

Understanding Teacher Characteristics that Predict Ability to Identify
Subtle Cases of Autism

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Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Overview

This thesis focuses on whether specific training or experiences improve the ability of teaching staff to identify the female phenotype of autism and the subtle male phenotype of autism. The conceptual introduction (Part 1) reviews the key literature around autism, the female phenotype of autism and gender differences in autism, with the aim of exploring the importance of detection and diagnosis. It also explores the role of teachers in the detection of autism, considering how this is influenced by the characteristics of the child as well as the characteristics of the teachers.

Part 2, the empirical research paper, explores the variability in the recognition of autism from an online survey of primary school teaching staff. It uses the demographic information from the participants, as well as information gathered about their experiences throughout their career, in an attempt to examine which characteristics are associated with a more accurate identification of autism. This project was conducted jointly with Alana Whitlock.

Part 3, the critical appraisal, is an opportunity for reflections on the process of writing the conceptual introduction and carrying out the empirical research study. In particular, reflections on the methodological aspects of the research are made, including the use of vignettes and the challenges of competing demands on study design. Reflections are also made in regards to insignificant findings. In addition, the appraisal explores ideas around diagnosis and working on a joint thesis project.

Impact Statement

This thesis is beneficial in considering the role of teachers in the early detection of autism, to help young people with autism receive the support they need to navigate their schooling and beyond. Although the findings are limited in terms of being able to confirm specific characteristics of teachers that enable better detection of autism, it does serve to eliminate some ideas and make suggestions for further research. The study suggests that additional teacher training in autism does not better equip staff to detect undiagnosed autism. Perhaps there is more emphasis on management of autism and the challenges it poses in the classroom rather than enabling teaching staff to recognise it before diagnosis. If training was focused on the recognition of undiagnosed autism, specifically how the female phenotype of autism might present differently, there is a hypothesis that this might improve the detection of girls with autism in primary schools.

The study is an example of how vignettes can be used to capture and re-create how participants would respond in certain situations. As a cost effective and valid way of measuring behaviour, this project has carefully created well-matched descriptions of children with both the male phenotype of autism and the female phenotype of autism. Since the development of these vignettes, they are being used in other research in Australia looking at the attitudes towards autism by Professor Liz Pelicano and could provide valid depictions of autism for future research.

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Part 1: Conceptual Introduction

**What Makes Teachers Better Able to Recognise Subtle Cases
of Autism Spectrum Disorder (ASD)?**

1.1. Abstract

Introduction: A narrative review was used to consider how autism is often still undiagnosed in young children due to subtle presentations and the lack of recognition of the female phenotype. The introduction explores the detrimental impact of a late or missed diagnosis and emphasises the importance of early detection. Teachers play a crucial role in the detection of autism. The literature is reviewed in an attempt to identify the factors that influence teachers' abilities to recognise mental health disorders and additional educational needs.

Methods: Literature was gathered through both a systematic search as well as conventional (less systematic) search methods. The systematic search returned 829 papers which were processed to assess relevance, leaving 18 studies. Relevant literature cited in these studies, as well as other key papers related to theoretical ideas and hypotheses were also included in the conceptual introduction. Additionally, experts in the field of autism research were consulted about any other key papers, with the aim of obtaining a fair and comprehensive sample of the relevant literature.

Results: There are three key meta-analyses exploring the female phenotype of autism and the key gender differences in the presentation of autism. Research has, more recently, started to explore the impact of a late or missed diagnosis for women and studies suggest a range of negative effects if a diagnosis is not given in a timely manner. Literature on the role of teachers in this area is limited and there were no key papers exploring this exact topic.

Conclusions: The literature is focused more on child characteristics; children with more externalising behaviours are more likely to be recognised and referred for additional support, and boys are more likely to be recognised than girls. There is a lack of research on teacher characteristics that can aid in the recognition of autism, and this review calls for further study in this area.

1.2. Introduction

Individuals with subtle presentations of autism, including girls with autism, remain undetected in primary schools, perhaps due to their ability to better mask their social and communication difficulties (Baren-Cohen et al., 2009), and because the female phenotype of autism differs to that of the typical male presentation (Lai, Lombardo, Auyeung, Chakrabarti & Baron-Cohen, 2015; Loomes, Hull & Mandy, 2017). The lack of a timely diagnosis has been linked to serious health and wellbeing consequences (Loomes et al., 2017). This study aims to understand how the characteristics and experiences of teachers can make them better able to recognise subtle cases of autism. The research will address this aim by using an experimental design to emulate the diagnostic decision making of primary school teachers considering autism in children, whilst also collecting information on the potential predictors that will influence the accuracy of their decision making. The study could potentially add to the growing body of research regarding gender stereotyping in autism and the existence of a female phenotype of autism. Furthermore, it can produce a model of characteristics and experiences that could predict whether teachers are better able to identify autism in the classroom. Both of these areas could be used to inform training and autism awareness within primary schools to improve the detection of girls with autism and those with subtler presentations of autism. This could result in earlier detection, and faster routes to diagnosis with the effect of reducing distress. The following literature review explores the key research on autism, the female phenotype of autism and the impact of late or missing diagnoses. It will then progress to examine the roles of teachers in the diagnostic process, looking at both autism and broader mental health and additional needs within the context of policy, before reviewing which characteristics predict teacher sensitivity

to subtle cases of autism. This conceptual introduction seeks to set out the rationale for the empirical project and to justify the methodological choices made.

1.2.1. Strategy used to search the literature

A search was conducted (on 3rd October 2018) using the PsychINFO database on the Ovid platform, using the following search terms: Autis* OR ASD OR Asperger* OR “high functioning autis*” OR “pervasive developmental disorder” OR “subtle presentation of autis*” AND Teacher* OR “teaching staff” OR “learning support” OR educators or “primary school” or SENCOs AND characteristic* OR predict* OR experience* OR trait* OR training AND Identif* OR notic* OR diagnos* OR detect* OR understand* OR recogni* OR distinguish*. The initial search returned 829 results, which were processed to assess relevance, leaving 32 studies. Relevant literature cited in these studies, as well as key papers related to theoretical ideas were also included. In addition, experts in the field of autism research were consulted about any other key papers, with the aim of obtaining a fair and comprehensive sample of the relevant literature.

Studies were included in this conceptual introduction if the focus of their research was the exploration of the female phenotype of autism or the role teachers or education staff play in recognising or taking responsibility for autism or other mental health presentations. Studies were excluded if their primary focus was on the inclusion of pupils with autism, or if they were undergraduate papers, books or manuals.

1.2.2. Autism Spectrum Disorder

Autism spectrum disorder is a developmental disorder associated with social and communication impairments and rigid and repetitive patterns of behaviour and interests (Frith & Happe, 2005). According to the DSM-5 (American Psychiatric Association, 2013), symptoms of autism are present in the early developmental period and cause significant impairment in social, occupational, or other important areas of functioning. With the publication of the fifth edition of the DSM, distinct diagnoses of autism including Asperger's Syndrome and Pervasive Developmental Disorders not otherwise specified (PDD-NOS) were removed and replaced with the single label of Autism Spectrum Disorder (APA, 2013). As a less stigmatised label, the term 'autism' will be used throughout this paper to refer to the diagnostic entity of Autism Spectrum Disorder.

Estimates of autism's prevalence have increased markedly in the last four decades, although there is debate as to whether this is a true increase in prevalence, or an increase in detection. In 1978, the consensus estimate for classic autism was 4 in 10,000 (Rutter, 1978) whereas current population prevalence is estimated at approximately 150 in 10,000 in developed countries around the world (Baxter et al., 2015). This increase has been attributed to a number of different factors such as improved recognition and detection; changes in study methodology; an increase in available diagnostic services; increased awareness among professionals and parents; growing acceptance that autism can coexist with a range of other conditions; and a widening of the diagnostic criteria (Charman, 2002; Fombonne, 2002; Fombonne, 2003; Williams, Higgings & Brayne, 2006; Wing, 2002). Wing (2002) explains that diagnosis of autism is difficult to standardize as there are no definitive diagnostic tests. Additionally, like almost all mental conditions, there is no biomarker, so we

have to rely on a consensus about observable signs and symptoms. This has resulted in diagnostic decisions that are based upon developmental histories and behavioural observations, resulting in discrepancies in interpretation and recognition (Dworzynski, Ronald, Bolton & Happe 2012). Specifically, the instruments used include the Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter & Le Couteur, 1994) and the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, Goode, Heemsbergen, Jordan et al., 1989), both of which rely on the observations and experiences of parents, caregivers and clinicians, which are inherently subjective.

1.2.3. Undiagnosed autism

Despite this increase in prevalence driven by improvements in case detection, there is clear empirical evidence that undiagnosed autism is common and many children with autism are still being missed in primary school. Baron-Cohen and colleagues (2009) conducted a study to detect potentially clinically undiagnosed cases of autism in children aged 5-9. They used the Special Educational Needs (SEN) register to approach both mainstream and special schools to identify the number of children with a diagnosis of autism. They then distributed an autism diagnosis survey to all parents of children within the 5-9 age range. They received 3373 questionnaires back for analysis and their findings suggested that there are children with autism, notably those without intellectual disability (ID), who remain undetected in primary schools. They concluded that the ratio of known:unknown cases is approximately 3:2.

The children with autism who are being missed tend to have a higher IQ and less overt problems. Children with autism who do not have intellectual disability may be better able to mask their social and communication difficulties and may be quieter

and more cooperative at school, which leads to teachers being less aware that they have difficulties (Baren-Cohen et al, 2009). Autism with a normal IQ is often diagnosed much later than when it presents with cognitive impairment (Howlin & Asgharian, 1999; Mandell, Novak & Zubritsky 2005; Wiggins, Baio, & Rice, 2006) and parents report long delays and frustration in receiving a diagnosis for their child (Howlin & Asgharian, 1999). Related to this is the level of observable impairment; for example, children showing behaviours such as hand-flapping, toe walking, and 'odd play' are likely to receive a diagnosis earlier, whilst those showing more covert impairments, such as an oversensitivity to pain, are likely to receive their diagnosis later (Mandell et al., 2005).

Another key predictor for undiagnosed autism is the female gender, since girls are more likely to be overlooked than boys. Using data from a large scale, longitudinal twin study, it was found that manifestations of autism might be harder to recognise in females, which risks professionals missing the signs and failing to diagnose girls with autism (Dworzynski et al., 2012). Indeed, the researchers found that girls with autism who do not have behavioural problems or ID, or both, were less likely to be diagnosed (Dworzynski et al., 2012). In current epidemiological studies the male-to-female ratio of children meeting criteria for autism after high-quality assessment has been shown to be 3:1 (Loomes et al., 2017). However, it has been shown to be much higher than this, with the ratio increasing to 10:1 in clinics where individuals with autism and an IQ in the normal range are being seen (Dworzynski et al., 2012). One screening tool used to identify autism is the Childhood Autism Spectrum Test (CAST) which may be more efficient at detecting difficulties in social and communication development in boys than in girls (Williams et al., 2008). The DSM-5 (APA, 2013) acknowledges that girls who have autism but do not have ID

may go unnoticed due to subtler manifestations of symptoms, but it does not go into detail on what these differences might look like. The clear implication is that females, particularly those with a normal range IQ and fluent language, are at risk of having their autism undetected.

1.2.4. Female phenotype of autism

There are three recent influential systematic reviews in the area of the female phenotype of autism; Lai et al., (2015), Van Wjngaarden-Kremers et al., (2014) and Hull, Mandy & Petrides, (2017). These reviews, together with papers published after the last of them, have been used to summarise the currently well-evidenced key differences between the female and male phenotypes of autism. How these differences might contribute to the under-diagnosis of females will also be considered. These have been divided into four main categories; repetitive and restrictive behaviours and interests; social communication; emotional and behavioural functioning; and cognitive functioning.

1.2.4.1. Repetitive and restrictive behaviours and interests

A systematic review and meta-analysis carried out by Van Wijngaarden-Cremers and colleagues (2014) found that females with ASD show less repetitive and stereotyped behaviour than males. This finding has been consistently replicated in subsequent studies (Hiller, Young & Weber, 2014; May, Cornish & Rinehart, 2016 & Wang et al., 2017). Fewer girls present with lining up or sorting behaviours (Hiller et al., 2014). However, it could be that their behaviours and interests appear different when compared to boys. Girls with autism tend to have interests associated with people or animals, such as pets and popstars, which the current measurement instruments fail to identify because they were designed with the male phenotype of autism in mind (Kopp & Gillberg, 1992).

1.2.4.2. Social communication

Girls with autism show more interest in social relations and have a greater awareness of the need for social interaction, when compared to boys with autism (Attwood, 2007; Gould & Ashton-Smith, 2011; Kopp & Gillberg, 1992). Parents have rated their girls with autism as having better social skills than their boys with autism, using measures of socio-emotional reciprocity and social skill (Wang et al., 2017), and teachers have reported fewer concerns for girls than boys regarding their social skills (Hiller et al., 2014).

In order to manage social situations, individuals with autism might develop coping strategies or ‘camouflage’ their difficulties (Attwood, 2007; Gould & Ashton-Smith, 2011; Kopp & Gillberg, 1992). This involves hiding behaviours associated with autism and using learnt techniques to appear socially competent (Hull et al., 2017). ‘Camouflaging’ social communication difficulties is more common in females with autism than males with autism (Lai et al., 2017). This means that females with autism are more likely to make eye contact when talking to people, mimic the social behaviour of others and learn to follow social scripts (Lai & Baron-Cohen, 2015). In fact, any impairment girls with autism may show in social skills are more likely to be put down to shyness or anxiety by both family members and professionals (Holtmann, Bolte & Poustka, 2007). Girls with autism are also more able to regulate their behaviour in public to exhibit less externalising behaviours compared with boys, thus appearing more socially appropriate (Hiller et al., 2014).

Girls with autism are more likely to integrate non-verbal and verbal behaviours, use pragmatic language, make better use of social gestures, maintain reciprocal conversation, share interests with others and talk less repetitively than boys (Hiller et al., 2014; May et al., 2016). Girls with autism have been shown to use

gestures more often and more intensely than boys (Rynkiewicz et al., 2016) and discuss internal states such as physical sensations more than boys (Kauschke, van der Beek & Kamp-Becker, 2016).

Although it may be based on imitation, girls with autism tend to have one or two close friendships, as opposed to boys who struggle to form close friendships (Kopp & Gillberg, 2011; Lai et al., 2015). Through observation of primary school aged children in the playground, Dean, Harwood and Kasari (2017) perceived that girls with autism were more likely to remain near social groups, whereas boys with autism were more often seen alone, separate from socialising. In previous research, Dean and colleagues (2014) found that whilst boys with autism were purposefully left out by peers, girls with autism were simply not acknowledged by peers. Additionally, girls with autism can seek out younger aged children as playmates (Kopp & Gillberg, 2011), and can be more controlling in play which may impact their abilities to sustain friendships and peer relationships (Hiller et al., 2014). Typically they display more sex-typical play behaviours at a younger age (Hull et al., 2017) and have stronger imaginative skills, demonstrating more imaginative play than boys (Knickmeyer, Wheelwright & Baron-Cohen, 2008).

Many of the differences in relation to social communication mean that girls with autism often present with more socially acceptable behaviours meaning their difficulties are subtler or hidden, resulting in the under-diagnosis of females with autism.

1.2.4.3. Emotional and behavioural functioning

When younger, girls with autism generally report higher levels of internalising problems whereas boys with autism have higher reported levels of externalising problems (Hull et al., 2017; Solomon, Miller, Taylor, Hinshar & Carter,

2012). It is worth considering how externalising problems are often seen as more problematic and perhaps attended to more quickly, whereas internalising problems might be easier to ignore. Girls with autism show more depressive symptoms and are more likely to develop suicidal ideation (Rynkiewicz & Lucka, 2015). They also show higher levels of anxiety, in particular social anxiety (Hiller et al., 2014). There is interesting research around the relationship between the female phenotype of autism and eating disorders, with evidence to suggest that girls who have anorexia have heightened traits of autism, although the causes of these traits are not clear (Baren-Cohen et al., 2013; Westwood et al., 2017; Zhou, McAdam & Donnelly, 2018). It could be that anxiety disorders and eating disorders are recognised and diagnosed in girls as stand-alone mental health problems, however the presentation of autism is overlooked. Additionally, girls with autism are more likely to demonstrate passive demand avoidance, by ignoring requests (Kopp & Gillberg, 2011). Traits of perfectionism and determination are more present in girls than boys (Kopp & Gillberg, 2011; Zhou et al., 2018) and females show lower levels of hyperactivity at a younger age (Hull et al., 2017).

1.2.4.4. Cognitive functioning

Females with autism have performed significantly better than males in measures of executive functioning, where they are required to focus on task switching and cognitive flexibility (Hull et al., 2017). This greater task switching and cognitive flexibility, together with higher processing speeds in females with autism could explain why they are better able to use explicit cognitive strategies to cope in complex social interactions and to develop compensatory techniques to mask their social and communication impairments (Hull et al., 2017). Goddard and colleagues (2014) suggest that both neuro-typical girls and those with autism show better verbal

fluency and generate more emotional memories as well as autobiographical memories than boys.

Females with autism tend to have a lower IQ in autism clinical samples than males, but this could be due to the females with higher IQ being missed and not receiving a diagnosis, therefore they are not being included in these studies.

1.2.5. The impact of a lack of diagnosis/late diagnosis

Regardless of the gender differences in autism, an accurate diagnosis for both boys and girls is a crucial component in receiving support and resources (Hus, 2017). As outlined above, girls with autism are at disproportionately high risk of missing out on appropriate understanding and support (Lai et al., 2015). If females with autism never receive a diagnosis, they consequently never receive support, which can lead to serious health and wellbeing repercussions. Individuals with autism struggle with a range of aspects of life, for example, friendships are harder to form and maintain and are often of poorer quality, they are more likely to experience bullying and loneliness, and struggle with interpersonal and intimate relationships (Bauminger & Kasari, 2000; Kanne, Christ & Reiersen, 2009). Personal adjustment can be a challenge, including transitions such as between schools and into adulthood (Kanne et al., 2009). Autism is also closely linked to depression and anxiety (Crehan, Baer, Althoff & Constantino, 2018; Kanne et al., 2009). Support and ways to manage these challenges are available, but only once a person has been identified as having autism.

In addition to the well understood challenges of having autism, there are many negative consequences to not receiving a diagnosis. Late-diagnosed women with autism who were interviewed about their experiences drew a very direct line between their diagnosis being missed and negative outcomes (Bargiela, Steward & Mandy, 2016). These included being dismissed by professionals and labelled with a

range of mental health disorders which felt invalidating, being considered rude or lazy at school and generally being misunderstood and blamed (Bargiela et al., 2016). Camouflaging was exhausting to maintain, leading some women to become confused about their identity and develop a passive approach to relationships to try and fit in, which in turn resulted in victimisation and high-risk situations (Bargiela et al., 2016).

