6. Hassiotis, A., Serfaty, M., Azam, K., Strydom, A., Blizard, R., Romeo, R., Martin, S. and King, M. (2013). Manualised Individual Cognitive Behavioural Therapy for mood disorders in people with mild to moderate intellectual disability: A feasibility randomised controlled trial.
7. Cowdrey, F. A. (2014) Exposure therapy for fear of spiders in an adult with learning disabilities: a case report.

8. Lindsay, W.R., Tinsley, S., Beail, N., Hastings, R.P., Jahoda, A., Taylor, J.L. and Hatton, C. (2015). A preliminary controlled trial of a trans-diagnostic programme for cognitive behaviour therapy with adults with intellectual disability.
9. Cooney, P., Jackman, C., Coyle, D. and O'Reilly, G. (2017) Computerised cognitive-behavioural therapy for adults with intellectual disability: randomised control trial.

Weight of Evidence A Generic Evaluation of Quality of Research	1	2	3	4	5	6	7	8	9
Criteria									
Intervention									
• Details of intervention techniques provided	/	/	/	/	/	/	/	/	/
• Adherence to technique measured (treatment fidelity)						/			
• Length of intervention detailed	/		/	/	/	/	/	/	/
• Ethics considered (e.g. consent given, received treatment at later date)			/	/	/	/		/	/
Design									
• Design specified			/	/	/	/	/	/	/
• Control group intervention detailed						/			/
• Measures specified	/	/	/	/	/	/	/	/	/

• Measures checked for reliability and validity	/	/	/	/	/				/
• Potential threats to reliability and validity considered		/		/		/	/	/	/
• Group assignment randomised						/			/
Participants									
• Number stated	/	/	/	/	/	/	/	/	/
• Age-range and gender given		/	/	/	/	/	/	/	/
• Socio-demographic characteristics provided		/		/	/	/			/
• Eligibility of participants specified	/	/	/	/	/	/		/	/
• Sampling methods provided				/	/	/		/	/
Outcomes									
• Dependent Variables defined	/	/	/	/	/	/	/	/	/
• Results presented clearly and accessibly		/	/	/	/	/	/	/	/
• Effect size provided				/				/	/
• Qualitative component		/	/		/	/			
• Data justifies conclusion			/			/	/	/	/
Assessment	L	L	M	M	M	H	L	M	H

Weight of Evidence B Relevance of Research Design to Review Question									
Criteria									
• RCT?						/			/
• Pre- and post-measures?	/	/	/	/	/	/	/	/	/
• Follow-up measure?	/			/		/		/	/
• Large sample size (>100)?									
• Treatment and control groups matched on sex, age, emotional symptoms and IQ								/	/
Assessment**	L	L	L	L	L	M	L	M	M
Weight of Evidence C Relevance of Study to Review Question									
Criteria									
• Participants have mild/moderate learning/intellectual disabilities	/	/	/	/	/	/	/	/	/
• Participants experience anxiety and/or depression	/	/	/	/	/	/	/	/	/
• Intervention based on principles of CBT	/	/	/	/	/	/	/	/	/
• Adaptations to CBT are clearly specified			/		/				

Assessment	M	M	H	M	H	M	M	M	M
Total Score	12	15	18	20	19	24	14	20	25
Weight of Evidence D Overall Judgement	L	L	L	M	M	H	L	M	H

7.5 Appendix E: Transcript of Interviews with Participants

Tony

What did you think of the FD programme?

It was good

What did you like?

What feeling you're in.

Was there anything you didn't you like?

No

What are the main things you have learned?

Stop thoughts and Go thoughts

What (if anything) will you be doing differently in the future?

Having helpful thoughts.

Hannah

What did you think of the FD programme?

Good

What did you like? What didn't you like?

I liked when you had to find out what stop thoughts and go thoughts are.

I didn't like that tense and relax (relaxation technique) because it doesn't work on me.

Did any of them work on you?

The pizza one.

What are the main things you have learned?

How to keep control of your feelings.

What (if anything) will you be doing differently in the future?

I don't know.

Do you think you'll use any of the skills you've learned?

I'll use the pizza massage.

Alice

What did you think of the FD programme?

Good.

What did you like? What didn't you like?

I liked when we talked about all the feelings inside, like angry and worried, I liked that.

I didn't like the menu when it said all the numbers. [The menu of relaxation techniques]

Why?

I didn't have a clue which numbers to pick.

Did you like the relaxation techniques?

Yes

Which one?

The pizza massage.