Girls with autism may well present in more subtle ways as opposed to boys, but just because a case is subtle it does not mean an individual does not need support. Many subtle cases are associated with high levels of suffering and need. Therefore, it is crucial that we become better at detecting these subtle cases of autism and the female phenotype of autism. This project aims to do just that, by identifying characteristics that improve teachers' sensitivity to this population.

1.3. Barriers to diagnosis: The role of teachers

One key route to diagnosis is observation by teachers (Morales-Hidalgo, Hernandez-Martinez, Voltas & Canals, 2017). Teachers can contribute to the diagnostic process in two main ways; firstly by recognising which pupils need an assessment, and secondly by contributing useful information to that assessment. Teachers are uniquely positioned to be able to make reliable comparisons between children of the same age, and recognise differences in social communication and restricted behaviour patterns in children who might benefit from further assessment (Morales-Hidalgo et al., 2017; So et al., 2013). In school settings, children can be observed in a more task-oriented environment and with a range of peers in comparison to the home. Therefore school settings offer a wealth of information in the identification of autism (So et al., 2013). Whether or not teachers are the people who instigate a referral to explore a diagnosis of autism, they are an important part of the system when making diagnostic decisions. Because the diagnostic process relies

so heavily on observable behaviour, it is vital to gather information about the child's functioning across multiple settings and from multiple perspectives (So et al., 2013). Furthermore, although parents are widely recognised as essential when assessing a child, teachers may offer a more reliable perspective. Parents may be more likely to deny problems with the intention of seeing the child as 'normal' (Sanford, Offord, Boyle, Peace, & Racine, 1992). Parents may also lack exposure to a comparison group and therefore fail to see the child's behaviour as outside of the norm (Sanford et al., 1992). In the case of primary school settings, teachers are particularly well placed to observe and make comments on a child's behaviour as they get to know their class very well over the course of an academic year.

Teachers are key conduits for diagnosis but, like any group, there will be variability in their skill at recognizing autism. Jones and colleagues (2014) conducted a comprehensive qualitative study on the experiences of receiving an autism diagnosis and found that training is required for frontline professionals on how autism without intellectual disability may manifest because they often held a stereotyped view of autism and lacked understanding of the different presentations (Jones, Goddard, Hill, Henry & Crane, 2014). Children who do not 'fit' the standard assumptions of what autism looks like may fail to be identified, and that tends to include those who do not have intellectual disabilities, and girls (Crane et al., 2018). There are two types of bias that might be present in professionals such as teachers when it comes to identifying autism. Firstly, the assumption that autism is a male condition and therefore unlikely to be present in females, and secondly, the lack of knowledge and understanding of how autism might present differently in females. Both of these result in the contribution of the diagnostic bias against females with autism (Bargiela et al., 2016). There is a consensus of the need for more awareness

and improved training about autism for frontline professionals, especially teachers (Crane et al., 2018; Rogers, Goddard, Hill, Henry & Crane, 2016).

The literature acknowledges that teachers are a vital source of information, whether it be the recognition that a child needs an assessment for autism or the observed account of the child's symptoms. We also acknowledge the variability in teachers' skills at doing this, particularly with the female phenotype of autism. We aim to attain a greater understanding of this variability so we can see which characteristics are associated with good practice in this area. That knowledge would, in turn, have implications for the development of relevant training and the identification of teachers in need of additional guidance.

1.3.1. Teachers' role in detecting additional needs in pupils

In order to generate ideas around teachers' ability to recognise autism, we need to explore a broader context than just autism alone due to the literature on teachers and autism being so limited. Therefore, it is important to look at the role teachers have in detecting mental health and additional needs more generally. There is growing emphasis on embedding mental health support for children within schools. The NHS 10 Year Plan outlines developments to integrate Mental Health Support Teams into schools and colleges and to work alongside the Department for Education and local authorities to improve awareness of and support for children with autism and learning disabilities or both (NHS, 2019). The five year forward view for mental health makes clear the importance of prevention and that this extends beyond the remit of just the NHS, stressing the vital involvement of school support in the early years (NHS England, 2014). Furthermore, teachers are expected to take on the role of tier one mental health professionals, which involves identifying mental health problems in children and referring them on for appropriate support

(NHS Health Advisory Service, 1995). There is also a duty for primary education to include emotional literacy to help improve children's emotional and psychological well-being (Loades & Mastroyannopoulou, 2010). We know that a key pathway into mental health services is via educational institutions and schools are the most common point of entry for young people (Farmer, Burns, Philips, Angold & Costello, 2003). Children are less likely to initiate referrals themselves, and rely on the adults in their lives to help identify problems and consider referrals (Sayal, 2006). Just as autism identification is vitally important for identifying appropriate support, so too is the recognition of broader mental health problems or additional needs in children, and teachers can play an important part in that professional help seeking process (Oh et al., 2015) If teachers are able to recognise mental health needs and refer on appropriately, the children are more likely to access professional help for themselves when they are older (Pihlakoski et al., 2004). Additionally, parents are more likely to seek support for their children if their functioning at school is impaired (Pihlakoski et al., 2004), which again reiterates the idea that teachers are in a prime position to help with the process of referring to relevant services.

More expectation is being placed on teachers and schools to recognise mental health and learning needs so it is interesting to consider what factors might influence teachers' abilities to do this, and how prepared they feel. Through conducting in-depth interviews with teachers, Rothi, Leavey & Best (2008) argue that unless there is sufficient guidance and training combined with clear pathways and procedures, identifying children with mental health difficulties is left to chance based on the knowledge, motivation and capacity of the individual teachers. Having more years of experience in the classroom could be an important factor in identifying pupils with difficulties, but to date this idea has not been empirically tested. Additionally, the

idea that more experienced teachers would be better placed to recognise the mental health needs of pupils leaves newly qualified teachers with limited knowledge and experience to utilise particularly as training tends to cover child development from a normative point of view (Rothi et al., 2008). Many teachers believe that their primary role should be focused on educating pupils, with aspects such as mental health identification being a secondary demand (Rothi et al., 2008). This may lead to teachers only flagging up pupils of concern when there is interference with academic performance or ability to learn (Adeleman & Taylor, 1999; Armbruster, Gerstein & Fallon, 1997; Rothi et al., 2008).

1.3.2. Influential child characteristics

Teachers' accuracy in identifying pupils with additional needs or mental health difficulties is somewhat impacted by the characteristics of the child. When presented with pupils who have symptoms of an emotional disorder as opposed to a behavioural disorder, teachers are less concerned about those with emotional difficulties (Loades & Mastroyannopoulou, 2010) and more accurate at identifying externalising rather than internalising mental health problems (Dwyer, Nicholson & Battistutta, 2006). Externalised symptoms of Attention Deficit Hyperactivity Disorder (ADHD) such as aggression and high levels of motor activity are more likely to be recognised because they disrupt a peaceful classroom environment (Kypriotaki & Manolitsis, 2010). Whereas sensitivity to anxiety and somatic symptoms has been shown to be limited, with teachers commonly unable to identify children who have self-reported anxiety or whose parents reported anxiety (Neil & Smith, 2017). This reflects back to the findings on the female phenotype of autism, where internalising behaviours are more prevalent in girls and externalising

behaviours more prevalent in boys, which is one possible contributing factor to the gender bias in autism detection (Hull et al., 2017).

Pupils with more externalising behaviours, which result in the disruption of the classroom environment, are therefore more likely to be picked up by schools. However, teachers have reported that they do rely on other indications such as changes in behaviour, lack of progression academically, and difficulties in forming or maintaining relationships (Rothi et al., 2008). One challenge for teachers is ascertaining whether difficulties they may be observing are a mental health problem, psychological distress, a behavioural problem linked to discipline, or an emotional behavioural difficulty (Rothi et al., 2008). This challenge in correctly identifying the ‘category’ of difficulty leads teachers to agree that there is a definite requirement for mental health training, with the aim of developing their recognition skills to respond to mental health problems in a timely manner, which aids early intervention (Rothi et al., 2008; Loades & Mastroyannopoulou, 2010). In a recent study which analysed a year’s worth of Child and Adolescent Mental Health Service (CAMHS) referrals in one service, teachers and other educational professionals, such as educational psychologists, were identified as a key category of referrers along with medical professionals such as General Practitioners and nursing staff (Smith, Daniel & Hubbard, 2017). However, in this study the referrals from teachers were more likely to be rejected by CAMHS when compared to other referrers (Smith et al., 2017). As way of explanation, the referrals from teachers tended to be for emotional and behavioural difficulties (Smith et al., 2017). This strengthens the argument that teachers struggle to identify what they are observing and the extent to which mental health service involvement is required.

Gender is a key characteristic that seems to influence both recognition and how the difficulties are addressed. ADHD is more often identified in boys than girls, meaning that girls are often overlooked (Kypriotaki & Manolitsis, 2010). Adults who refer to support services, including parents and teachers, have said that despite boys and girls presenting with the same behaviour they would find it easier to control girls as opposed to boys (Maniadaki, Sonuga-Barke & Kakouros, 2006). This increased self-efficacy teachers have to effectively manage girls with additional needs could well result in a reduction in identifying girls as opposed to boys, meaning that girls are more likely to miss out on support. However, when asked about their knowledge of risk factors for mental health, teachers demonstrate more proficiency in understanding the risks for girls than boys (Dwyer, Nicholson, Battistutta & Oldenburg, 2005). Problem recognition by teachers is affected by both the gender of the child and the type of symptomology displayed (Loades & Mastroiannopoulou, 2010). Other child factors are also associated with referral to specialist support; pupils with less well educated parents (Smeets & Roeleveld, 2016); pupils' level of cognitive impairment or delay as perceived by the teacher (Smeets & Roeleveld, 2016); pupil's attitude to work, popularity among classmates, and dependency on their teachers (Smeets & Roeleveld, 2016).

1.3.3. Influential teacher characteristics

The literature on the recognition of additional needs in pupils is emphasised on child characteristics and there is a dearth of literature on teacher characteristics, which the empirical study aims to address. This has meant that theory, clinical, and educational knowledge, together with findings from related areas have informed the study. We can make some links between how both the amount and quality of training influences teachers' sensitivity to additional needs, as well as the amount of

experience, both professionally and personally. It is most useful to explore these factors in relation to the identification of autism in particular, so the following characteristics are considered in terms of how they might influence teachers' sensitivity to subtle cases of autism and the female phenotype of autism.

1.3.3.1. Additional training in autism

The need for teachers to receive adequate training on autism has been widely documented. In 1999, Helps, Newsom-Davis and Callias surveyed 72 teaching and support staff from four mainstream and four special schools, evaluating their knowledge and understanding of autism. They found that even though a majority of mainstream teachers had worked with students with autism, only 5 percent said they had received specific training. The teachers reported that there was “a lack of practical advice and support regarding behaviour management and teaching methods” and proposed that training of any kind would be useful (Helps et al., 1999). They compared the views of teachers with mental health professionals, who acted as controls, and found that teachers were less likely to view children with autism as having learning difficulties, were more likely to describe autism as an emotional disorder, and were less likely to understand autism as a developmental disorder (Helps et al., 1999). The authors concluded that the majority of mainstream teaching staff “lacked a basic theoretical understanding of autism” which can be understood in the context of receiving significantly less training about autism when compared with teachers in special schools (Helps et al., 1999). This lack of understanding and training continues to be problematic. Although some progress must have been made in the last two decades, recent studies are identifying that there is still a need for more specific training in working with autism and that training should develop knowledge about the condition rather than just how to accommodate and modify

leaning to support children (Lauderdale-Littin & Brennan, 2018). Since the recent changes in the DSM-5, educational psychologists (EPs) have surveyed the autism assessment procedures and descriptive information showed that they feel they require further training in assessing autism (Davis, 2016). If EP's require more up-to-date training on the evolving understanding of autism it is unsurprising that the beliefs and knowledge of teaching staff could be outdated or insufficient.

When teachers demonstrate higher levels of knowledge about the female phenotype of autism, they are better able to demonstrate flexibility towards their pupils, including giving more processing time, being more conscious about the class schedule and how that impacts their female students with autism, and keeping parents involved and informed about what happens at school (Jarman & Rayner, 2015). In contrast, when that knowledge is lacking teachers can dismiss concerns, disbelieve that female students have autism and question diagnoses (Jarman & Rayner, 2015). Jarman and Rayner (2015)'s study of 45 participants focused on the voices of adult females with autism and parents of girls with autism. They found that participants overwhelmingly wanted teachers to understand that autism could present differently in girls compared to boys, and when teachers did not have this understanding it would lead to inflexible teaching approaches which resulted in distress.

Additional training in autism can often focus on the behavioural aspects of the condition as opposed to how autism impacts thinking, perceiving and learning (Detzer, 2018). When considering this alongside our understanding of the gender differences in autism, this focus on the externalising behaviours associated with autism might exacerbate the gender bias by increasing teachers' ability to recognise the male-typical presentation of autism but not the female phenotype.

Training should be about both knowledge and self-efficacy, but often has a heavier focus on improving knowledge (Bresette, 2017; Toran, Westover, Sazlina, Suziyani & Hanafi, 2016). It is important for teaching staff to have an accurate perception of their abilities to understand, recognise and meet the needs of autism. If teachers falsely believe they understand autism but have relatively little knowledge, or conversely they believe they are not skilled in the condition despite having extensive training, it is problematic (Simien, 2017; Toran et al., 2016). Furthermore, it is acknowledged that the most effective training acknowledges the presentation of the individual child as well as a sound understanding of autism generally (Glashan, Mackay & Grieve, 2004). Teachers who use reflective skills and respond to each pupil individually are more likely to develop the most effective strategies when confronted with autism in the classroom (Glashan et al., 2004), which indicates that it can be subtle, nuanced characteristics of individual teachers that improve their sensitivity to autism.

1.3.3.2. Experience of and contact with autism

Whilst there is value in theoretical training, Berliner (2004) states that for teachers to become experts, it is practical knowledge as opposed to theoretical training that helps. Therefore, direct personal or professional experience of people with autism, is another potential factor that may influence teacher accuracy in identifying autism. Individuals with no knowledge or personal contact with someone with autism, although confident in their assumptions, have been shown to have stereotypical and inaccurate beliefs about autism (Huws & Jones, 2010). Information alone may not be sufficient in increasing sensitivity to autism, changing attitudes or breaking stereotypes, and the value of direct contact with individuals with autism should not be underestimated as a way to improve interaction and conceptualisation

(Huws & Jones, 2010). In studies where participants have close contact with individuals with autism, either through family or friendships, knowledge of autism is very high (Dillenburger, Jordan, McKerr, Devone & Keenan, 2013). Indeed, close personal experience of autism can result in a deep understanding and a nuanced appreciation of the disorder (Petalas, Hastings, Nash, Dowey & Reilly, 2009).

The concept of having increased experience of autism leading to improved knowledge and understanding of it can be linked to Experiential Learning Theory (ELT) (Kolb, 1984). ELT explains how experience plays a central role in any learning process (Kolb, Boyatzis & Mainemelis, 2001) and understands knowledge as being created through the transformation of experience (Kolb, 1984). In more detail, ELT talks about how when we experience something in an immediate or concrete way, we observe and reflect on these experiences. Following this, we assimilate these reflections into abstract concepts which we use to form new ideas and theories (Kolb et al., 2001). Therefore, teachers could assimilate their schemas of autism through increased experiences with it.

Giangreco and colleagues (1993) found that teachers had transformational experiences through directly working with a pupil with additional needs. There is a sociocentric view of learning that acknowledges how interactions with people are key factors in what is learned, therefore what we know and how we think are the result of our experiences of groups of people over time (Putnam & Borko, 2000). Teachers will gain knowledge based on their practices and experiences, so it stands to reason that those with direct experience working in a school with an autism unit, or a specialist school for autism, would hold more knowledge of the disorder and be better able to recognise it in the mainstream classroom.

Additionally, teachers who have more years of experience arguably hold more expertise. It is understood that expertise takes time to develop, and extended periods of time working in an area are required to learn specific, contextualised knowledge (Berliner, 2004). It can be estimated that it takes up to seven years for a teacher to obtain a high level of skill and the combination of practical and theoretical knowledge (“the wisdom of practice”) is key (Berliner, 2004). Practical knowledge is specific to each teacher and the context in which they work (Berliner, 2004), meaning that teachers who have experience in specialist settings or roles associated with autism will have increased practical knowledge of autism.

However, it would be simplistic to assume that teachers who hold more expertise are purely the teachers with more years of experience. Cruickshank and Haefele (2001) define expertise as having extensive knowledge, being efficient, and being able to come up with innovative solutions to problems, concluding that teachers could be more experienced but still not have expertise when compared with more recently qualified professionals. In fact, due to the shift of inclusion into mainstream schools over the past few decades, teacher training has evolved to focus more on meeting the needs of pupils with special educational needs (Golder, Norwich & Bayliss, 2005). This could mean that teachers who have been trained more recently are more likely to have specialised knowledge of conditions such as autism, perhaps better equipping them to be able to recognise autism in their pupils.

Although there are some disparities within the literature, it is worth exploring whether additional training, professional experience, and personal experience of autism, are predictors in whether teachers accurately detect subtle presentations of autism, both individually and collectively.

1.4. Summary of themes discussed

This introduction has examined how often autism is missed in young children due to subtle presentations and the lack of recognition of the female phenotype. The risk of undiagnosed autism is significant and results in children and young people not receiving the support they deserve. In relation to this, the role of teachers was reviewed and the literature is in agreement that teaching professionals are well placed to detect autism and refer on to appropriate services. The characteristics of the child are known to play an important part in whether they are recognised as having special education needs or mental health problems and needing extra support. Specifically, children with more externalising behaviours and who cause more disruption to the classroom environment are more likely to be recognised and referred. The child's gender also plays a role, with boys often more likely to be flagged as in need of additional support. The characteristics of the teachers that influence whether they are able to recognise autism are less clear. However, the literature allows for an exploration of how this may be influenced by additional training as well as experience and contact with autism.

1.5. Gaps in the literature: Rationale for the empirical study

As previously stated, there is a distinct lack of literature focusing on understanding teacher characteristics and experiences and how they influence the sensitivity teachers have when identifying pupils with autism. As a result, this introduction has had to rely on broader literature about mental health disorders and additional needs as well as consider how psychological theory can help to inform us. What is clear is that teacher ability in this area is vital as they are key conduits for young people to get the correct assessments and support, but we know very little

about the factors that influence their abilities to do this effectively. Exploring these factors is a logical next step.

1.5.1. The research questions

We know that teachers play a key role in identifying pupils with developmental and mental health disorders, and that this identification leads to the referral to appropriate services and support for these children. We also know that the definition of autism is shifting, and that it is vitally important to understand how the male and female phenotypes differ to ensure all young people with autism are identified in a timely manner. With increased emphasis on teachers needing to demonstrate these skills, it raises the question as to which characteristics or factors make teachers more sensitive to subtle cases of autism and the female phenotype of autism. Much of the literature centres around the child characteristics that influence whether their additional needs are picked up efficiently. However, if we were to gather evidence on teacher characteristics and experiences it could play an important part in shaping how teaching and training on this subject is developed. Having reviewed the literature, the study is interested in factors around teachers' additional training in autism as well as their exposure to and contact with autism in both a professional and personal manner. More specifically, the following factors will be examined: training in autism; length of time since qualified; age of participant; professional experience of autism; personal experience of autism; experience in a specialist teaching post; and experience of working in a specialist school or school with specialist autism unit/base.

1.5.2. Use of vignettes

It is challenging to assess teachers' sensitivity to subtle cases of autism and the female phenotype of autism. One way of doing this is to use vignettes within an

experimental design to emulate autism and ask teachers to rate the likelihood of the vignette having the disorder. The use of vignettes is known to hold high internal validity. All participants are given the same stimuli in the same conditions, which eliminates variability and means that responses can be attributed to the teacher alone (Norcini, 2004). Vignette use can effectively ascertain whether participants have a knowledge deficit if they perform poorly (Norcini, 2004) and are unable to identify the disorder described. However, along with high internal validity, it must be acknowledged that there is risk of low external validity. It would be impossible to take into account the complexity of the classroom environment when composing a vignette, and the nature of vignettes mean that an unrealistic amount of information is presented in a condensed form (Loades & Mastroiannopoulou, 2010). Participants may respond differently to a question about a vignette than to a real life situation of a child with symptoms of autism (Loades & Mastroiannopoulou, 2010). Indeed, they might be more likely to respond to vignettes in a more perceptive and ideal way that is different to their usual practice (Norcini, 2004). Therefore, whilst we can be more sure that poor performance does indicate a lack of knowledge or understanding, a good performance might not mean high-quality practice at work (Norcini, 2004). Acknowledging both the benefits and limitations of using vignettes, they have been shown to be a valid tool to measure practice (Peabody et al., 2004). Other benefits include ease of use and low administration costs (Peabody et al., 2004). Not only are they useful as a measure of knowledge, they have also been proven to be a valid measure of what participants actually do in practice (Peabody et al., 2004). Peabody and colleagues (2004) set about measuring the validity of vignettes by comparing the accuracy of physicians across standardised patients, vignettes and medical record abstraction. They found that physicians were accurate 73% of the time with

standardised patients, 68% with vignettes and only 63% when assessed by medical record abstraction, concluding that vignettes are a valid tool for measuring the quality of clinical practice (Peabody et al, 2004).

1.5.3. Hypotheses

Given the review of the literature, this study hypothesises that teaching staff will be more accurate at detecting autism in the vignettes:

- If they have undergone additional training in autism
- If they have had specific experience of working in specialist autism environments
- If they hold a specialist teaching role such as Special Educational Needs Coordinator (SENCo)
- If they have pupils in their classroom with autism
- If they know someone with autism in their personal life
- The more years of experience they have

As well as using the data collected for the autism vignettes, the study can also use the data on the two distractor vignettes of ADHD and separation anxiety and test the same hypotheses for these conditions.

1.6. References

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Part 2: Empirical Research Paper

**Understanding Teacher Characteristics that Predict Ability to
Identify Subtle Cases of Autism**

2.1. Abstract

Aims: To examine the characteristics and experiences of primary school teaching staff and how these might influence their sensitivity to recognising subtle cases of autism, including the female phenotype of autism.

Method: Participants completed an online survey using clinical vignettes to assess how well they recognised the male and female phenotypes of autism. They were also asked a series of questions about their demographics and experiences. A number of potential predictor variables were tested for associations using correlations and entered into regression models. The predictor variables included, additional training in autism, experience working in specialist autism environments, holding a specialist teaching role, having more pupils with autism in the classroom, knowing someone with autism personally, and having more years of teaching experience.

Results: 289 primary school teaching staff took part in this study. Participants identified as having more training in autism than in other disorders, and many said they had worked with pupils with autism in their classrooms. Associations were detected between teacher characteristics and sensitivity to autism, but were small ($r < .3$). Multiple linear regressions showed some unique predictors, but these models explained a low amount of the variability in teacher sensitivity to autism.

Conclusion: The predictors explored, including additional training in autism, experience working in specialist environments, holding specialist roles and having more professional and personal experience with autism, are not able to explain why some teachers are better able to recognise subtle cases of autism when using clinical vignettes. Further research should identify more specific measures to attempt to explain why some teachers are better able to detect autism.

2.2. Introduction

Autism spectrum disorder (hereafter ‘autism’) is defined in the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5) as a developmental disorder characterised by deficits in social relating, social communication and restricted, repetitive patterns of behaviour or interests (American Psychiatric Association, 2013). The prevalence of autism has increased strikingly over the past four decades, changing from estimates of 4 in 10,000 in the 1970s (Rutter, 1978) to 150 in 10,000 in recent years (Baxter et al., 2015). There is debate as to whether this is a true increase or due to higher rates of detection, linked to increased awareness among professionals and changes to the diagnostic criteria. These are not mutually exclusive, it could be both factors but there is a consensus that the higher rates of detection are the bigger driver (Charman, 2002; Fombonne, 2002; Fombonne, 2003a; Williams, Higgings & Brayne, 2006; Wing, 2002).

Despite autism prevalence markedly increasing over the last four decades, children with autism are still being missed. Children without intellectual disability are especially likely to remain undetected, perhaps due to being able to better mask their social and communication difficulties (Baren-Cohen et al, 2009). Additionally, there is evidence that there is a high proportion of females with autism who are not being identified. Male-to-female ratio has been shown to be 3:1 (Loomes, Hull and Mandy, 2017) and females with a normal range IQ and fluent language are at a disproportionately high risk of missing out on appropriate understanding and support (Lai, Lombardo, Auyeung, Chakrabarti & Baron-Cohen, 2015). There is a stereotyped view that autism is a male phenomenon which could be a potential cause of the under-diagnosis of females. It is suggested that autism may be harder to recognise in females due to the different ways it might manifest (Dworzynski.

Ronald, Bolton & Happe, 2012), therefore a gender bias may exist due to the female phenotype of autism differing from that of the typical male presentation. Within the female phenotype of autism, girls show more interest in social interaction (Attwood, 2007), and less severe social and communication impairments than boys (Holtmann, Bolte and Poustka, 2007). Girls with autism have been shown to imitate or copy others, meaning they have a higher tendency to “camouflage” difficulties by masking or developing compensatory strategies (Lai et al., 2015). Girls with autism are also more likely to have better linguistic abilities, stronger imaginative skills and have restricted interests that involve people or animals rather than inanimate objects (Kopp & Gillberg, 1992; Lai et al, 2015; Van Wijngaarden-Cremers et al., 2014). Girls with autism generally have higher levels of internalising problems, whereas boys have higher levels of externalising problems (Hull, Mandy & Petrides, 2017; Solomon, Miller, Taylor, Hinshaw & Carter, 2012), and additionally girls with autism have higher traits of controlling behaviour and perfectionism (Hiller, Young & Weber, 2014). A missing or late diagnosis results in potentially serious health and wellbeing consequences (Loomes et al., 2017).

Teachers are key conduits into diagnostic services (Morales-Hidalgo, Hernandez-Martinez, Voltas & Canals, 2017). They are in an advantageous position to be able to make reliable comparisons between children of the same developmental stage and can use the school environment to observe children amongst their peers (So et al, 2013). In addition to this, teachers are increasingly being relied upon to recognise additional needs and act as a gateway to the appropriate services (NHS, 2019; NHS England, 2014, NHS Health Advisory Service, 1995). However, the question remains as to whether teachers have the knowledge and training to recognise more subtle cases of autism or girls with autism. Children who do not fit

the standard assumptions of what autism looks like may not be identified (Crane et al, 2018), and teachers can assume autism is a male condition and is unlikely to be present in females (Bargiela, Steward & Mandy, 2016). Professionals can have a stereotyped view of autism and lack understanding in how it can present differently (Jones, Goddard, Hill, Henry & Crane, 2014). Like any group, there is likely to be variability in teachers' ability to detect autism in these less obvious cases.

The study aims to understand what characteristics and experiences of teachers predict their ability to identify autism in primary school aged children. If these characteristics can be better understood it could help to shape teacher training and identify those who require additional support. The following predictors will be investigated: (1) years of teaching experience, (2) type of teaching qualification, (3) having additional training in autism, (4) having experience of working in specific autism settings, (5) having more professional experience of working with children with autism, (6) having more personal experience of autism. Considering the under-diagnosis of girls with autism, the study also aims to look at whether these teacher characteristics are more or less influential in identifying autism depending on the gender of the child.

2.3. Method

This thesis arises from a joint project. The studies were developed collaboratively, using the same recruitment and data collection methods, and ethics were sought together with another trainee. We created the online survey jointly but had separate research aims for the two projects. We performed different and independent statistical analyses on the shared data. The other study is referred to as Whitlock, 2019. See Appendix I for more detailed information in the joint thesis statement.

2.3.1. Participants and recruitment

Participants were recruited with opportunity sampling via social media platforms Facebook and Instagram using an online advert (Appendix II) and researchers also emailed 4 schools with which they had personal contact in Bedfordshire and Worcestershire. (Appendix III). The inclusion criteria were for any teaching staff who had current or previous experience working in primary education:

- Qualified teachers, including those that hold roles such as Special Educational Needs Coordinators (SENCOs), Head teachers and Assistant Head teachers
- Teachers in training
- Teaching assistants.

The decision to include teachers in training and assistants was taken after piloting. Teaching assistants are often the individuals who work closely with pupils who require additional support, so have a different but valuable perspective on disorders such as autism. Similarly, teachers in training have classroom experience and can provide an interesting contrast to teachers with more experience, meaning the study can investigate whether more recent training influences the recognition of autism.

The decision to recruit primary school educators as opposed to secondary was twofold. Firstly, autism is more often diagnosed in younger years (Brett, Warnell, McConachie & Parr, 2016) and there is value in earlier detection and diagnosis. If pupils are not being diagnosed before transition to secondary school, they are more likely to miss out on valuable support. Therefore, primary school teachers would be the target for improving recognition. Secondly, primary schools are by nature a more nurturing environment where pupils tend to have a closer relationship with their

teachers, meaning that primary school educators have more opportunity to better get to know the strengths and difficulties of their pupils.

Recruitment took place in October 2018 and received 343 responses. Of these, 289 met the criteria and had completed the survey in full, meaning we had no missing data. Demographic information was collected by the researchers (Table 2.1).

As expected with online recruitment drives and use of social media, over 70% of participants were aged between 20-40. Female respondents made up 94% of the sample, and the majority had either a Post Graduate Certificate of Education (PGCE) or an undergraduate degree in education.

Table 2.1

Participant Demographic Data

| | Demography | N | % |
|---------------|----------------------------------|-----|------|
| Age | 20-30 | 140 | 48.4 |
| | 31-40 | 70 | 24.2 |
| | 41-50 | 47 | 16.3 |
| | 51-60 | 27 | 9.3 |
| | 60-64 | 5 | 1.7 |
| | Total | 289 | - |
| Gender | Female | 272 | 94.1 |
| | Male | 17 | 5.9 |
| | Total | 289 | - |
| Role | Teacher | 179 | 61.9 |
| | Phase Leader | 23 | 8.0 |
| | Teaching Assistant | 20 | 6.9 |
| | Assistant Headteacher | 11 | 3.8 |
| | SENCo | 10 | 3.5 |
| | Headteacher | 5 | 1.7 |
| | Deputy Headteacher | 8 | 2.8 |
| | Inclusion Leader | 4 | 1.4 |
| | Learning Mentor | 2 | 0.7 |
| | Mental Health Lead | 1 | 0.3 |
| | Missing Data | 26 | 9.0 |
| | Total | 289 | - |
| Qualification | PGCE | 92 | 31.8 |
| | BSc/BA in Education | 84 | 29.1 |
| | School-Centred Initial Training | 28 | 9.7 |
| | BEd in Education | 24 | 8.3 |
| | BA with Qualified Teacher Status | 5 | 1.7 |
| | Graduate Teacher Programme | 2 | 0.7 |
| | Missing Data | 54 | 18.7 |
| | Total | 289 | - |
| Location | South East | 41 | 14.2 |
| | London | 30 | 10.4 |
| | East Midlands | 30 | 10.4 |
| | Yorkshire and the Humber | 29 | 10.0 |
| | West Midlands | 27 | 9.3 |
| | North West | 22 | 7.6 |
| | South West | 22 | 7.6 |
| | East of England | 21 | 7.3 |
| | North East | 12 | 4.2 |
| | Scotland | 5 | 1.7 |
| | Wales | 4 | 1.4 |
| | Northern Ireland | 2 | 0.7 |
| | Not Reported | 44 | 15.2 |
| | Total | 289 | - |

*PGCE = Post-Graduate Certificate of Education, BSc = Bachelor of Science
BA = Bachelor of Arts, BEd = Bachelor of Education*

Our sample was compared to the Department for Education's school workforce census in 2010 to review representativeness. The census found that approximately 86% of teachers were female in both nursery and primary schools, approximately 54% were aged 39 or younger, and most primary school teachers held an undergraduate degree in education as their highest level of qualification (DofE, 2011). Chi-square tests of independence were performed to examine the difference between our sample and the census. When comparing the gender split of the census sample and our sample, the difference was significant, $\chi^2(1, 196089) = 15.34$, $p < .001$. Similarly, when comparing the distribution of ages across both samples the difference was significant, $\chi^2(1, 196089) = 40.33$, $p < .001$ and the level of qualification was also statistically different, $\chi^2(3, 206135) = 991.30$, $p < .001$.

We aimed to recruit 160 participants. This was based on the common admonition that there should be 20 participants for each variable used in regression analysis to ensure sufficient power (Kraemer & Blasey, 2015). In our design, we anticipated a minimum of seven potential predictor variables, so we felt that a sample size of 160 would be appropriate. This sample size was surpassed due to fast responses and we took the decision to allow participants who had started the survey the opportunity to complete, resulting in a larger sample size of 289. We took the perspective that a larger sample size would allow for more variability on people's views, yielding more meaningful mean values and providing a smaller margin of error. Any ethical concerns regarding over-recruiting were balanced by concerns over closing the survey whilst a large number of participants were part way through completing.

Ethical approval for the study was given by the Joint Chair, UCL Research Ethics Committee (Ref 12891/001, Appendix IV) and informed consent was obtained

from all participants. Information sheets and consent forms for participants can be found in Appendix VI.

2.3.2. Procedure

Participants were invited to complete an online survey which had been developed using ‘Qualtrics’ software. A single-blind study was designed to prevent participants knowing we were researching autism, meaning we reduced the effects of demand characteristics. The survey involved participants reading a series of four vignettes, each describing a single fictional pupil aged seven years. After each vignette, participants were asked to rate how likely the pupil described had:

- Attention Deficit Hyperactivity Disorder (ADHD)
- An Anxiety Disorder
- An Autism Spectrum Disorder (e.g. autism or Asperger’s),
- A Disruptive Behavioural Disorder (such as oppositional defiant disorder or conduct disorder).

Additionally, they were asked how likely they would be to seek additional support or advice regarding the child:

- Within their school (e.g. the school SENCO)
- From an Educational Psychologist
- From a medical (e.g. GP) or mental health professional

The response scale was a Likert scale from 0-100, with 0 representing ‘extremely unlikely’ and 100 representing ‘extremely likely’. These questions can be viewed in Appendix VI, which shows the survey in full.

The four vignettes described:

1. A child with the male typical presentation of autism without intellectual impairment

2. A child with the female phenotype of autism without intellectual impairment
3. A child with separation anxiety
4. A child with ADHD

These can be viewed in Appendix V. Each of these four vignettes had two versions, one describing a male child ('Jack') and the other a female child ('Chloe'). This meant that the descriptions of the vignettes were identical apart from the name and the gender pronouns. Each participant was presented with one of the versions for each of the four presentations, and whether they received the male or female version of each presentation was random. This manipulation was required to investigate gender bias in the responses.

2.3.2.1. Demographics and experience

Following the questions about the vignettes, participants were asked a series of questions about their demographics and experiences. They were asked their age, gender, teaching role, how many years they had been practising as a teacher, their level of qualification, the types of schools in which they have practised, where in the UK they currently work, how many children with ADHD/Anxiety Disorder/Autism/Disruptive Behavioural Disorder they have worked with professionally, whether they have personal experience with any of the four disorders listed, and whether they have received additional specific training on them.

Professional experience was measured by asking participants four questions; 'How many children with a diagnosis of autism are currently in your class?', 'How many children with a diagnosis of ADHD are currently in your class?', 'How many children with an anxiety disorder are currently in your class?', and 'How many children with a disruptive behavioural disorder are currently in your class?'. They

were then asked four further questions to ascertain how many of each of these disorders they have worked with throughout their career. Personal experience was measured by asking participants if they have any personal experience with each of the four conditions through relatives, colleagues or friends.

The questions regarding demographics and experiences were used as potential predictor variables, helping us to understand which of the characteristics and experiences might influence participants' likelihood rating for each vignette. With that in mind, careful consideration was given as to which questions to ask. The questions were informed by the available literature on this topic, which was limited, together with consultations with teachers. We interviewed four primary school teachers, asking them what they thought might influence the recognition of autism. The teachers said that they thought the amount of time practising as a teacher, together with 'experience' would be important factors. We broke 'experience' down into the type of school they had worked in, the amount of contact they had had with children with these disorders within the classroom environment, and whether they had personal experience of the disorders outside of their professional environments. The literature indicated that receiving specific training should influence detection of autism. We also included questions on age, gender, qualification, and location, partly to assess how representative our sample was and partly as other potentially interesting variables (see Appendix VI).

2.3.3. Vignette design and piloting

The vignettes are central to this study, and so were developed via an extensive and iterative process of consultation with research experts, experienced autism clinicians and teachers. Given the crucial aspect of the vignettes, it was vital to pilot with primary school teachers and teaching assistants to gather feedback in the

early stages of the project. Piloting has been referred to as the ‘dress rehearsal’ (Moser and Kalton, 1992). Not only are pilots useful to refine surveys, they have a greater use in being able to expose gaps and wastage in data collection and can foreshadow research problems and questions (Sampson, 2004).