What are the main things you have learned?

What makes you feel happy and what makes you feel calm.

What (if anything) will you be doing differently in the future?

I don't know.

Will you be using any of the skills you've learned?

Not the angry thing [demonstrates tensing her body]

Where you had to tense and relax your body?

Yeah.

Libby

What did you think of the FD programme?

It helped.

What did you like? What didn't you like?

It keeps me calm.

I liked everything.

What are the main things you have learned?

Tensing up and relaxing myself. I did that yesterday.

What (if anything) will you be doing differently in the future?

I won't get worried so much.

Caitlin

What did you think of the FD programme?

It was alright.

What did you like? What didn't you like?

That we can learn how to do problem solving.

I didn't like the hand massage.

What are the main things you have learned?

How to come yourself down if you're angry and how to do problem solving.

What (if anything) will you be doing differently in the future?

Calming myself down if I'm angry.

Jason

What did you think of the FD programme?

It was good.

What did you like?

Seeing how other people feel.

Was there anything you didn't you like?

No

What are the main things you have learned?

How to control your feelings and your thoughts

What (if anything) will you be doing differently in the future?

Finding something to keep myself calm.

7.6 Appendix F: Transcript of Interviews with the Teaching Assistant and Teacher in Class A

NB Comments relating to pupils not in the study have been obscured.

Class Teaching Assistant

What did you think of the FD programme? (What worked well? Even better if…)

I think having the monkey was quite confusing, for some of our students. I think Hannah, she was definitely in tune with what you were doing, and we got a lot out of her. But for others, I think it was hard for them to relate to the monkey, and some found it quite difficult to understand what the monkey was doing and why we were talking about monkeys. I think actually that having a teenage face, coz that's what they are..like when you had the adult faces on the board at the beginning, that was better. I think having a monkey was a little bit, for me, it was better to have teenagers and then they can relate to, some can't relate to things that are abstract. But Hannah obviously thrived on it. [redacted] It probably has worked for some of the others, and the sheets you gave me [pupil scaling sheets], most of them said they were really worried still and that is just them. I don't think that's ever gonna change. And Hannah, Hannah talks everything out aloud, and we all know how she's feeling, but sometimes she does try and 'right I need to stop it', she tries to reign herself in a bit, so whether this has helped her, it may well have. But no they're not, I don't think from doing this they're gonna change. Sorry, that sounds really negative. [redacted] some pupils are on TALC level 1 and then you've got others on 4, so it's very hard to gauge. I mean [redacted]. Alice can definitely express herself, she can definitely tell you, but she could beforehand. So, no I don't think, sorry, that sounds really negative, I mean we might find, a month, two months down the line, sometimes it needs

that processing time and then, oh but then they have a couple of times said in class ‘oh that’s a stop thought or that’s a go thought’ so we have heard that. And they liked the relaxation strategies, that was like a treat really, and again Hannah, her response was she loved it. Yes, I think the relaxation was really a good thing to do, coz we can put that in place if they get a bit anxious, clenching your fists clenching your legs that sort of thing yeah I think that’ll be good, so we can definitely put that in place.

To what degree do you think that taking part in the programme affected pupil behaviour?

For the odd one or two. Tony no, no, I think it was too abstract for him. Hannah, yes she’s got a good understanding of what’s going on around her and how she’s feeling, coz as I say, she’ll tell us all how she’s feeling, ehm, Alice also has got a good understanding but that’s not, is the word alleviated? It’s not alleviated their anxieties, coz if you look at the [scaling] sheets I think Hannah and Tony, they’ve sort of jumped about a bit, but Alice she’s always anxious isn’t she, she’s always very worried. She doesn’t come across as being anxious, she obviously has her fits and starts where she comes across a bit grumpy, but she seems to have had a nice time.. but looking at that sheet you’d think, oh dear.

What (if anything) will you be doing differently as a result of the programme?

I think, yeah the relaxation techniques coz they do show anxieties, I think that’s quite a good thing to work on, and [redacted]

<u>Class Teacher</u>

What did you think of the FD programme? (What worked well? Even better if…)

Well can I just focus on the good things. I think the stop and go thoughts are a really strong point of the programme. If you notice the feedback from the

students, it was the stop and the go thoughts. And of course, the relaxation was very good. But I particularly liked those stop and go thoughts. I thought we could particularly use them. And whilst they're in Zones of Regulation, the way it was put across I thought would fit with that. What age group did they think they were projecting this to?