The use of vignettes aimed to emulate the diagnostic decision making of teachers. Firstly, we acknowledged the need to avoid confounds so planned the length for each vignette, and the number and severity of symptoms so each could be carefully matched. We decided that each vignette should include five key symptoms, a common comorbid disorder and a physical health symptom. The key symptoms were taken from the diagnostic criteria for each disorder. Table 2.2 illustrates this for each vignette.

Secondly, we drafted copies for all four vignettes which were then read and commented on by seven autism experts. This included researchers who work in the field, practicing clinicians in a Child and Adolescent Mental Health Service, working within the autism diagnostic pathway and adult females with a diagnosis of autism. These experts were asked to assess whether the vignettes were well matched in terms of severity, accuracy and explicitness. Thirdly, we collated feedback from the consultations and made changes accordingly. In the initial draft, we received feedback that the descriptions of autism were too subtle and the experts had concerns that participants would not detect autism for either the male or female phenotypes. Another helpful piece of feedback was to focus more on the social struggle and difficulties mentalizing that are indicative of subtle presentations of autism. Fourthly, the vignettes were redrafted a number of times and re-read by the experts until each were satisfied. Fifthly, the drafts were then used in the pilot and respondents were asked to comment on the suitability of each of the vignette. The

respondents in the pilot were satisfied by the vignettes, so these became the final versions. Sixthly, two versions of each of the four vignettes were created, one describing a male and one describing a female. This meant that the only content difference between the two versions was the gender of the name and the related gender-specific pronouns.

Table 2.2

Elements of the clinical vignettes

| Vignette Type | Length (words) | Symptom 1 | Symptom 2 | Symptom 3 | Symptom 4 | Symptom 5 | Comorbidity | Physical Health symptom |
|-----------------------------------|----------------|----------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------|-------------------------|
| Male Phenotype of Autism | 195 | Socially motivated but struggles with social interaction | Restricted interests | Struggles transitioning from more to less pleasurable activity | Needs firm structure and boundaries to manage anxiety/behaviour | Struggles with emotional regulation and social interaction | Anxiety | Problems with diet |
| Female Phenotype of Autism | 180 | Higher social motivation but still struggles with social interaction | Camouflaging | Socially focused interests | Difficulties with touching, social interaction and sensory sensitivity | Disordered eating | Anxiety | Eczema |
| Separation Anxiety | 182 | Refusal to go to school | Distress at being separated from a parent | Physical symptoms of anxiety, nausea/headaches | Fear of experiencing an event that causes separation from | Persistent and excessive fear of being alone | Low mood | Eczema |
| ADHD | 193 | Struggling with concentration | Becoming easily distracted and interrupting | Excess energy | Doing things without thinking them through | Restlessness and fidgety | Oppositional Defiance Disorder | Problems with diet |

ADHD = Attention Deficit Hyperactivity Disorder

We took the decision to use clinical vignettes due to their high internal validity (Norcini, 2004; Peabody et al., 2004). However, the risk of low external validity was considered and we acknowledged that participants might be more likely to respond in a more ideal way than they would in clinical practice (Loades & Mastroyannoopoulou, 2010; Norcini, 2004).

Although experts in the field of autism had reviewed the vignettes several times, it was vital that the entire survey was piloted with primary school teaching staff. We arranged for four teaching staff (two qualified teachers, one Special Educational Needs Coordinator (SENCo) and one teaching assistant) to pilot the survey with us present. We conducted cognitive interviews with participants to gather feedback, which allowed us to witness the administration of the survey questions as well as collect supplementary verbal information about the questions and responses. This meant we could evaluate the clarity of the survey, the quality of responses, and ensure that the questions elicited the intended information from participants (Beatty & Willis, 2007) (See Appendix VII). These cognitive interviews were voice recorded and the responses were then summarised to produce a list of actionable feedback. The interview questions were divided into four sections:

1. The introduction to the survey
2. The vignettes and questions associated with them
3. The demographics and experience
4. The participants' overall experience of the pilot

In section one of the interview, the introduction to the survey, we asked about the use of terms such as 'vignette' and 'demographics'. Participants were asked to explain what they were consenting to and if they felt they required further clarification before the start of the survey. The feedback was that participants knew

what they were consenting to. All four participants mentioned the term 'vignette' and suggested a different word should be used such as 'case study' or 'scenario'. As such we changed the term 'vignette' to 'fictional cases'.

In section two of the interview, the vignettes and questions associated with them, participants were asked if the vignettes accurately represented a primary school aged child, whether they were familiar with the diagnostic terms of ADHD, Autism, Anxiety and Conduct Disorder, and how easy the scales were to use. They were also asked about what information they used to come to their decision and how easy or difficult they found it to respond. Crucially, they were asked if they felt the presentations in the vignettes were either too obvious or too ambiguous. One participant suggested that instead of using the term 'under achieving', the terminology of 'below expectations' is more often used. Only one participant knew what 'Conduct Disorder' was, and they were a trained SENCo. The questions over whether participants would 'refer' for additional support provided some confusion, and respondents said that, as teachers, they were not likely to make referrals in that way, but rather seek additional support or advice. General feedback included participants saying that the vignettes described children "similar to a few kids" they knew and that they reminded them of someone in their class. They reported that the vignettes represented primary school aged children well, and were neither too ambiguous nor too obvious. Three out of the four participants identified the male presentation of autism well, and said that they picked up on the descriptions of obsessions, rituals, and disliking changes in routine which helped them with their response. All the participants found the detection of the female phenotype of autism more difficult, regardless of the gender of the child described. Two rated this vignette as quite high for autism, but high for an anxiety disorder too. Interestingly, the

SENCo said that even if teaching staff thought a child potentially had autism, or another disorder, they would not necessarily refer for a diagnosis. Instead it would depend on whether the school could manage the child. If the child's differences were not affecting their academic achievement they would be unlikely to refer. As a result of this feedback the wording 'below expectations' was used instead of 'under achieving' as suggested. The term 'Conduct Disorder' was changed to 'Disruptive Behavioural Disorder (such as oppositional defiant disorder or conduct disorder)'. The question 'How likely would you be to refer this child...' was changed to 'How likely would you be to seek additional support of advice regarding this child...'. The SENCO's comments about being able to effectively manage pupils within the school environment despite having autism led to the researchers' hypothesis that girls with autism might be less detected due to their presentations being less challenging in the school environment.

In section three of the interview, the demographics and experience, we clarified whether the choices provided to participants were broad enough and questioned participants on their interpretation of the questions around further training. Participants all agreed that these questions were clear and straightforward to respond to. This section remained largely the same following the pilot.

In section four of the interview, the participants' overall experience of the pilot, we asked more generally about their experience in completing the survey, how they found the layout, how easy it was to complete, how time consuming it was, and whether it felt repetitive. Participants said that the survey became easier and quicker to answer as they progressed through. They said that the rating scales, which included a likelihood rating and a certainty rating, felt repetitive and added considerably to the time it took to complete the survey. They also commented that

the instructions were generally clear and they understood what was being asked of them. As a result of this feedback the rating scales asking participants to say how confident they felt in their responses were removed. Due to some hesitation in participants, particularly when reading their first vignette, we added a sentence at the beginning of the survey which read ‘Please also note that there are no right or wrong answers, we are just interested in your views’.

2.3.4. Data analysis

The process of data analysis began with identifying bivariate effects using correlations and one-way ANOVAs, and then progressed to regressions to look at unique effects when controlling for other variables. Statistical analyses were conducted using SPSS version 25.0. Before running parametric tests, heterogeneity and normality were checked.

2.3.4.1. The variables

The variables used to identify effects were derived from the questions in the ‘Demographics and Experience’ section of the survey. Table 2.3 illustrates the topic of variable, the name of each variable, the type of each variable and the type of statistical test used. ‘Years of teaching experience’ was the only continuous variable. The categorical variables were all recoded as ‘0’ and ‘1’, illustrating whether each participant had experience or not. As this was conducted as a joint study, we both independently conducted consultations with teaching professionals and then used this information to code the job roles as ‘specialist’ or ‘non-specialist’. We then compared our codes to measure the degree of agreement using Cohen’s Kappa, which showed a 100% agreement ($k=1.0$). The two roles that were identified as ‘specialist’ were SENCo and Inclusion Leader. The rest of the roles were categorised as ‘non-specialist’. This led to the creation of the variable ‘Employed in a Specialist

Role'. Participants were asked to estimate the number of pupils they currently have in their class with each of the disorders, as well as the number of pupils they have worked with throughout their career with each disorder. These variables were visually binned using the standard deviation to create ordinal categories. For the number of pupils in current classes, the categories were ≤ 0 , 1, 2+. For the number of pupils throughout their career, each disorder had five categories.

Table 2.3

The variables tested for associations

| Topic Area | Name of variable | Type of Variable | Statistical Test Used to Identify Bivariate Effects |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------|-----------------------------------------------------|
| Experience in different educational settings | Years of Teaching Experience | Continuous | Bivariate Correlation (Pearson's) |
| | Experience of Working in a Special School for Children with SEN | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working in a Special School for Children with Autism | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working in a Mainstream School with a Specialist | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working in a Mainstream School with a SEN | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working in a Mainstream School with an Autism | Categorical | Bivariate Correlation (Pearson's) |
| Professional Experience of Mental Health Disorders | Experience of Working with Children with Anxiety Disorder | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working with Children with ADHD | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working with Children with Autism | Categorical | Bivariate Correlation (Pearson's) |
| | Experience of Working with Children with Disruptive Behaviour Disorder | Categorical | Bivariate Correlation (Pearson's) |
| Personal Experience of Mental Health Disorders | Personal Experience of Anxiety Disorder | Categorical | Bivariate Correlation (Pearson's) |
| | Personal Experience of ADHD | Categorical | Bivariate Correlation (Pearson's) |
| | Personal Experience of Autism | Categorical | Bivariate Correlation (Pearson's) |
| | Personal Experience of Disruptive Behaviour Disorder | Categorical | Bivariate Correlation (Pearson's) |
| Additional Training in Mental Health Disorders | Additional Specific Training in Anxiety Disorder | Categorical | Bivariate Correlation (Pearson's) |
| | Additional Specific Training in ADHD | Categorical | Bivariate Correlation (Pearson's) |
| | Additional Specific Training in Autism | Categorical | Bivariate Correlation (Pearson's) |
| | Additional Specific Training in Disruptive Behavioural Disorder | Categorical | Bivariate Correlation (Pearson's) |
| Qualifications and working in a specialist role | Employed in a Specialist Role | Categorical | Bivariate Correlation (Pearson's) |
| | Teaching Qualification: PGCE | Categorical | Bivariate Correlation (Pearson's) |
| | Teaching Qualification: BSc/BA in Education | Categorical | Bivariate Correlation (Pearson's) |
| | Teaching Qualification: School Centred Teacher Training | Categorical | Bivariate Correlation (Pearson's) |
| The Amount of Experience with Children with Mental Health Disorders and Additional Needs | No. of Pupils with Autism in Current Class | Ordinal - binned | One-Way Anova |
| | No. of Pupils with Autism throughout career | Ordinal - binned | One-Way Anova |
| | No. of Pupils with Anxiety in Current Class | Ordinal - binned | One-Way Anova |
| | No. of Pupils with Anxiety throughout career | Ordinal - binned | One-Way Anova |
| | No. of Pupils with ADHD in Current Class | Ordinal - binned | One-Way Anova |
| | No. of Pupils with ADHD Throughout Career | Ordinal - binned | One-Way Anova |
| | No. of Pupils with ADHD in Current Class | Ordinal - binned | One-Way Anova |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder, PGCE = Post Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts

1.1.1.1. Descriptive statistics

Firstly, descriptive statistics of the sample were generated, predominantly using frequency tables. The aim was to examine the sample to see how representative it was of the broader population, in order to better understand the generalisability of the findings of the study.

1.1.1.2. Correlations

Pearson correlations were used to investigate associations between the vignette rating scores for each presentation (male phenotype of autism, female phenotype of autism, ADHD and separation anxiety) with 22 predictor variables. These are listed in Table 2.3. Some were continuous but most were categorical. Separate correlations were run for the gender of each vignette as we were interested in detecting the discrete associations for recognising boys and girls. Correlations were also run for the combined sample as we were interested in any main effects, irrespective of the gender assigned to the vignettes. The variables that showed a statistically significant association with the vignette rating score for either gender and for the combined sample were entered into the regression model.

1.1.1.3. ANOVAs

For the variables which captured how many pupils with each disorder were in the participants' current class, and how many they had worked with throughout their career, one-way ANOVAs were required instead of correlations to compare the means across more than two groups. The ANOVAs were run to test whether having more pupils with diagnosed disorders in the classroom (the independent variable) impacted on the vignette likelihood rating scores (the dependent variable). They were also run to look at whether having worked with more pupils with the disorders throughout their career (independent variable) influenced participants' scores on the

vignettes (dependent variable). Post-hoc testing was then conducted to examine the findings in more detail. These were conducted separately for those who responded to the male version of the vignette and the female version, in order to detect any associations for each gender separately. They were also conducted for the combined sample as we were interested in any main effects, regardless of the gender assigned to the vignettes. The variables that showed statistical significance for either gender, or the combined sample, were put into the regression model.

1.1.1.4. Regression

The results of the correlations and the one-way ANOVAs produced a number of variables that were significantly associated with the likelihood rating scores for each vignette, which were considered ‘predictors’. These predictor variables were entered into multiple regression models to examine how much they could explain the variance in the recognition of each disorder. For three of the vignettes (the female phenotype of autism, ADHD and separation anxiety) there were multiple predictors that showed significant associations as a result of running the correlations and the one-way ANOVAs. Therefore three separate multiple regression models were run; firstly for the female phenotype of autism vignette, secondly for the ADHD vignette, and thirdly for the separation anxiety vignette. The predictor variables associated with each vignette were entered into each model initially, and then moderation analysis was used to investigate whether the gender of the vignette interacted with the relationship between the predictor variables and the likelihood rating.

1.1.1.5. Factorial ANOVA

A within-subjects ANOVA was used to examine the main effect of the number of pupils with autism participants had worked with throughout their career (independent variable) on their likelihood rating (dependent variable), and the effect

gender had on the likelihood rating (independent variable). Post-hoc testing was then conducted to examine the findings in more detail.

2.4 Results

2.4.1 Descriptives of participants' experiences

The majority of participants were qualified teachers (83.1%, n=240), holding a variety of roles including Phase Leader (responsible for the leadership and management of a 'Phase' or 'Key Stage'), SENCo, Assistant and Deputy Headteacher, and Headteacher. A further 20 participants were teaching assistants. Of the qualified teachers, 49 were newly qualified (between 0-3 years of experience), 85 had between 3 and 9 years of experience, and a further 79 had 10 years or more of experience.

Table 2.4

Experiences within Special Educational Needs Settings

| Experience Type | | Qualified Teachers 0-3 Years | | Qualified Teachers 4-9 Years | | Qualified Teachers 10+ Years | | All Qualified Teachers | | Teaching Assistants | |
|---------------------------------------------------------------------------------------|-------|---------------------------------|------|---------------------------------|------|---------------------------------|------|---------------------------|------|---------------------|-------|
| | | N | % | N | % | N | % | N | % | N | % |
| Experience of Working in a Special School for Children with SEN | Yes | 8 | 16.3 | 10 | 11.8 | 7 | 8.9 | 31 | 12.9 | 0 | 0.0 |
| | No | 41 | 83.7 | 75 | 88.2 | 72 | 91.1 | 209 | 87.1 | 20 | 100.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working in a Special School for Children with Autism | Yes | 3 | 6.1 | 5 | 5.9 | 2 | 2.5 | 12 | 5 | 1 | 5.0 |
| | No | 46 | 93.9 | 80 | 94.1 | 77 | 97.5 | 228 | 95 | 19 | 95.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | Yes | 12 | 24.5 | 19 | 22.4 | 18 | 22.8 | 56 | 23.3 | 8 | 40.0 |
| | No | 37 | 75.5 | 66 | 77.6 | 61 | 77.2 | 184 | 77.7 | 12 | 60.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working in a Mainstream School with a SEN Provision Unit | Yes | 7 | 14.3 | 11 | 12.9 | 13 | 16.5 | 38 | 15.8 | 7 | 35.0 |
| | No | 42 | 85.7 | 74 | 87.1 | 66 | 83.5 | 202 | 84.2 | 13 | 65.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working in a Mainstream School with an Autism Resource Base | Yes | 3 | 6.1 | 4 | 4.7 | 8 | 10.1 | 20 | 8.3 | 3 | 15.0 |
| | No | 46 | 93.9 | 81 | 95.3 | 71 | 89.9 | 220 | 91.7 | 17 | 85.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |

SEN = Special Educational Needs

Table 2.4 summarises whether participants have had experience of working in special educational needs settings. It was noted that most participants had not worked in a special educational school, however a larger percentage of participants did have experience within mainstream schools that had a specialist behavioural unit or provided SEN support. There did not appear to be any trends in terms of length of teaching experience, but chi-squared tests were conducted to establish if there were statistical differences. No results showed significant differences, meaning that the amount of experience in these different educational settings were as expected across the different lengths of time since qualifying. These results are summarised in table 2.5.

Table 2.5

Comparison between teachers with 0-3 years of experience, 4-9 years of experience and 10+ years of experience within different educational settings

| Experience Type | Chi-Squared test of independence |
|---------------------------------------------------------------------------------|-------------------------------------|
| Experience of Working in a Special School for Children with SEN | X (2, 213) = 1.63 <i>p</i> =.443 |
| Experience of Working in a Special School for Children with Autism | X (2, 213) = 1.32 <i>p</i> =.518 |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | X (2, 213) = .08 <i>p</i> =.959 |
| Experience of Working in a Mainstream School with a SEN Provision Unit | X (2, 213) = .41 <i>p</i> =.814 |
| Experience of Working in a Mainstream School with an Autism Resource Base | X (2, 213) = 1.92 <i>p</i> =.383 |

SEN = Special Educational Needs

Table 2.6 summarises the participants' experience with autism, anxiety, ADHD and disruptive behaviour. The table shows whether they have worked with these conditions in a professional capacity (professional experience) and whether they know someone in their personal lives (personal experience) with these conditions. The number of participants who identified as having professional experience with the conditions ranged between 12.9% and 43.3%, with the highest being autism. With personal experience of all conditions, experience ranged between

6.7% and 42.5%, with anxiety being the highest and autism coming in slightly below at 40%. Although personal experience of anxiety was rated as highest, participants identified anxiety as the least seen in their classrooms or throughout their career. A Chi Square test revealed that the length of time since qualifying and the amount of professional experience participants had with children with autism were significantly associated, ($X^2 (2, 213) = 18.99, p < .001$). Post-hoc comparisons of rates of experience with children with autism revealed that lower rates of experience were seen among those that have had 10 or more years since qualifying, $p < .001$. Furthermore, chi square tests also revealed that the length of time since qualifying and the amount of professional experience participants had with children with ADHD were significantly associated, ($X^2 (2, 213) = 7.50, p = .024$), as was the amount of professional experience participants had with children with a disruptive behavioural disorder ($X^2 (2, 213) = 6.23, p = .044$). However, when further post-hoc testing was conducted, no one group showed statistical significance once Bonferroni corrections had been calculated for either experience with ADHD or with a disruptive behavioural disorder. The results of the overall chi-squared tests are shown in table 2.7.

Table 2.6

Experiences of Mental Health Disorders

| Experience Type | | Qualified Teachers 0-3 Years | | Qualified Teachers 4-9 Years | | Qualified Teachers 10+ Years | | All Qualified Teachers | | Teaching Assistants | |
|------------------------------------------------------------------------------|-------|---------------------------------|------|---------------------------------|------|---------------------------------|------|---------------------------|------|------------------------|------|
| | | N | % | N | % | N | % | N | % | N | % |
| Experience of Working with Children with Anxiety Disorder | Yes | 5 | 10.2 | 11 | 12.9 | 7 | 8.9 | 31 | 12.9 | 2 | 10.0 |
| | No | 44 | 89.8 | 74 | 87.1 | 72 | 91.1 | 209 | 87.1 | 18 | 90.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working with Children with ADHD | Yes | 13 | 26.5 | 30 | 35.3 | 13 | 16.5 | 71 | 29.6 | 6 | 30.0 |
| | No | 36 | 73.5 | 55 | 64.7 | 66 | 83.5 | 169 | 70.4 | 14 | 70.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working with Children with Autism | Yes | 21 | 42.9 | 45 | 52.9 | 16 | 20.3 | 104 | 43.3 | 7 | 35.0 |
| | No | 28 | 57.1 | 40 | 47.1 | 63 | 79.7 | 136 | 56.7 | 13 | 65.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Experience of Working with Children with Disruptive Behaviour Disorder | Yes | 12 | 24.5 | 17 | 20.0 | 7 | 8.9 | 47 | 19.6 | 4 | 20.0 |
| | No | 37 | 75.5 | 68 | 80.0 | 72 | 91.1 | 193 | 80.4 | 16 | 80.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Personal Experience of Anxiety Disorder | Yes | 19 | 38.8 | 33 | 38.8 | 37 | 46.8 | 102 | 42.5 | 9 | 45.0 |
| | No | 30 | 61.2 | 52 | 61.2 | 42 | 53.2 | 138 | 57.5 | 11 | 55.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Personal Experience of ADHD | Yes | 14 | 28.6 | 13 | 15.3 | 16 | 20.3 | 55 | 22.9 | 4 | 20.0 |
| | No | 35 | 71.4 | 72 | 84.7 | 63 | 79.7 | 185 | 77.1 | 16 | 80.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Personal Experience of Autism | Yes | 19 | 38.8 | 35 | 41.2 | 30 | 38.0 | 96 | 40.0 | 8 | 40.0 |
| | No | 30 | 61.2 | 50 | 58.8 | 49 | 62.0 | 144 | 60.0 | 12 | 60.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Personal Experience of Disruptive Behaviour Disorder | Yes | 3 | 6.1 | 5 | 5.9 | 4 | 5.1 | 16 | 6.7 | 1 | 5.0 |
| | No | 46 | 93.9 | 80 | 94.4 | 75 | 94.9 | 224 | 93.3 | 19 | 95.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |

ADHD = Attention Deficit Hyperactivity Disorder

Table 2.7

Comparison between teachers with 0-3 years of experience, 4-9 years of experience and 10+ years of experience and their professional and personal experiences of mental health disorders

| Experience Type | Chi-Squared test of independence |
|------------------------------------------------------------------------|----------------------------------------------------|
| Experience of Working with Children with Anxiety Disorder | X (2, 213) = .731 <i>p</i> = .694 |
| Experience of Working with Children with ADHD | X (2, 213) = 7.50 <i>p</i> = .024* |
| Experience of Working with Children with Autism | X (2, 213) = 18.99 <i>p</i> < .001*** |
| Experience of Working with Children with Disruptive Behaviour Disorder | X (2, 213) = 6.23 <i>p</i> = .044* |
| Personal Experience of Anxiety Disorder | X (2, 213) = 1.32 <i>p</i> = .518 |
| Personal Experience of ADHD | X (2, 213) = 3.40 <i>p</i> = .183 |
| Personal Experience of Autism | X (2, 213) = .19 <i>p</i> = .911 |
| Personal Experience of Disruptive Behaviour Disorder | X (2, 213) = .08 <i>p</i> = .961 |

ADHD = Attention Deficit Hyperactivity Disorder

* = *p* < .05, ** = *p* < .01

Table 2.8

Additional Training

| Experience Type | | Qualified Teachers 0-3 Years Experience | | Qualified Teachers 4-9 Years | | Qualified Teachers 10+ Years Experience | | All Qualified Teachers | | Teaching Assistants | |
|-----------------------------------------------------------------------|------------------|--------------------------------------------|-------|---------------------------------|-------|--------------------------------------------|------|---------------------------|------|------------------------|------|
| | | N | % | N | % | N | % | N | % | N | % |
| Additional Specific Training in Anxiety Disorder | Yes | 4 | 8.2 | 12 | 14.1 | 15 | 19.0 | 42 | 17.5 | 1 | 5.0 |
| | No | 45 | 91.8 | 73 | 85.9 | 64 | 81.0 | 198 | 82.5 | 19 | 95.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Additional Specific Training in ADHD | Yes | 4 | 8.2 | 15 | 17.6 | 28 | 35.4 | 58 | 24.2 | 6 | 30.0 |
| | No | 45 | 91.8 | 70 | 82.4 | 51 | 64.6 | 182 | 75.8 | 14 | 70.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Additional Specific Training in Autism | Yes | 20 | 40.8 | 52 | 61.2 | 57 | 72.2 | 150 | 62.5 | 7 | 35.0 |
| | No | 29 | 59.2 | 33 | 38.8 | 22 | 27.8 | 90 | 37.5 | 13 | 65.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Additional Specific Training in Disruptive Behavioural Disorder | Yes | 5 | 10.2 | 19 | 22.4 | 17 | 21.5 | 51 | 21.3 | 4 | 20.0 |
| | No | 44 | 89.8 | 66 | 77.6 | 62 | 78.5 | 189 | 78.8 | 16 | 80.0 |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | 20 | - |
| Employed in a Specialist Role | Yes | 0 | 0.0 | 0 | 0.0 | 2 | 2.5 | 14 | 5.8 | - | - |
| | No | 49 | 100.0 | 85 | 100.0 | 77 | 97.5 | 226 | 94.2 | - | - |
| | Total | 49 | - | 85 | - | 79 | - | 240 | - | - | - |
| Teaching Qualification | PGCE | 21 | 35.0 | 37 | 43.5 | 32 | 40.5 | 40 | 35.7 | - | - |
| | BA/BSc | 23 | 38.3 | 34 | 40.0 | 21 | 26.6 | 43 | 38.4 | - | - |
| | Teacher Training | 11 | 18.3 | 8 | 9.4 | 6 | 7.6 | 8 | 7.1 | - | - |
| | Other | 5 | 8.3 | 6 | 7.1 | 20 | 25.3 | 21 | 18.8 | - | - |

ADHD = Attention Deficit Hyperactivity Disorder, PGCE = Post-Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts

Table 2.8 summarises the participants' experience with additional training for each of the conditions as well as details on their role and qualification. Additional training is defined as any teaching or training on top of core training received as part of any teaching qualification. Teachers identified more additional training than assistants. Additional training in autism was by far the most common, with 62.5% of teachers and 35% of teaching assistants saying they have received it. As expected, whether a teacher has had additional training in any of the conditions appears to increase as their years of experience increase. A Chi Square test of independence revealed that the length of time since qualifying and the amount of training in autism was associated, ($X^2(2, 213) = 12.46, p=.002$). Likewise, chi square tests also revealed that the length of time since qualifying and the amount of training in ADHD was also associated, ($X^2(2, 213) = 14.69, p=.001$). Post hoc comparisons of rates of additional training in both autism and ADHD revealed that significantly lower rates of training were seen among those that have had 0-3 years since qualifying, and significantly higher rates of training were seen among those that had 10 or more years since qualifying, $p<.001$. Chi square tests also revealed an association with the type of teaching qualification and the number of years of experience ($X^2(6, 224) = 18.60, p=.006$). However, when further post-hoc testing was conducted, no one group showed statistical significance once Bonferroni corrections had been calculated for type of teaching qualification. Only 5.8% of participants held specialist roles, defined as SENCo or Inclusion Leader. The results of the Chi-Square tests are shown in table 2.9.

Table 2.9

Comparison between teachers with 0-3 years of experience, 4-9 years of experience and 10+ years of experience and experiences with training

| Experience Type | Chi-Squared test of independence |
|-----------------------------------------------------------------|------------------------------------------|
| Additional Specific Training in Anxiety Disorder | X (2, 213) = 2.87 <i>p</i> = .238 |
| Additional Specific Training in ADHD | X (2, 213) = 14.69 <i>p</i> = .001*** |
| Additional Specific Training in Autism | X (2, 213) = 12.46 <i>p</i> = .002** |
| Additional Specific Training in Disruptive Behavioural Disorder | X (2, 213) = 3.37 <i>p</i> = .186 |
| Employed in a Specialist Role | X (2, 213) = 3.43 <i>p</i> = .180 |
| Teaching Qualification | X (6, 224) = 18.60 <i>p</i> = .005** |

ADHD = Attention Deficit Hyperactivity Disorder

* = $p < .05$, ** = $p < .01$

2.4.2 Correlations

Before conducting the correlations with the likelihood rating scores for the vignettes, the data was checked to ensure it met the correct assumptions. Using Pearson's correlation was deemed appropriate because the variables were either continuous or dichotomous, there was an absence of outliers more than 3.29 standard deviations from the mean, and the variables met linearity and homoscedasticity.

Although Pearson's correlation is typically used for two continuous variables, point-

biserial correlation is used to measure the strength and direction of an association between one continuous and one dichotomous variable and also uses Pearson's correlation coefficient. It is important to note that as multiple correlations were carried out, this increased the risk of Type 1 Error. The significance threshold of .05 was used for deciding which variables to input in the regressions. Bonferroni corrections were conducted to acknowledge the risk of Type 1 Error, and variables that survived correction for multiple comparisons are indicated. Correlations were carried out separately for both gender versions of each vignette. This allowed us to identify associated variables for recognising both the male presentations and the female presentations of each disorder. This was important to be able to ascertain what characteristics or experiences were associated with recognising males with each disorder, and whether these differed to the characteristics and experiences that were associated with recognising females with each disorder. Correlation results are also presented for the combined samples for each vignette, showing which characteristics and experiences were associated with recognising each disorder regardless of whether it was presented as a male or a female.

2.4.2.1 Correlations with the likelihood rating scores for the male phenotype of autism vignette

When looking for associations between the likelihood rating score for the male phenotype of autism with a boy's name and the characteristics and experiences of participants, none were identified. Likewise, no associations were found between the likelihood rating score for the male phenotype of autism with a girl's name and the characteristics and experiences of the participants or for the combined sample with either gender of name. These results are summarised in Table 2.10.

Table 2.10

Correlations for the Male Phenotype of Autism Vignette

| Characteristics/Experiences | Statistic | Male Phenotype of Autism | | |
|---------------------------------------------------------------------------------|--------------|--------------------------|-------------|-----------------|
| | | Male Name | Female Name | Combined Sample |
| Years of Teaching Experience | Pearson's | -.05 | -.07 | -.06 |
| | Significance | .653 | .471 | .396 |
| | N | 102 | 122 | 224 |
| Experience of Working in a Special School for Children with SEN | Pearson's | .09 | .03 | .06 |
| | Significance | .305 | .727 | .343 |
| | N | 141 | 148 | 289 |
| Experience of Working in a Special School for Children with Autism | Pearson's | .07 | .08 | .07 |
| | Significance | .434 | .328 | .343 |
| | N | 141 | 148 | 289 |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | Pearson's | .07 | .08 | .08 |
| | Significance | .400 | .342 | .200 |
| | N | 141 | 148 | 289 |
| Experience of Working in a Mainstream School with a SEN Provision Unit | Pearson's | .08 | -.03 | .02 |
| | Significance | .371 | .684 | .756 |
| | N | 141 | 148 | 289 |
| Experience of Working in a Mainstream School with an Autism Resource Base | Pearson's | .09 | -.05 | .02 |
| | Significance | .315 | .573 | .343 |
| | N | 141 | 148 | 289 |
| Experience of Working with Children with Anxiety Disorder | Pearson's | -.02 | -.14 | -.06 |
| | Significance | .803 | .150 | .354 |
| | N | 141 | 148 | 289 |
| Experience of Working with Children with ADHD | Pearson's | .07 | .10 | .09 |
| | Significance | .423 | .216 | .145 |
| | N | 141 | 148 | 289 |
| Experience of Working with Children with Autism | Pearson's | .04 | .11 | .08 |
| | Significance | .657 | .177 | .193 |
| | N | 141 | 148 | 289 |
| Experience of Working with Children with Disruptive Behaviour Disorder | Pearson's | .10 | .05 | .07 |
| | Significance | .262 | .539 | .228 |
| | N | 141 | 148 | 289 |
| Personal Experience of Anxiety Disorder | Pearson's | -.06 | .02 | -.02 |
| | Significance | .485 | .776 | .791 |
| | N | 141 | 148 | 289 |
| Personal Experience of ADHD | Pearson's | .08 | .07 | .07 |
| | Significance | .373 | .419 | .235 |
| | N | 141 | 148 | 289 |
| Personal Experience of Autism | Pearson's | .05 | .07 | .06 |
| | Significance | .572 | .414 | .324 |
| | N | 141 | 148 | 289 |
| Personal Experience of Disruptive Behaviour Disorder | Pearson's | -.04 | .11 | .05 |
| | Significance | .651 | .199 | .437 |
| | N | 141 | 148 | 289 |
| Additional Specific Training in Anxiety Disorder | Pearson's | .12 | .08 | .10 |
| | Significance | .149 | .365 | .096 |
| | N | 141 | 148 | 289 |
| Additional Specific Training in ADHD | Pearson's | -.04 | .16 | .14 |
| | Significance | .616 | .059 | .061 |
| | N | 141 | 148 | 289 |
| Additional Specific Training in Autism | Pearson's | .04 | .11 | .04 |
| | Significance | .631 | .173 | .505 |
| | N | 141 | 148 | 289 |
| Additional Specific Training in Disruptive Behavioural Disorder | Pearson's | .13 | .07 | .05 |
| | Significance | .149 | .427 | .358 |
| | N | 141 | 148 | 289 |
| Employed in a Specialist Role | Pearson's | .13 | .04 | .04 |
| | Significance | .149 | .612 | .516 |
| | N | 128 | 139 | 263 |
| Teaching Qualification: PGCE | Pearson's | -.16 | -.12 | -.134 |
| | Significance | .065 | .157 | .062 |
| | N | 141 | 148 | 289 |
| Teaching Qualification: BSc/BA in Education | Pearson's | .05 | .11 | .08 |
| | Significance | .555 | .184 | .165 |
| | N | 141 | 148 | 289 |
| Teaching Qualification: School Centred Teacher Training | Pearson's | -.02 | -.15 | -.09 |
| | Significance | .786 | .075 | .118 |
| | N | 141 | 148 | 289 |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder, PGCE = Post-Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts
 * = $p < .05$, ** = $p < .01$, *** = $p < .002$, remaining significant post correction

2.4.2.2 Correlations with the likelihood rating scores for the female phenotype of autism vignette

Having professional experience of autism (meaning participants who have worked with children with autism) significantly correlated with the likelihood rating score for the female phenotype of autism vignette when it was given a female name, $r=.165$, $p=.048$, showing a small positive association. Having professional experience of ADHD (meaning participants who have worked with children with ADHD) significantly correlated with the likelihood rating score for the female phenotype of autism vignette when it was given a female name, $r=.214$, $p=.010$, showing a small to medium positive association. Having personal experience with autism (through relatives, colleagues or friends) significantly correlated with the likelihood rating score for the female phenotype of autism vignette when it was given either a male name, $r=.182$, $p=.029$, or a female name, $r=.209$, $p=.012$, showing a small positive association, and when looking at the combined sample of both genders was the only variable to survive correction for multiple comparisons. Having personal experience of anxiety did show a significant correlation with the likelihood rating score in the combined sample, $r=.139$, $p=.018$, however this association was not present in the correlations for the separate genders. No other variables showed significant correlations. These results are summarised in table 2.11.