(*7-13 year-olds*)

Have the developers had much experience in a Special Needs School? It's just that, first of all, I would encourage the developers to look at the test of abstract language comprehension (TALC) and look at the work of ELKLAN. In fact, to discuss this programme with a SALT because in our classroom we have from TALC level 1, which is one student, and that is very simple, and even level 4 is for a 5 year old. I don't know whether they thought this would be appropriate for a whole class? Or more of a small group. That's why we did 'hubbub' groups*. It [the hubbub groups] worked really well with the students that have speech and language difficulties, and the processing difficulties, so a small group type of thing. But the stop and go, yes; more development and understanding of abstract language comprehension though. I feel for me, that the art work spun them off in a completely weird direction- the monkeys- why bring in a Disney theme? To something that should be real life. You're almost putting in a barrier between what you're trying to achieve. Human faces was easier for them to relate to. Because we don't relate to a Feelings Monkey. In fact you've actually got a dysfunction going on there. You're asking people to understand human emotions and you've given them a monkey. Where, in our case they're going to go out in the real world soon. And there was something else, yeah, in the slides, in the case files, they were children. The actual ideas behind them I feel were good, but it's very important to make it age appropriate. But the idea and the philosophy behind it, very good.

To what degree do you think that taking part in the programme affected pupil behaviour?

Well again, we have been using Zones of Regulation for a long time, so having done that for three years and a lot of it going in, and Tony has particular needs, they've got their own particular learning difficulties, and that, at this age has a

very strong impact. So if we hadn't had the Zones of Regulation I think it would have been ok, I mean I think it was good, but I can't say that I've significantly seen the effects. But that's nothing to do with your delivery! And they were all as engaged as they could be.

What (if anything) will you be doing differently as a result of the programme?

The stop and go thoughts definitely, definitely…and relaxation, and the rest of it is more or less the same as Zones of Regulation. And if I can say what we've used, is the Westlife song, I'm not sure if you're familiar with it, but they're stuck at an airport and this video is very powerful, coz there's all these vignette stories, visual stories of how people are feeling, it's a real drama of faces and emotions and its extremely good to get this across. We discussed in the classroom, how they're feeling, and we actually found that a music video was really age appropriate. But standing out from the Feelings Detectives is the stop and the go thoughts, I think that's a really powerful tool. And the diagram of the link between feelings and the stop and go thoughts. I would actually have that out on the table in the hubbub groups.

*'Hubbub groups' is the name given by the teacher to the small groups that the pupils form, to discuss a particular issue or carry out an activity. The pupils are grouped according to language comprehension ability, and each group is supported by a member of staff.

7.7 Appendix G: Access Letter

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Dear Head Teacher,

My name is Helen Holderness and I am a Trainee Educational Psychology currently working for XXXX Educational Psychology Service. As part of my professional doctoral training, I am required to carry out a research project. I am contacting you with an outline of this project to ask whether you would be interested and happy for me to carry out my research in your school. The overarching goal of my research project is to evaluate the impact of a cognitive- behavioural programme on the anxiety and emotion regulation of pupils with learning disabilities.

The research project will involve me implementing the intervention, which is a recently adapted edition of the FRIENDS for Life programme, for one 50-minute session each week across a 10-week period, in two classes in the school. In addition, I will need to work closely with the teacher and teaching assistant in one of these classes, as they will be very much involved in the implementation of strategies from the programme within their class. It is hoped that this research will contribute to the knowledge base around interventions to support the SEMH needs of pupils with learning disabilities. All data will be confidential, and every possible step will be taken to ensure that participants and your school remain anonymous in the final research report.

I appreciate that the body of this email, whilst giving you a flavour of the research, does not inform you of the full research outline and procedure. If you feel that you would be interested in participating, please respond to this email prior to [insert date]. Alternatively, if you feel that you need more information, I am happy to discuss this in person or by telephone at a time that is convenient for you.

I look forward to hearing from you.

Best wishes,

Helen Holderness

Trainee Educational Psychologist

7.8 Appendix H: Parent letter, Information Sheet and Consent Form

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Ethics Approval Number: S1159

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Nicholas Durbin

Contact Details:.nicholas.durbin@nottingham.ac.uk

Dear Parent/Carer

Your child is being invited to take part in a study to explore the effectiveness of a cognitive behavioural programme called 'Feelings Detectives', that is being carried out by Helen Holderness. Helen is undertaking her doctoral training in Applied Educational Psychology at the University of Nottingham and she is currently on placement with XXX Educational Psychology Service. You may contact her there by phone (xxxxxxxx) or by email (helen.holderness@nottingham.ac.uk) if you have any further questions.