Table 2.11

Correlations for the Female Phenotype of Autism Vignette

| Characteristics/Experiences | Statistic | Female Phenotype of Autism | | |
|---------------------------------------------------------------------------------|--------------|----------------------------|--------------|-----------------|
| | | Male Name | Female Name | Combined Sample |
| Years of Teaching Experience | Pearson's | .11 | .58 | .08 |
| | Significance | .246 | .534 | .245 |
| | N | 107 | 117 | 224 |
| Experience of Working in a Special School for Children with SEN | Pearson's | -.03 | .10 | .02 |
| | Significance | .727 | .226 | .680 |
| | N | 144 | 145 | 289 |
| Experience of Working in a Special School for Children with Autism | Pearson's | .02 | .16 | .10 |
| | Significance | .777 | .062 | .107 |
| | N | 144 | 145 | 289 |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | Pearson's | -.03 | .07 | .01 |
| | Significance | .740 | 3.403 | .878 |
| | N | 144 | 145 | 289 |
| Experience of Working in a Mainstream School with a SEN Provision Unit | Pearson's | .09 | .02 | .07 |
| | Significance | .269 | .784 | .269 |
| | N | 144 | 145 | 289 |
| Experience of Working in a Mainstream School with an Autism Resource Base | Pearson's | .01 | .06 | .04 |
| | Significance | .885 | .489 | .452 |
| | N | 144 | 145 | 289 |
| Experience of Working with Children with Anxiety Disorder | Pearson's | -.09 | .16 | .04 |
| | Significance | .273 | .060 | .495 |
| | N | 144 | 145 | 289 |
| Experience of Working with Children with ADHD | Pearson's | -.08 | .21** | .08 |
| | Significance | .351 | .010 | .173 |
| | N | 144 | 145 | 289 |
| Experience of Working with Children with Autism | Pearson's | -.07 | .17* | .07 |
| | Significance | .412 | .048 | .230 |
| | N | 144 | 145 | 289 |
| Experience of Working with Children with Disruptive Behaviour Disorder | Pearson's | -.03 | .14 | .06 |
| | Significance | .733 | .100 | .297 |
| | N | 144 | 145 | 289 |
| Personal Experience of Anxiety Disorder | Pearson's | .16 | .10 | .14* |
| | Significance | .054 | .219 | .018 |
| | N | 144 | 145 | 289 |
| Personal Experience of ADHD | Pearson's | .13 | .08 | .11 |
| | Significance | .127 | .312 | .063 |
| | N | 144 | 145 | 289 |
| Personal Experience of Autism | Pearson's | .18* | .21* | .18*** |
| | Significance | .029 | .012 | .002 |
| | N | 144 | 145 | 289 |
| Personal Experience of Disruptive Behaviour Disorder | Pearson's | .10 | .11 | .11 |
| | Significance | .228 | .199 | .057 |
| | N | 144 | 145 | 289 |
| Additional Specific Training in Anxiety Disorder | Pearson's | .00 | .10 | .06 |
| | Significance | .985 | .238 | .293 |
| | N | 144 | 145 | 289 |
| Additional Specific Training in ADHD | Pearson's | .05 | -.09 | -.01 |
| | Significance | .592 | .265 | .832 |
| | N | 144 | 145 | 289 |
| Additional Specific Training in Autism | Pearson's | .07 | -.09 | .00 |
| | Significance | .442 | .727 | .978 |
| | N | 144 | 145 | 289 |
| Additional Specific Training in Disruptive Behavioural Disorder | Pearson's | .07 | .03 | .06 |
| | Significance | .378 | .727 | .351 |
| | N | 144 | 145 | 289 |
| Employed in a Specialist Role | Pearson's | -.10 | .10 | .01 |
| | Significance | .268 | .275 | .928 |
| | N | 135 | 127 | 263 |
| Teaching Qualification: PGCE | Pearson's | -.06 | -.13 | -.10 |
| | Significance | .457 | .144 | .079 |
| | N | 144 | 145 | 289 |
| Teaching Qualification: BSc/BA in Education | Pearson's | .07 | .05 | .06 |
| | Significance | .407 | .562 | .291 |
| | N | 144 | 145 | 289 |
| Teaching Qualification: School Centred Teacher Training | Pearson's | -.07 | -.01 | -.05 |
| | Significance | .395 | .898 | .376 |
| | N | 144 | 145 | 289 |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder
 PGCE = Post Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts
 * = $p < .05$, ** = $p < .01$, *** = $p < .002$, remaining significant post correction

2.4.2.3 Correlations with the likelihood rating scores for the ADHD vignette

Years of teaching experience significantly correlated with the likelihood rating score for the ADHD vignette when it was given a male name, $r=-.252$, $p=.006$, illustrating a small to medium negative association. Having professional experience of autism significantly correlated with the likelihood rating score for the ADHD vignette when it was given a male name, $r=.169$, $p=.039$, showing a small positive association. Having professional experience of ADHD significantly correlated with the likelihood rating score for the ADHD vignette when it was given a male name, $r=.201$, $p=.014$, showing a small positive association. Holding a BSc/BA in Education significantly correlated with the likelihood rating score for the ADHD vignette when it was given a male name, $r=.234$, $p=.004$, showing a small to medium positive association. Having experience of working in a mainstream school with special educational needs provision significantly correlated with the likelihood rating score for the ADHD vignette when it was given a female name, $r=.180$, $p=.034$, showing a small positive association. Having personal experience of ADHD significantly correlated with the likelihood rating score for the ADHD vignette when it was given a female name, $r=.169$, $p=.046$, showing a small positive association. Having experience of working in a special school for children with SEN did show a significant correlation with the likelihood rating score in the combined sample, $r=.127$, $p=.031$, however this association was not present in the correlations for the separate genders. When correcting for multiple comparisons using Bonferroni, none of these significant findings survived. These results are summarised in table 2.12.

Table 2.12

Correlations for the ADHD Vignette

| Characteristics/Experiences | Statistic | ADHD | | |
|---------------------------------------------------------------------------------|--------------|---------------|-------------|-----------------|
| | | Male Name | Female Name | Combined Sample |
| Years of Teaching Experience | Pearson's | -.25** | -.07 | -.17* |
| | Significance | .006 | .486 | .012 |
| | N | 118 | 106 | 224 |
| Experience of Working in a Special School for Children with SEN | Pearson's | .09 | .16 | .13* |
| | Significance | .260 | .057 | .031 |
| | N | 150 | 139 | 289 |
| Experience of Working in a Special School for Children with Autism | Pearson's | .15 | .01 | .08 |
| | Significance | .067 | .907 | .166 |
| | N | 150 | 139 | 289 |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | Pearson's | .07 | .00 | .03 |
| | Significance | .408 | .973 | .581 |
| | N | 150 | 139 | 289 |
| Experience of Working in a Mainstream School with a SEN Provision Unit | Pearson's | .00 | .18* | .09 |
| | Significance | .965 | .034 | .121 |
| | N | 150 | 139 | 289 |
| Experience of Working in a Mainstream School with an Autism Resource Base | Pearson's | .08 | .05 | .07 |
| | Significance | .325 | .537 | .262 |
| | N | 150 | 139 | 289 |
| Experience of Working with Children with Anxiety Disorder | Pearson's | -.03 | -.01 | -.03 |
| | Significance | .709 | .882 | .670 |
| | N | 150 | 139 | 289 |
| Experience of Working with Children with ADHD | Pearson's | .20* | .12 | .16** |
| | Significance | .014 | .161 | .006 |
| | N | 150 | 139 | 289 |
| Experience of Working with Children with Autism | Pearson's | .17* | .13 | .15* |
| | Significance | .039 | .136 | .011 |
| | N | 150 | 139 | 289 |
| Experience of Working with Children with Disruptive Behaviour Disorder | Pearson's | .01 | .15 | .07 |
| | Significance | .948 | .088 | .210 |
| | N | 150 | 139 | 289 |
| Personal Experience of Anxiety Disorder | Pearson's | -.08 | .06 | -.01 |
| | Significance | .345 | .457 | .850 |
| | N | 150 | 139 | 289 |
| Personal Experience of ADHD | Pearson's | .15 | .17* | .16** |
| | Significance | .070 | .046 | .007 |
| | N | 150 | 139 | 289 |
| Personal Experience of Autism | Pearson's | .04 | .13 | .08 |
| | Significance | .655 | .119 | .153 |
| | N | 150 | 139 | 289 |
| Personal Experience of Disruptive Behaviour Disorder | Pearson's | -.02 | -.03 | -.02 |
| | Significance | .768 | .747 | .718 |
| | N | 150 | 139 | 289 |
| Additional Specific Training in Anxiety Disorder | Pearson's | -.09 | .05 | -.02 |
| | Significance | .276 | .583 | .700 |
| | N | 150 | 139 | 289 |
| Additional Specific Training in ADHD | Pearson's | .02 | .12 | .07 |
| | Significance | .812 | .174 | .253 |
| | N | 150 | 139 | 289 |
| Additional Specific Training in Autism | Pearson's | .00 | -.08 | -.04 |
| | Significance | .958 | .326 | .470 |
| | N | 150 | 139 | 289 |
| Additional Specific Training in Disruptive Behavioural Disorder | Pearson's | .03 | .07 | .05 |
| | Significance | .711 | .390 | .384 |
| | N | 150 | 139 | 289 |
| Employed in a Specialist Role | Pearson's | .02 | .05 | .03 |
| | Significance | .812 | .604 | .605 |
| | N | 137 | 126 | 289 |
| Teaching Qualification: PGCE | Pearson's | -.15 | .061 | -.04 |
| | Significance | .073 | .474 | .457 |
| | N | 150 | 139 | 289 |
| Teaching Qualification: BSc/BA in Education | Pearson's | .23** | .05 | .14* |
| | Significance | .004 | .562 | .018 |
| | N | 150 | 139 | 289 |
| Teaching Qualification: School Centred Teacher Training | Pearson's | -.02 | -.07 | -.04 |
| | Significance | .793 | .394 | .537 |
| | N | 150 | 139 | 289 |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder
 PGCE = Post Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts
 * = $p < .05$, ** = $p < .01$, *** = $p < .002$, remaining significant post correction

2.4.2.4 Correlations with the likelihood rating scores for the separation anxiety vignette

Holding a PGCE qualification significantly correlated with the likelihood rating score for the separation anxiety vignette when it was given both a male name, $r = -.261$, $p = .002$, and female name, $r = -.180$, $p = .028$, showing a small to medium negative association. The significant finding for the vignette when it was given a male name also survived the correction for multiple comparisons. Holding a BSc/BA in Education significantly correlated with the likelihood rating score for the separation anxiety vignette when it was given a female name, $r = .163$, $p = .047$, showing a small positive association. There was a trend between having experience of working in a special school for children with autism and the likelihood rating score in the combined sample, $r = .116$, $p = .050$, however this association was not present in the correlations for the separate genders. These results are summarised in table 2.13.

Table 2.13

Correlations for the Separation Anxiety Vignette

| Characteristics/Experiences | Statistic | Separation Anxiety | | Combined Sample |
|---------------------------------------------------------------------------------|-----------------------|--------------------|--------------|-----------------|
| | | Male Name | Female Name | |
| Years of Teaching Experience | Pearson's Correlation | -.10 | -.14 | -.13 |
| | Significance | .297 | .128 | .059 |
| | N | 105 | 119 | 224 |
| Experience of Working in a Special School for Children with SEN | Pearson's Correlation | .02 | .14 | .09 |
| | Significance | .849 | .092 | .147 |
| | N | 140 | 149 | 289 |
| Experience of Working in a Special School for Children with Autism | Pearson's Correlation | .08 | .15 | .12* |
| | Significance | .380 | .072 | .050 |
| | N | 140 | 149 | 289 |
| Experience of Working in a Mainstream School with a Specialist Behavioural Unit | Pearson's Correlation | .05 | -.07 | -.02 |
| | Significance | .543 | .425 | .771 |
| | N | 140 | 149 | 289 |
| Experience of Working in a Mainstream School with a SEN Provision Unit | Pearson's Correlation | .02 | -.12 | -.05 |
| | Significance | .798 | .154 | .424 |
| | N | 140 | 149 | 289 |
| Experience of Working in a Mainstream School with an Autism Resource Base | Pearson's Correlation | .04 | -.02 | .00 |
| | Significance | .654 | .806 | .947 |
| | N | 140 | 149 | 289 |
| Experience of Working with Children with Anxiety Disorder | Pearson's Correlation | -.13 | .07 | -.01 |
| | Significance | .114 | .386 | .810 |
| | N | 140 | 149 | 289 |
| Experience of Working with Children with ADHD | Pearson's Correlation | .02 | .07 | .05 |
| | Significance | .789 | .431 | .434 |
| | N | 140 | 149 | 289 |
| Experience of Working with Children with Autism | Pearson's Correlation | -.02 | .08 | .04 |
| | Significance | .855 | .324 | .499 |
| | N | 140 | 149 | 289 |
| Experience of Working with Children with Disruptive Behaviour Disorder | Pearson's Correlation | -.03 | .02 | .00 |
| | Significance | .709 | .841 | .964 |
| | N | 140 | 149 | 289 |
| Personal Experience of Anxiety Disorder | Pearson's Correlation | .04 | .10 | .08 |
| | Significance | .612 | .213 | .204 |
| | N | 140 | 149 | 289 |
| Personal Experience of ADHD | Pearson's Correlation | -.16 | -.01 | -.07 |
| | Significance | .059 | .955 | .235 |
| | N | 140 | 149 | 289 |
| Personal Experience of Autism | Pearson's Correlation | -.13 | -.02 | -.07 |
| | Significance | .140 | .776 | .264 |
| | N | 140 | 149 | 289 |
| Personal Experience of Disruptive Behaviour Disorder | Pearson's Correlation | .04 | -.06 | .00 |
| | Significance | .658 | .505 | .996 |
| | N | 140 | 149 | 289 |
| Additional Specific Training in Anxiety Disorder | Pearson's Correlation | .14 | .08 | .11 |
| | Significance | .111 | .361 | .073 |
| | N | 140 | 149 | 289 |
| Additional Specific Training in ADHD | Pearson's Correlation | .13 | -.03 | .05 |
| | Significance | .137 | .752 | .379 |
| | N | 140 | 149 | 289 |
| Additional Specific Training in Autism | Pearson's Correlation | .16 | -.07 | .03 |
| | Significance | .067 | .426 | .572 |
| | N | 140 | 149 | 289 |
| Additional Specific Training in Disruptive Behavioural Disorder | Pearson's Correlation | .00 | -.07 | -.03 |
| | Significance | .983 | .403 | .610 |
| | N | 140 | 149 | 289 |
| Employed in a Specialist Role | Pearson's Correlation | .02 | .05 | .04 |
| | Significance | .806 | .595 | .559 |
| | N | 129 | 134 | 263 |
| Teaching Qualification: PGCE | Pearson's Correlation | -.26*** | -.18* | -.21** |
| | Significance | .002 | .028 | .000 |
| | N | 140 | 145 | 289 |
| Teaching Qualification: BSc/BA in Education | Pearson's Correlation | .11 | .16* | .14* |
| | Significance | .192 | .047 | .018 |
| | N | 140 | 149 | 289 |
| Teaching Qualification: School Centred Teacher Training | Pearson's Correlation | .02 | .00 | .00 |
| | Significance | .812 | .981 | .942 |
| | N | 140 | 149 | 289 |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder
 PGCE = Post Graduate Certificate of Education, BSc = Bachelor of Science, BA = Bachelor of Arts
 * = $p < .05$, ** = $p < .01$, *** = $p < .002$, remaining significant post correction

2.4.3 The impact of working with more pupils with autism

The data met the assumptions of normal distributions and homogeneity of variance, allowing one-way ANOVAs to be conducted. Whether participants had worked with more or less pupils with autism throughout their career had a significant effect on their likelihood rating score when scoring the male phenotype of autism with a male name. This finding was statistically significant, ($F(4, 131)=4.67$, $p=.001$). Post hoc comparisons using Bonferroni, indicated that the mean score for participants who had worked with three or fewer pupils with autism throughout their career was significantly different to those who had worked with 11-15 pupils with autism (M difference=-14.49, $SE=5.00$, $p=.044$) and those who had worked with 16 or more pupils with autism (M difference=-17.64, $SE=4.55$, $p=.002$). However, there were no other significant differences between any of the other groups. No other one-way ANOVAs showed statistically significant findings. These findings are summarised in table 2.14.

Table 2.14

One-way ANOVA for the Male Phenotype Vignette

| | | Male Name | | | Female Name | | | Combined Sample | | |
|----------------------------------------------|-------|-----------|-------|-----------------|-------------|-------|--------------|-----------------|-------|-----------------|
| | | N | Mean | Significance | N | Mean | Significance | N | Mean | Significance |
| No. of Pupils with Autism in Current Class | ≤ 0 | 43 | 66.56 | $p = .167$ | 63 | 66.14 | $p = .161$ | 106 | 66.31 | $p = .030^*$ |
| | 1 | 36 | 68.61 | $F = 1.82$ | 39 | 70.97 | $F = 1.85$ | 75 | 69.84 | $F = 3.56$ |
| | ≥ 2 | 28 | 75.36 | | 25 | 75.20 | | 53 | 75.28 | |
| No. of Pupils with Autism Throughout Career | ≤ 3 | 39 | 63.56 | $p = .001^{**}$ | 39 | 60.52 | $p = .029$ | 78 | 6.09 | $p < .001^{**}$ |
| | 4-5 | 21 | 68.00 | $F = 4.67$ | 32 | 71.78 | $F = 2.78$ | 53 | 70.28 | $F = 6.36$ |
| | 6-10 | 34 | 71.65 | | 35 | 73.83 | | 69 | 72.75 | |
| | 11-15 | 18 | 78.06 | | 12 | 75.17 | | 30 | 76.90 | |
| | ≥ 16 | 24 | 81.21 | | 29 | 73.52 | | 53 | 77.00 | |
| No. of Pupils with Anxiety in Current Class | ≤ 0 | 74 | 68.74 | $p = .891$ | 92 | 69.62 | $p = .983$ | 166 | 69.23 | $p = .906$ |
| | 1 | 22 | 70.91 | $F = .12$ | 16 | 70.69 | $F = 0.17$ | 38 | 70.82 | $F = 0.99$ |
| | ≥ 2 | 10 | 68.30 | | 11 | 69.73 | | 21 | 69.48 | |
| No. of Pupils with Anxiety Throughout Career | ≤ 0 | 47 | 69.34 | $p = .505$ | 43 | 66.65 | $p = .588$ | 90 | 68.06 | $p = .273$ |
| | 1 | 29 | 69.10 | $F = .84$ | 29 | 66.69 | $F = .71$ | 58 | 67.90 | $F = 1.29$ |
| | 2 | 11 | 73.27 | | 25 | 72.16 | | 36 | 72.50 | |
| | 3-5 | 30 | 70.77 | | 28 | 72.68 | | 58 | 71.69 | |
| | ≥ 6 | 18 | 78.11 | | 19 | 73.00 | | 37 | 75.49 | |
| No. of Pupils with ADHD in Current Class | ≤ 0 | 60 | 65.95 | $p = .094$ | 87 | 67.80 | $p = .448$ | 147 | 67.05 | $p = .065$ |
| | 1 | 34 | 75.06 | $F = 2.42$ | 31 | 72.81 | $F = .81$ | 65 | 73.98 | $F = 2.76$ |
| | ≥ 2 | 11 | 69.55 | | 9 | 73.22 | | 20 | 71.20 | |
| No. of Pupils with ADHD Throughout Career | ≤ 1 | 34 | 63.74 | $p = .134$ | 37 | 65.94 | $p = .104$ | 71 | 64.89 | $p = .068$ |
| | 2 | 26 | 71.27 | $F = 1.79$ | 26 | 62.81 | $F = 1.96$ | 52 | 67.04 | $F = 3.04$ |
| | 3-4 | 20 | 74.35 | | 30 | 74.63 | | 50 | 74.52 | |
| | 5-10 | 39 | 74.21 | | 37 | 71.21 | | 76 | 72.80 | |
| | ≥ 11 | 15 | 73.73 | | 15 | 77.20 | | 30 | 75.47 | |

*ADHD = Attention Deficit Hyperactivity Disorder** = $p < .05$, ** = $p < .01$

2.4.4 Multiple linear regressions

Before conducting multiple linear regressions, the data was checked to ensure it met the correct assumptions. Although the dependent variables, the likelihood rating scores for each vignette, did show negative skew (Kolmogorov-Smirnov $<.01$), the residuals for all the dependent variables for the models that were run were normally distributed. The predictor variables showed no multicollinearity and the relationship between the dependent variables and predictors was linear for all three regression models. All variables were continuous or categorical. The bi-variate correlations suggested that there might be an interaction effect with gender as for each vignette there were significant predictors for one gender but not the other. Therefore, gender was routinely added as a predictor into the regressions and this interaction effect was tested.

2.4.4.1 Female phenotype of autism vignette

A multiple linear regression was calculated to predict the score teachers give to the female phenotype of autism based on the gender of the vignette (IV1), personal experience of autism (IV2), professional experience of autism (IV3) and professional experience of ADHD (IV4). A significant regression equation was found ($F(5, 283)=5.961, p<.001$), with an R^2 of .095. The model shows that 9.5% of the variability is being explained by the gender of the vignette, personal experience of autism, and professional experiences of autism and ADHD.

The interaction effect of the gender of the vignette was then calculated. A significant regression equation was found ($F(9, 279)=4.184, p<.001$), with an R^2 of .119. 11.9% of the variability is being explained by personal experience of autism, and professional experiences of autism and ADHD when controlling for the gender of the vignette. When accounting for gender, the R^2 Change indicates a 2.4%

increase of predictive capacity, although this is not statistically significant, (F Change = 1.87, $p=.116$). Table 2.15 summarises these findings.

Table 2.15

Multiple Regression for the Female Phenotype Vignette

| | <i>B</i> | <i>SE B</i> | β |
|----------------------------------------------------------------------|----------|-------------|--------------|
| Step 1 | | | |
| Constant | 48.78 | 2.74 | |
| Gender of Vignette | 11.33 | 2.93 | .22** |
| Personal Experience of Autism | 9.1 | 3.13 | .17* |
| Experience of Working with Children with Autism | -2.15 | 3.9 | -.04 |
| Experience of Working with Children with ADHD | 3.94 | 4.09 | .07 |
| Step 2 | | | |
| Constant | 46.8 | 3.23 | |
| Gender of Vignette | 15.4 | 4.79 | .30** |
| Personal Experience of Autism | 9.55 | 4.43 | .18* |
| Experience of Working with Children with Autism | -.13 | 5.43 | .00 |
| Experience of Working with Children with ADHD | 11.18 | 5.68 | .20* |
| Gender of Vignette * Personal Experience of Autism | -.40 | 6.23 | -.01 |
| Gender of Vignette * Experience of Working with Children with Autism | -3.54 | 7.75 | -.06 |
| Gender of Vignette * Experience of Working with Children with ADHD | -14.21 | 8.14 | -.20 |

ADHD = Attention Deficit Hyperactivity Disorder

* = $p < .05$, ** = $p < .01$

2.4.4.2 ADHD vignette

A multiple linear regression was calculated to predict the score teachers give to the ADHD vignette based on the Gender of the Vignette (IV1), Years of teaching experience (IV2), Having a BSc/BA Qualification (IV3), Experience of working in SEN provision (IV4), Experience of working in a Special School for pupils with SEN (IV5), Professional experience of ADHD (IV6), Professional Experience of Autism (IV7), Personal Experience of ADHD (IV8). A significant regression equation was found ($F(8, 215)=2.53$, $p=.012$, with an R^2 of .086. 8.6% of the variability is being explained by the predictor variables.

The interaction effect of the gender of the vignette was then calculated. A significant regression equation was found ($F(15, 208)=1.92$, $p=.023$), with an R^2 of .121. 12.1% of the variability is being explained by predictor variables. When controlling for gender, the R^2 Change indicates a 3.6% increase of predictive

capacity, although this is not statistically significant, (F Change = 1.20, p=.303).

Table 2.16 summarises these findings.

Table 2.16

Multiple Regression for the ADHD Vignette

| | <i>B</i> | <i>SE B</i> | β |
|--------------------------------------------------------------------------------------|----------|-------------|---------|
| Step 1 | | | |
| Constant | 62.27 | 3.66 | |
| Gender of Vignette | 2.13 | 2.83 | .05 |
| Years of Teaching Experience | -.32 | 0.2 | -.11 |
| Teaching Qualification: BSc/BA in Education | 6.51 | 3.01 | .14* |
| Experience of Working in a Special School for Children with SEN | 3.49 | 4.56 | .05 |
| Experience of Working in a Mainstream School with SEN Provision | 5.33 | 4.06 | .09 |
| Experience of Working with Children with ADHD | 2.04 | 4.01 | .04 |
| Experience of Working with Children with Autism | 1.56 | 3.84 | .04 |
| Personal Experience of ADHD | 6.90 | 3.56 | .13 |
| Step 2 | | | |
| Constant | 61.4 | 4.95 | |
| Gender of Vignette | .21 | 4.72 | .01 |
| Years of Teaching Experience | -.13 | .30 | -.05 |
| Teaching Qualification: BSc/BA in Education | 1.54 | 4.32 | .03 |
| Experience of Working in a Special School for Children with SEN | 5.98 | 6.64 | .09 |
| Experience of Working in a Mainstream School with SEN Provision | 8.92 | 5.66 | .15 |
| Experience of Working with Children with ADHD | -5.42 | 6.22 | -.11 |
| Experience of Working with Children with Autism | 5.58 | 5.97 | .13 |
| Personal Experience of ADHD | 10.37 | 5.40 | .20 |
| Gender of Vignette * Years of Teaching Experience | .33 | .40 | .09 |
| Gender of Vignette * Teaching Qualification: BSc/BA in Education | 9.49 | 6.02 | .17 |
| Gender of Vignette * Experience of Working in a Special School for Children with SEN | -2.95 | 9.17 | -.03 |
| Gender of Vignette * Experience of Working in a Mainstream School with SEN Provision | -5.54 | 8.23 | -.06 |
| Gender of Vignette * Experience of Working with Children with ADHD | 14.10 | 8.23 | .23 |
| Gender of Vignette * Experience of Working with Children with Autism | -6.67 | 7.85 | -.13 |
| Gender of Vignette * Personal Experience of ADHD | -7.27 | 7.29 | -.11 |

SEN = Special Educational Needs, ADHD = Attention Deficit Hyperactivity Disorder, PGCE = Post-Graduate Certificate of Education

* = $p < .05$, ** = $p < .01$

2.4.4.3 Separation anxiety vignette

A multiple linear regression was calculated to predict the score teachers give to the Separation Anxiety vignette based on the Gender of the Vignette (IV1), Having Experience of Working in a Special School for Autism (IV2), Holding a PGCE (IV3), and Having a BSc/BA Qualification (IV4). A significant regression equation was found ($F(4, 284)=5.07$, $p=.001$, with an R^2 of .067. 6.7% of the variability is being explained by the predictor variables.

The interaction effect of the gender of the vignette was then calculated. A significant regression equation was found ($F(7, 281)=3.04$, $p=.004$), with an R^2 of

.070. 7.0% of the variability is being explained by the predictor variables. When taking into account gender, the R² Change indicates a 0.4% increase of predictive capacity, which is not statistically significant, (F=.38, p=.771). Table 2.17 summarises these findings.

Table 2.17

Multiple Regression for the Separation Anxiety Vignette

| | <i>B</i> | <i>SE B</i> | β |
|-----------------------------------------------------------------------------------------|----------|-------------|---------|
| Step 1 | | | |
| Constant | 86.59 | 1.38 | |
| Gender of Vignette | 1.27 | 1.45 | .05 |
| Experience of Working in a Special School for Children with Autism | 7.12 | 3.28 | .12* |
| Teaching Qualification: PGCE | -5.27 | 1.73 | -.19** |
| Teaching Qualification: BSc/BA in Education | 1.56 | 1.78 | .06 |
| Step 2 | | | |
| Constant | 85.75 | 1.66 | |
| Gender of Vignette | 2.97 | 2.34 | .12 |
| Experience of Working in a Special School for Children with Autism | 9.00 | 4.51 | .16* |
| Teaching Qualification: PGCE | -4.14 | 2.50 | -.15 |
| Teaching Qualification: BSc/BA in Education | 2.82 | 2.50 | .10 |
| Gender of Vignette * Experience of Working in a Special School for Children with Autism | -4.27 | 6.60 | -.05 |
| Gender of Vignette * Teaching Qualification: PGCE | -2.31 | 3.48 | -.07 |
| Gender of Vignette * Teaching Qualification: BSc/BA in Education | -2.61 | 3.59 | -.08 |

BSc = Bachelor of Science, PGCE = Post-Graduate Certificate of Education

* = $p < .05$, ** = $p < .01$

2.4.5 Factorial ANOVA – male phenotype of autism vignette

A factorial ANOVA was used to test whether working with more pupils with autism throughout a teacher's career (the independent variable involving 5 groups: ≤ 3 , 4-5, 6-10, 11-15, ≥ 16) made them better able to detect the male phenotype of autism in the vignette (the dependent variable). In addition, it also analysed how the gender of the vignette (a second independent variable involving 2 groups: male and female) impacted with this finding.

The main effect, which examined how working with more or less pupils with autism throughout their career impacted on their recognition of vignette depicting the male phenotype of autism, yielded an F ratio of $F(4, 273)=6.39$, $p<.001$, indicating a significant difference in the likelihood rating score on the vignette between

participants who had worked with 3 or less pupils with autism ($M=62.09$, $SD=22.87$), and those who had worked with 16 or more pupils with autism ($M=77.00$, $SD=16.29$). Whether the vignette was presented to participants as a boy or a girl did not make any significant difference in how well participants recognised the presentation of autism, $F(1, 273) = .385$, $p = .536$. The interaction between the two independent variables, the number of pupils with autism participants had worked with throughout their career and the gender assigned to the vignette they rated, was not significant, $F(4, 273) = .775$, $p = .542$. Bonferroni post-hoc tests further indicated that participants who have worked with three or fewer pupils with autism throughout their career scored significantly less on the likelihood rating score, meaning they were significantly worse at recognising the male presentation of autism when compared to participants who have worked with 6-10 (M Difference = -10.66 , $SD=3.17$, $p=.009$), 11-15 (M Difference = -14.81 , $SD=4.13$, $p=.004$) or 16 or more (M Difference = -14.91 , $SD=3.42$, $p<.001$) pupils with autism. No other pairwise comparisons found significant differences between the groups.

2.4.6 Summary of findings

The number of pupil's participants had worked with throughout their career who had a diagnosis of autism was significantly associated with how well they detected the male phenotype of autism in the vignette.

Participants' professional experience of autism and ADHD, and personal experience of autism and anxiety, were significantly associated with how well they identified the female phenotype of autism vignette.

Participants' years of experience, experience of working in either a mainstream school with SEN provision or a special school, professional experience of autism and ADHD, personal experience of ADHD and holding a BSc/BA in

education, were significantly associated with how well they identified the ADHD vignette.

Participants' holding a PGCE or a BSc/BA in education, were significantly associated with how well they identified the separation anxiety vignette.

Although the above showed significant associations, all of these results were small associations ($r < .3$), and many did not survive correction for multiple comparisons.

Participants' experiences with autism, both professional and personal, their qualifications, their experiences in different educational settings and their number of years of experience do not go far in explaining why some teachers are better able to detect subtle cases of autism than others. This is shown in the results of the regression models that were run, which explain a low amount of variability.

2.5 Discussion

This paper explores the characteristics and experiences of primary school teaching staff that might influence their abilities to recognise girls with autism and subtle cases of autism, as well as the other disorders, ADHD and separation anxiety, when using clinical vignettes. The findings of this study will be discussed, the strengths and limitations will be considered, and the implications for clinical practice and further research will be set out.

2.5.1 Understanding the participants and their experiences

When comparing the sample to data from a government census of teaching staff, we found that it differed. This impacts the ability to generalise our findings. However, it is still interesting to consider the experiences our participants have had with different mental health conditions and with additional training. Participants said they had worked with autism in the classroom far more than they had worked with

ADHD, disruptive behavioural disorders and anxiety. This is curious as the prevalence rate of autism is much lower at 1.5% than for ADHD, which is estimated at over 5% (Polanczyk & Rohde, 2007), disruptive behaviour disorders, which is estimated at 3.3% (Canino et al, 2010) and anxiety disorder, which is the most frequent mental health condition in children with a prevalence rate of approximately 8% (Merikangas, Nakamura & Kessler, 2009). Recognition of working with disruptive behaviour disorders was particularly low, but given the prevalence of Oppositional Disruptive Disorder (ODD) and Conduct Disorder (CD) it would seem likely that teaching staff come across disruptive behavioural disorders quite regularly in the classroom. The under recognition of ODD and CD could be due to teaching staff not thinking of these presentations in terms of these labels. Perhaps they have more familiarity with the diagnostic labels of autism and ADHD.

The recognition of working with autism is also curious given the comparatively low prevalence rates. The study worked hard at disguising that the research was about autism, so there should be no reason why the sample attracted participants with increased knowledge or interest in autism over and above the other conditions that were explored. Autism has been receiving increasing media attention in recent years (McKeever, 2013). Perhaps due to its increase in prevalence, it has caught the attention of the media and has become much more a part of public discourse. It has been referred to as “a major health concern” (Newschaffer & Curran, 2003) with panic around its once supposed link to vaccinations driven by the media (Holton, Weberling, Clarke & Smith, 2012). One could argue that autism has become “fashionable” to talk and write about in a way that ADHD, Disruptive Behavioural Disorders and anxiety disorders have not. There has also been continued

debate over autism's aetiology, which adds to public health interest and the demand for education around the disorder (Newschaffer & Curran, 2003).

When examining the sample by length of time since qualifying, our hypothesis was that the longer a participant had been teaching, the more likely they would be to have come across autism in the classroom. It was of note that teachers who had been qualified less than 10 years identified significantly more experience with autism in their classrooms than those who had 10 or more years of qualified experience. A similar finding was discovered for having experience of ADHD. It could be argued that more recently qualified teachers are more in touch with autism and ADHD and more aware of the differing needs of the pupils in their classrooms. This mirrors the findings Golder, Norwich and Bayliss (2005) who discuss the evolving nature of teacher training over the past few decades due to the shift towards inclusion of all pupils into mainstream schools and an increased focus on special educational needs being met within the classroom. In addition, those who had 10 or more years of experience might well have had more experience in managerial roles and not necessarily more teaching experience.

Another hypothesis was that the longer a participant had been teaching, the more likely they would have received additional training in autism, over and above any training within their core teaching qualification. This hypothesis was supported by our data, as participants with 10 or more years of experience were more likely to have had additional training in both autism and ADHD. In fact, all our participants, regardless of years of experience, were more likely to have received additional training in autism than for ADHD, Disruptive Behaviour Disorders or Anxiety. If there is indeed an increase in the amount autism is talked about and referred to, it would make sense that schools have invested training into understanding autism

better. Despite the literature stating that teachers have not been adequately trained in autism (Helps, Newson-Davis & Callais, 1999; Lauderdale-Litten & Brennan, 2018) there is also an understanding that opportunities for additional training have been increasing in recent years (Helps et al., 1999).

Overall, the sample certainly identified as having experience with autism and familiarity with the disorder, whether that was within the classroom or through relatives and/or friends. We can state that the sample was not unfamiliar with autism, many participants had received additional training in autism and some had more specific experiences of working in specialist educational settings.

2.5.2 Predictors for identifying autism

Participants who identified having pupils with both autism and ADHD in their classrooms were more accurate at identifying the female phenotype of autism in the clinical vignettes. Additionally, participants who identified knowing someone in their personal lives, through friends or family, with either autism or anxiety were also more accurate at identifying the female phenotype of autism. When these associated predictors were entered into a regression model, personal experience of autism and professional experience of ADHD continued to be unique predictors of recognising the female phenotype of autism.

Participants who identified as having worked with more pupils with a diagnosis of autism throughout their career were more accurate at recognising the male phenotype of autism. When this variable was entered into a factorial ANOVA model, this continued to be a unique predictor.

It is important to approach these findings with caution and not over interpret them. The significant associations that were detected were small, with Pearson's correlation coefficient being consistently less than .3. In addition to this, often the

correlations did not make theoretical sense. Predictors that were expected to be associated were not, and those that were associated were limited and seemed random at times, indicating the possibility of false positives due to multiple testing. This raises the issue of potential Type I Error. It is important to note that there was a likelihood of detecting significant results when there were none due to repeated correlations, although every effort was made to reduce this by ensuring the data met the key assumptions (Osborne & Waters, 2002). When correcting for multiple comparisons using Bonferroni, many of the correlation significant findings did not survive. Similarly, although the regressions did produce significant equations, the models were weak, explaining approximately 10% or less of the variability. Therefore, it is not possible to explain why some teachers are better at recognising autism than others using these predictors.

Based on both theory and the literature, as well as pilot discussions with teachers, we hypothesised that additional training in autism, experience in specialist autism environments, holding a specialist teaching role, having more pupils in their classrooms with autism, knowing someone with autism in their personal life, and having more years of experience would predict whether teaching staff would recognise subtle cases of autism. However, our results did not support this. There are four possible reasons for this. First, it is possible that we lacked power to detect associations. This is unlikely, given that our large sample was powered to detect over 14 potential predictors, based on the common admonition there should be 20 participants to detect one predictor in a regression (Kraemer & Blasey, 2015). Our requirement of 160 participants was well exceeded during the online recruitment, only strengthening our power. Second, we may have measured our predictor variables inadequately by not obtaining enough information from participants. Third,

our outcome variable of the performance on the vignette may not be a strong indicator due to low external validity on clinical vignettes (Peabody et al., 2014). Fourth, our hypotheses may be incorrect and there may be other predictors that were not measured. These four possible reasons will be explored further when discussing the limitations of the study.

Although the findings serve to eliminate ideas rather than confirm, we can view this as moving closer to understanding the role of teachers in identifying autism and a guidance in terms of next steps for further research. It could be that the ability to recognise autism is more nuanced than a small set of characteristics and experiences. Factors such as IQ, individual differences or emotional intelligence might be more relevant in trying to answer this question. The predictors that this study measured were perhaps too simplistic to offer a conclusive explanation. Our findings bear some similarities to Slater, Davies and Burgess (2012), who concluded that observed characteristics of teachers are not useful predictors for understanding the quality of teaching. Although Slater and colleagues (2012) focus was on measuring the variation in teacher effectiveness as opposed to the ability to identify autism, they similarly attempted to use characteristics including age, experience and education as predictors and found none played a significant role in explaining teacher effectiveness.

One hope from the study was to be able to use the findings to consider whether teacher training could be changed to help staff better recognise girls with autism. 62.5% of qualified teachers and 35% of teaching assistants said they had received additional training in autism, however our findings suggest that this training did not contribute to an improved ability to recognise autism for either the male phenotype or the female phenotype. Perhaps this additional training is not rigorous or

informative enough, or focuses more on classroom management of autism rather than skills in detection (Alexander, Ayres & Smith, 2015; Morrier, Hess & Heflin, 2011; Probst & Leppert, 2008). Helps and colleagues (1999) found that teachers lacked basic understanding of autism and Lauderdale-Littin and Brennan (2018) identified a need for additional training in autism to have a greater focus on understanding the condition rather than just making modifications in the classroom. Additional training might be helpful for those pupils already with a diagnosis, but perhaps does not increase teaching staff's ability in pick up on subtle neurodevelopmental differences and consider whether it might be autism.