The purpose of this project is to find out whether this new programme, which has been adapted for children and young people with learning disabilities, is effective in helping them to develop strategies to cope with feelings associated with anxiety. Your child has been chosen by his/her form tutor because s/he sometimes demonstrates (through his/her words or behaviour) that s/he may be feeling anxious about particular experiences in his/her life. The programme is being trialled in two classes at XXXXX school, one of which being your child's class. If you agree to permit your child to participate, it will involve them learning strategies to help them think more positively about things that worry them, and techniques to help them relax. This learning will take place as part of their school curriculum, during two 30-minute lessons each week for a twelve-week period. The school's Pastoral Support team will be available to support your child in calming/relaxation techniques should they require it following each session. If you do not consent to your child's participation, they will be supported by their teacher or TA in an alternative activity.

Your child will also be asked some questions about how they are feeling each week. This should take no longer than 10 minutes and will not interfere with other lessons or their playtime. In addition, their behaviour in class during a different lesson will be observed and recorded each week.

You will be asked to answer some questions about your child before the beginning and after the completion of the research project.

All details will be used in a confidential and anonymised way throughout the project, so that nobody will be able to identify your child's name or your child. The school will not be referenced in the report of this study. Any data collected on your child e.g. paper copy questionnaires, will be stored in a locked filing cabinet. Any digital data will be kept on an encrypted computer and encrypted memory stick. Please read the information sheet provided. If you are happy for your child to take part, please sign and return the consent form to the school. If consent is given, you have the right to withdraw your child from the study at any point, without giving a reason, which you can do by contacting me using the contact details provided.

Yours sincerely,

Helen Holderness

Trainee Educational Psychologist

……

If you have any complaints about the study, please contact:

Stephen Jackson (Chair of Ethics Committee)

stephen.jackson@nottingham.ac.uk

School of Psychology

Information Sheet

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Title of Project: Cognitive Behavioural Interventions with Pupils with Learning Disabilities:

An Evaluation of the Feelings Detectives Programme

Ethics Approval Number: S1159

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Nicholas Durbin

Contact Details: nicholas.durbin@nottingham.ac.uk

……

This is an invitation for your child to take part in a research study on a Cognitive Behavioural intervention called “Feelings Detectives”.

Before you decide if you wish your child to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

If your child participates, you and s/he will be asked to complete a questionnaire to find out if s/he is experiencing anxiety. This can be read for your child by a member of school staff if necessary. S/he will then receive two half-hour lessons each week for 12 weeks, in which s/he will learn about feelings, how to differentiate between feelings and thoughts, how to recognise positive and negative thoughts and how to turn negative thoughts into positive ones. In addition, s/he will learn how to formulate personal goals and devise plans to achieve them, alongside learning and rehearsing relaxation techniques to support her/him in managing feelings. During and prior to the intervention, your child will be asked to complete a different, shorter questionnaire,

once per week, which can be read for her/him by a member of school staff if necessary. This should take no longer than 10 minutes and will not interfere with other lessons or their playtime. In addition, their behaviour in class during a different lesson will be observed and recorded each week.

Participation in this study is totally voluntary and your child is under no obligation to take part. Your child is free to withdraw at any point before or during the study. S/he will be read an adapted version of this information sheet and be asked to give consent to taking part before the study begins. All data collected will be kept confidential and used for research purposes only. It will be stored in compliance with the Data Protection Act.

If you have any questions or concerns please don't hesitate to ask now. We can also be contacted after your child's participation at the above address.

If you have any complaints about the study, please contact:

Stephen Jackson (Chair of Ethics Committee)

stephen.jackson@nottingham.ac.uk

School of Psychology

Consent Form

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Ethics Approval Number: S1159

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Nicholas Durbin

Contact Details: nicholas.durbin@nottingham.ac.uk

The participant's parent/carer should answer these questions independently:

- Have you read and understood the Information Sheet? YES/NO
- Have you had the opportunity to ask questions about the study? YES/NO
- Have all your questions been answered satisfactorily (if applicable)? YES/NO
- Do you understand that your child is free to withdraw from the study? (at any time and without giving a reason) YES/NO
- I give permission for my child's data from this study to be shared with other researchers provided that her/his anonymity is completely protected. YES/NO
- Do you consent to your child taking part in the study? YES/NO

"This study has been explained to me to my satisfaction, and I consent to my child taking part. I understand that s/he is free to withdraw at any time."

Signature of the Participant's Parent/Carer: Date:

Name (in block capitals)

7.9 Appendix I: Participant Information Sheet and Consent Form

School of Psychology

Information Sheet

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Title of Project:

Cognitive Behavioural Interventions with Pupils with Learning Disabilities:

An Evaluation of the Feelings Detectives Programme

Ethics Approval Number: S1159

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Nicholas Durbin

Contact Details: nicholas.durbin@nottingham.ac.uk

This is an invitation to take part in a research study on the Feelings Detectives programme, which you will be learning about in class with Mrs Holderness. She will be coming in to tell us about it on [date].

Before you decide if you want to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read or listen to this information carefully.

If you take part, you will join in with the activities in the Feelings Detectives lessons like everyone else in your class. However, you will also be asked some questions about how you are feeling each week, which you will do with [name of member of staff]. This should take about 10 minutes, and you will not miss any lessons or playtime whilst you do it.

The information that you give will be used in a report, which will give us information about the Feelings Detectives programme. Your name will not be used in this report, so no one will know that you have taken part.

It is up to you if you want to take part in this study, and you can stop at any time without having to explain why. In the Feelings Detectives lessons, we will be talking about our thoughts and feelings, and it will be possible for you to speak to a member of Pastoral Support after each lesson if you need to. All your

answers to the questions will be used for this project and nothing else, and they will be kept in a locked filing cabinet so that no one else can see them. This is because we must follow the rules of the Data Protection Act.

Do you have any questions? If you can't think of any now, but want to ask some later, you can ask your teacher, parent or carer to email them to Mrs Holderness, or you can ask her when she comes into class.

If you have any complaints about the study, please contact:

Stephen Jackson (Chair of Ethics Committee)

stephen.jackson@nottingham.ac.uk

School of Psychology

Consent Form

The University of Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

Title of Project

Cognitive Behavioural Interventions with Pupils with Learning Disabilities:

An Evaluation of the Feelings Detectives Programme

Ethics Approval Number: S1159

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Nicholas Durbin

Contact Details: nicholas.durbin@nottingham.ac.uk

- Have you read or listened to someone else reading the Information Sheet? Yes No

- Do you understand the information? Yes No

- Have you been able to ask questions if you want to?

  Yes No

- If so, have all your questions been answered?

  Yes No

- Do you understand that you can stop being part of this project at any time, without having to give a reason?

  Yes No

- I give permission for my data from this study to be shared with other researchers so long as my name won't be used.

  Yes No

- Do you agree to take part in the study? Yes No

"This study has been explained to me in a way that I understand, and I agree to take part. I understand that I am free to stop taking part at any time."

Signature of the Participant: Date:

Name (in block capitals)

7.10 Appendix J: Staff Information Sheet and Consent Form

School of Psychology

Information Sheet for Staff

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Title of Project: Cognitive Behavioural Interventions with Pupils with Learning Disabilities:

An Evaluation of the Feelings Detectives Programme

Ethics Approval Number: S1209

Researcher: Helen Holderness

Contact Details lpxhh3@nottingham.ac.uk

Supervisor: Dr Victoria Lewis

Contact Details: lpavl2@exmail.nottingham.ac.uk

This document outlines a research project which I hope to undertake in your school. The overarching goal of my research project is to evaluate the impact of a cognitive- behavioural programme on the anxiety of pupils with learning disabilities.

The research project will involve me implementing the “Feelings Detectives” intervention, which is a recently adapted edition of the FRIENDS for Life programme, for two 30-minute sessions each week across a 12-week period, in two classes. Although the intervention will be delivered to the whole class, I will be measuring its impact on specific pupils who have been identified as experiencing anxiety, and who have, along with their parents, given their consent to participate.

I will need to work collaboratively with you to find ways of measuring their anxiety both before the intervention begins and throughout the course of the intervention, in ways which are feasible and consistently achievable. One way of doing this is to use the pre-existing behaviour recording system where staff

make a note of the frequency of target behaviours at the end of each lesson (Behaviour Watch). Relevant key staff (Teacher and Teaching Assistants) in one of the two classes, will observe the strategies being taught in the Feelings Detectives programme, in order to see whether their involvement in the programme (using strategies learned in the sessions across the rest of the week) will make a difference to pupil behaviour. I will also be asking you to answer three questions about the programme once it has finished, which should take no longer than 20 minutes, and can take place at a time that is convenient for you.

It is hoped that this research will contribute to the knowledge base around interventions to support the SEMH needs of pupils with learning disabilities. All data will be confidential and kept securely, used for research purposes only and be stored in compliance with the Data Protection Act. Every possible step will be taken to ensure that participants and your school remain anonymous in the final research report.

Participation in this study is totally voluntary and you are under no obligation to take part. You will be free to withdraw at any point before or during the study, without giving reasons. I will talk to you regularly throughout the study to find out whether there are any issues and to ask whether you are happy to continue.

If you have any questions or concerns please don't hesitate to ask. My supervisor and I can be contacted at the above address.

If you have any complaints about the study, please contact:

Stephen Jackson (Chair of Ethics Committee)

stephen.jackson@nottingham.ac.uk

School of Psychology

Consent Form

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

*Title of Project***:** *Cognitive Behavioural Interventions with Pupils with Learning Disabilities:*

An Evaluation of the Feelings Detectives Programme

Ethics Approval Number: S1209

Researcher(s): Helen Holderness; lpxhh3@nottingham.ac.uk.

Supervisor(s): Dr Victoria Lewis; lpavl2@exmail.nottigham.ac.uk.

The participant should answer these questions independently:

- Have you read and understood the Information Sheet? YES/NO
- Have you had the opportunity to ask questions about the study? YES/NO
- Have all your questions been answered satisfactorily (if applicable)? YES/NO
- Do you understand that you are free to withdraw from the study? (at any time and without giving a reason) YES/NO
- Do you agree to take part in the study? YES/NO

"This study has been explained to me to my satisfaction, and I agree to take part. I understand that I am free to withdraw at any time."

Signature of the Teacher/Teaching Assistant: Date:

Name (in block capitals)

7. Appendix K: Pupil Anxiety Rating Scale

Name: Date:

How worried did you feel this week?

1	2	3	4	5
Fine	Not very worried	A bit worried	Quite worried	Very worried

7.12 Appendix L: Ethics Committee Approval

The University of Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

School of Psychology
The University of Nottingham
University Park
Nottingham
NG7 2RD
tel: +44 (0)115 846 7403 or (0)115 951 4344

SJ/tp

Ref: S1139

Tuesday 26th March 2019

Dear Nick and Helen,

Ethics Committee Review

Thank you for submitting an account of your proposed research "**Cognitive Behavioural Interventions with Pupils with Learning Disabilities: An Evaluation of the Feelings Detectives Programme**".

That proposal has now been reviewed and we are pleased to tell you it has met with the Committee's approval.

However:
Please note the following comments from our reviewers:

Reviewer One:

-approved

Reviewer Two:
Minor revision
- Please consider in the information sheet that any item of the questionnaire can be left blank if the participants do not wish to answer it.

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice. The Committee should be informed immediately should any participant complaints or adverse events arise during the study.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely

The University of Nottingham
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Professor Stephan Jackson
Chair, Ethics Committee

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SJ/tp

Ref: S1209

Wednesday 30th October 2019

Dear Helen and Victoria,

Title of the new project: "Cognitive Behavioural Interventions with Pupils with Learning Disabilities: An Evaluation of the Feelings Detectives Programme"
Applicants: Helen Holderness

Further to your request for Chair Approval for amendments to the project:-

Details of the previous study:
Applicant: Helen Holderness
Title: "Cognitive Behavioural Interventions with Pupils with Learning Disabilities: An Evaluation of the Feelings Detectives Programme".
Date of approval: 26/03/19
Reference number (if known): S1159

As Chair of the Ethics Committee I have considered your request and I am happy to grant approval for the following changes:

-Approved

Final responsibility for ethical conduct of your research rests with you or your supervisor. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society and the University Research Ethics Committee. If you have any concerns whatever during the conduct of your research then you should consult those Codes of Practice.

Independently of the Ethics Committee procedures, supervisors also have responsibilities for the risk assessment of projects as detailed in the safety pages of the University web site. Ethics Committee approval does not alter, replace, or remove those responsibilities, nor does it certify that they have been met.

Yours sincerely

Professor Stephan Jackson
Chair, Ethics Committee

7.13 Appendix M: Example worksheets, used to reinforce learning objectives with more able pupils within the Feelings Detectives programme

happy	sad	angry
annoyed	worried	confused

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Try to come up with a Go (helpful) and a Stop (unhelpful) thought for each situation

1. Josh is playing football. His team are losing.

Stop thought	Go thought

2. Poppy hates maths. She gets to school and remembers that they have maths first.

Stop thought	Go thought