2.5.3 Predictors for identifying ADHD and separation anxiety

Participants who had more years of teaching experience, had taught pupils with both autism and ADHD, had personal experience of ADHD, had a BSc/BA in Education, had experience of working in a mainstream school with SEN provision, and/or experience of working in a special school for children with SEN were better able to identify ADHD in the clinical vignettes. When these associated predictors were entered into a regression model, none of them continued to be unique predictors of recognising ADHD.

Participants who had a PGCE qualification and/or a BSc/BA in Education and had experience of working in a special school for children with SEN were better able to identify separation anxiety in the clinical vignettes. When these associated predictors were entered into a regression model, having a PGCE qualification continued to be unique predictors of recognising separation anxiety.

Similar to the findings for both autism presentations, these too should be interpreted with caution. The associations were small, with correlation coefficients being less than 0.3. In addition, some of the associated variables do not make much

sense. There is no theoretical basis for why having a PGCE qualification should improve a teacher's ability to recognise separation anxiety. The regression models dismiss many of the variables as being unique predictors, and although significant regression equations were found, the models explain very low amounts of the variability. Therefore, it is not possible to explain why some teachers are better at recognising ADHD or separation anxiety than others using these predictors.

2.5.4 Limitations and strengths of the study

Due to the findings, it is important to address the possibility that we may have failed to measure the predictor variables effectively. Participants were asked about whether they had received additional training in autism, but we did not capture different types of training. This means we could not distinguish which types of training might have been most helpful. We did not gather information on what the training covered, how extensive it was and who it was delivered by. This means there was no way to assess the quality of training which would undoubtedly impact on the effectiveness. Likewise, participants were asked about whether they had worked with pupils who had autism, ADHD, anxiety and disruptive behaviour disorder and whether they knew people in their personal lives with these conditions, but more in-depth information about these experiences was not captured. Central to good qualitative research is obtaining subjective meaning and posing questions to that end (Fosset, Harvey, McDermott & Davidson, 2002). The study lacked open-ended questions which could have captured more of an understanding of the experiences of participants. However, our approach of collecting quantitative information was necessitated by the internet research methods used.

The findings are unable to answer the question of what might be causing this variability in the recognition of autism. With that in mind, another key limitation was

that there must be predictors that were not included in the research. The hypotheses that additional training in autism, experience in specialist educational settings, having more pupils with autism in the classroom, personally knowing someone with autism, having more years of teaching experience and holding a specialist teaching role would make staff better able to recognise autism were grounded in theory, available literature and consultations. However, in retrospect, factors such as IQ of participants, emotional intelligence of participants and participant knowledge of autism could have provided crucial information in the attempt to address the research aims. Emotional intelligence is defined as the ability to understand others and therefore work effectively with them (Gardner, 1983). Higher emotional intelligence improves an individual's ability to socially relate to others but it is worth noting that emotional intelligence provides subtle advantages and can be difficult to identify (Peter, 2010). In order to assess participants knowledge of autism, it could have been useful to adapt existing measures (Bakare, Ebigbo, Agomoh & Menkiti, 2008; Campbell & Berger, 2011).

Due to recruiting via social media outlets such as Facebook and Instagram, our sample was younger and more female based than is representative in primary school teaching staff, therefore this may have biased our results. It is acknowledged that social media recruitment does not reach all potential participants and therefore risks not being representative of the target populations (Topolovec-Vranic & Natarajoan, 2016). Self-selection bias is also at play, so the participants represent a more motivated group than the general target population (Topolovec-Vranic & Natarajoan, 2016). Therefore, the sample is unlikely to represent teacher workforce.

The use of vignettes was both a limitation and a strength. Relying on vignette design does lower external validity (Peabody et al, 2014; Loades &

Mastroyannopoulou, 2010), and therefore we must question how well they measured real world behaviour. Participants are likely to respond differently to a vignette than to a live situation in their classroom (Loades & Mastroyannopoulou, 2010).

However, much time and thought was put into the construction of the vignettes with extensive consultations and piloting to ensure internal validity and realistic depictions of the conditions. Experts reviewed and agreed that the vignettes described the male phenotype of autism and the female phenotype of autism well, and the vignettes were well matched to ensure they all described a similar level of severity.

Given the exploratory nature of the study, the hypothesis was less clear and therefore statistical analysis was less hypothesis driven. Instead, many statistical tests were conducted to detect a wide range of potential findings, increasing the possibility of Type 1 error.

A further limitation is the lack of reliability indicator on the survey data. It is possible that some participants completed the survey in a very short amount of time, without engaging properly, which would have impacted the results.

2.5.5 Ideas for further research

It is important to consider how to gather more of an understanding on what might predict teachers to recognise girls with autism and subtle presentations of autism. Initially, a qualitative study could take place which interviews teachers in more depth about what influences their abilities to pick up on these presentations of autism. Qualitative research could allow the identification of possible predictors, and more of an exploration of the barriers to recognising autism.

Further to qualitative research, a similar study could explore potential predictors such as IQ, emotional intelligence and autism knowledge, to measure

more nuanced and potentially highly relevant factors. Including a knowledge test on autism would allow researchers to better assess how understood autism is by primary school teachers and whether higher knowledge contributes to better understanding of girls with autism or not.

More extensive research could directly test whether specific training on the recognition of undiagnosed autism better equips teaching staff to seek referrals to diagnostic services for pupils they feel would benefit.

Additionally, conducting a similar study with another key group of professionals would be beneficial. Both teachers and General Practitioners (GPs) play a key role in referring children to the correct services to be assessed for autism and GPs have been shown to demonstrate a lack of understanding of the female phenotype of autism (Bargiela et al., 2016). It would be useful to gather more information about GPs knowledge and skill in detecting subtle cases of autism. Having more objective stimuli, such as using videos, might prove more effective than clinical vignettes when conducting the study in the future.

2.5.6 Conclusions and clinical recommendations

Whether teaching staff have undergone additional training in autism, if they have had specific experiences with working in specialist autism environments, whether they hold a specialist teaching role, if they have more pupils in their classroom with autism, if they know someone with autism in their personal life, and if they have more years of teaching experience were all tested as potential predicting factors in how well they can recognise both the female phenotype of autism and the subtle male presentation of autism. Any associations were very small and the models were unable to explain the variability in how accurate teaching staff are at recognising autism. However, some indications were found that additional training in

autism appears not to influence teacher ability to recognise the condition and although teachers identify as having experience and familiarity with autism, this is not a predictor in whether they are better able to recognise it in their classrooms. The ability to recognise autism is more nuanced than a set of teacher characteristics and requires further research, involving more in-depth information on differing experiences and the inclusion of predictors that can capture individual personality traits. The ability to detect girls with autism remains a priority to reduce the negative consequences of a missed or late diagnosis. The implications of this study suggest that additional training that focuses on the female phenotype of autism and ability to detect autism in the classroom could be helpful in aiding teachers to recognise subtle cases of autism earlier and refer on to appropriate services.

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Part 3: Critical Appraisal

3.1 Introduction

This appraisal goes through the insights I have gained through the process of writing the current conceptual introduction and carrying out the research study. First, it considers the methodological aspects of the study, in particular the use of vignettes and how to balance competing demands on study design. Then it goes on to comment on the analysis and findings of the study. It then discusses the role of diagnosis and how the study has influenced my thinking about the importance of a diagnostic label. This appraisal ends with a discussion on the experiences of conducting a joint theses project.

3.2 Methodological reflections

Before commencing training, I worked in a specialist school for young people with autism. In a large secondary school dedicated to support the needs of those with autism there was only a handful of girls, and in the classes for students without any cognitive impairment there was just one girl. I worked closely alongside teachers and teaching assistants and I was curious to research the gender bias in autism alongside how teachers play a key role in identifying young people with autism.

3.2.1 The use of vignettes

The experimental component of the research relied on having internally valid vignettes, so the development of these took considerable time and effort at the start of the thesis process. A concern was how to write vignettes that accurately depicted autism, along with the other disorders, to make them as realistic as possible. I drew on my experiences of working with young people with autism, as well as ADHD, anxiety and behavioural conduct problems. I think this helped in the creation of realistic vignettes that described recognisable pupils. It was also helpful to approach

this task alongside the other researcher, Alana Whitlock, as we could use our combined knowledge and ideas to develop well-crafted case studies.

The need for the vignettes to be realistic sat alongside the need for them to be succinct and relatively quick to read so the survey did not take too much time to complete. This proved a challenge as we wanted to make sure they included enough pertinent information for each disorder to give a rich description of each pupil. It led us to be quite systematic in our approach, limiting each vignette to five key diagnostic symptoms, a comorbid symptom and a physical health presentation. This structure meant that there was continuity between the vignettes and helped to standardise them, limiting confounding variables.

Another key factor for the vignettes was ensuring they gave enough clues of each disorder and were not overly subtle, but at the same time were not too overt in presentation. It was challenging to strike this balance when we were the authors, as it became easy to lose perspective on how obvious the presentations were to new readers. Consulting experts in the field, including women with autism, leading researchers in the field and practitioners working in Child and Adolescent Mental Health Services (CAMHS) with a speciality in autism was a crucial part of the process to help with this. Using our supervisor's extensive network in the field of autism research felt reassuring. The differences between the male and female phenotypes of autism are complex and nuanced, so in order to accurately portray each of them we had to ground our decision making in the literature and then use the expertise of the consultants to offer feedback to shape the vignettes accordingly.

There was certainly an intention to develop highly realistic case studies that, when read, would help teachers to imagine working with these pupils and evoke a genuine response. The feedback from both the pilot and from participants who

contacted us after completing the survey was that they were very interested in the study and what its findings may be. The number of participants that completed the survey, together with the feedback we received, illustrates that the study was quite engaging. The vignettes allowed participants to read a narrative of the pupils and this might have enabled them to connect to the study on a more personal level. The vignettes definitely allowed the experimental, quantitative nature of the study to feel clinically relevant for me as a researcher, I appreciated the way they impacted the study design and helped to ground the research in clinically relevant territory whilst also allowing the study to be widely accessed by many people.

3.2.2 Competing demands on study design

A key reflection on the process of designing the study was the challenge of balancing the competing demands of the need to maintain the deception and ensure participants did not know the study was researching autism, with the need to collect as much relevant information as possible. To better answer the research questions, extensive data on participants' knowledge of autism would have been useful. However, in order to maintain the deception, knowledge of the other disorders (disruptive behavioural disorder and separation anxiety) would have also had to be collected. This would have greatly increased the length of the study and we were conscious that asking a busy group of professionals such as teachers required a straight forward and relatively short, easy to access online survey in order to reach our required sample size.

This also ties into the challenge of designing a study for two separate theses. Initially, we proposed quite a different study where we would evaluate the gender stereotyping in autism recognition and misidentification of the female phenotype of autism with two different sets of participants, one being teachers and the other

General Practitioners (GPs). When thinking about which professionals are instrumental in getting children an autism diagnosis, both teachers and GPs are key (Bargiela, Steward & Mandy, 2016). The two projects would have had the same research questions but each analysed the two different samples, with the vignettes slightly edited to suit GP population and to be less school focused. Due to concerns about reaching enough GPs and being left with a low sample size, the proposed research was changed to just target teachers, allowing both researchers to combine efforts to reach the sample size needed for one of the populations. The two studies were developed to answer different research questions using the same participants. This shift in research design was a difficult one as I had to re-think my whole project. At the time it felt like a set back and one I struggled to adapt to very quickly. I stayed tied to the initial study's research aims for a while and it took time to fully get to grips with the new research questions and hypotheses. On reflection, we easily reached the target sample size of 164 and surpassed it relatively quickly. The use of social media worked very well at reaching many potential participants. Perhaps recruiting teachers is easier than recruiting GPs, and it is highly possible it could have proved challenging to get a well powered study with GPs. However, given the response rate we experienced with teachers we could have afforded more effort for the recruitment of GPs which would have allowed us the possibility of generalising any findings across the two populations.

Additionally, I wonder if the research aims for the other study were more in the forefront of all our minds, including mine, when we designed the survey. A lot of emphasis was placed on the development of the vignettes to capture the information of whether participants displayed a gender bias when recognising autism and whether they picked up on the female phenotype as much as the male. Whereas, the data

around demographics and experiences was limited for fear of the length of the survey. Our concerns over recruitment seemed to take precedence at the earlier stages of design and this did reduce our confidence in including more open-ended questions that could have provided richer data to address the research questions of this empirical study.

Prioritising power is a valid concern when designing a study, however it does come at some costs. In this instance, it meant we were unable to gather further insight into what influenced the teachers' decision making when rating the vignettes which resulted in this empirical paper being unable to explain the variance found.

3.3 Reflections on analyses and findings

The findings of the study were not able to confirm the hypotheses, and significant results were weak associations and could not explain the variability in the different vignette responses across participants. Working with insignificant results poses its own challenge. There was a choice to make about whether or not to run regression models knowing that the correlations showed limited and weak associations. It felt important to explore the variables to their fullest and therefore running regressions seemed appropriate. However, knowing that they were unlikely to produce models that explained a high amount of variability begged the question of whether it was required. Similarly, because some of the correlations showed associations but with small effects, it brought up the issue of the significance cut-off of .05. Some of the predictor variables were associated with the outcome variable at a .049 level and those were considered "statistically significant", whereas others that were associated with the outcome variable at a .051 level were not. For instance, for the female phenotype of autism, experience of working with children with autism was statistically significant at .048, whereas experience of working with children

with anxiety was not significant at .060. We could hypothesise that experience with either might be beneficial in recognising the female phenotype of autism and the correlation results cannot state that experience with autism is overwhelmingly more relevant than experience with anxiety. However, only the experience working with children with autism was added into the regression model. Marsh, Hau and Wen (2004) talk about how psychologists have been engaged in the “golden rules” that allow researchers to make interpretations about their data. The debate around statistically significant cut-offs is widespread within clinical psychology and the more conservative we are about reducing the p values, the less likely we are to be able to reject the null hypotheses. (Trafimiw & Rice, 2009). However, it remains that “the purpose of data analysis is to allow us to examine the extent to which the data provide corroboration for the theory-based answer to the research question” (Cortina & Dunlap, 1997, p.170). Having cut-offs and null hypothesis significance testing is the way we do that.

In addition to this, as many of the findings showed weak effects and often the correlations did not make a lot of theoretical sense, it led us to think that those that were significant could be due to Type I error and therefore not hold very much meaning. This meant that any findings that were made were treated very speculatively and no confident statements could be made. Social sciences including psychology are well known for their frequencies of Type I errors, resulting from the allowable thresholds of significance (Meehl, 1967).

The major research project runs for the duration of the three-year doctorate and requires a lot of input and dedication during training. As previously stated, I chose this topic of thesis based on my experience of working clinically with autism and having an inherent interest in the field. There is a desire to create a piece of work

that has the potential for widespread impact on clinical practice and to add relevant information to the area of research. When findings are better placed to rule out ideas rather than confirm hypotheses it is naturally experienced as disappointing. However, the process reminded me about how undertaking and contributing to a field of research is a never-ending journey. Any research that is done is one piece in a much larger puzzle, and any findings whether they support the hypotheses or not, contribute to a development in our understanding of the topic and act as guidance for what could be useful and relevant future research.

3.4 Reflections of diagnosis

The importance of receiving a diagnosis of autism which allows for relevant support to be obtained and minimises the detrimental impact of a late or missing diagnosis is central to this study. Developing an understanding about what influences teachers in their ability to recognise autism and then to signpost to the relevant services is crucial in the desire to reduce the number of children who have autism but have not been diagnosed. The literature is quite clear than not receiving that diagnosis is harmful (Bargiela, Steward & Mandy, 2016). However, I am quite aware of the differing stances in clinical psychology about the usefulness of diagnosis.

Diagnosis can be criticised for putting people into categories which they may not always feel they fit into. It can be seen as rejecting a person-centred approach and feeding into the idea that “one size fits all”. Taking a systemic approach, diagnosis and labelling are often seen as exacerbating the medical model of problem-centred talk, situating the ‘problem’ in the individual and making it theirs to deal with. There is an assumption with the diagnosis of autism that there are ‘typically developed’ individuals who are “normal” and then those with autism, who are “not normal”. This raises the question as to whether diagnosis pathologises autism when

we should actually be looking at how society could be better constructed to allow autism to be accepted. There is an argument that if the medicalising of disorders through the use of diagnosis was reduced then stigma and discrimination would also reduce as it would stop disorders being seen as 'other' (Corrigan, 2007).

However, the reality of how our society is constructed means that diagnosis serves a lot of helpful roles. Our NHS and social care services are modelled on diagnosis, meaning that funding for resources are linked to a diagnostic model. Unless you have a diagnosis of autism, you are not eligible to an array of support services that can help. Bennett, Wood and Hare (2004) found that individuals without a diagnosis of autism received less services than those with a diagnosis, and those without a diagnosis had a high level of unmet need. The majority of mental health services within the NHS are diagnosis and treatment driven, meaning that a psychological treatment is based upon a diagnosis and without said diagnosis treatment is not available (Binnie, 2015). Diagnosis also offers a set of symptoms to be understood by people in a simple way. Receiving a diagnosis of autism allows family and friends, as well as the individual, to develop an understanding of what that means for daily living and adjust accordingly. It feels crucial to mention that although there are some sound theoretical reasons why labels could be seen as stigmatising, a disorder such as autism does come with a set of challenges that should be acknowledged and attended to. There is a reason why late diagnosed women had benefited from their diagnosis when it finally arrived. They did not feel it was stigmatising, in fact they felt that it gave them confidence in voicing their opinions and the diagnosis allowed for an involvement within the community of autism (Bargiela, Steward & Mandy, 2016). Likewise, parents of children with autism felt

that stigma was resisted by having a diagnosis as they could rely on the medical understanding of autism once a diagnosis had been given (Farrugia, 2009).

I have been undertaking this project alongside working clinically in a systemic service that holds a strong view that diagnosis is stigmatising and unhelpful. Grounded in social constructionist ideology, systemic models have tended to steer away from diagnosis and using labels (Brown, 1995; Gergen, Hoffman & Anderson, 1996). I have found it interesting to work with this juxtaposition and it has reminded me that the decisions we make as clinicians should be grounded in evidence rather than ideological standpoints (Spring, 2007). If we were to be guided by the community of individuals with autism, the research is telling us that early diagnosis is beneficial (Bargiela et al, 2016). In fact, there is much debate over the terms used to refer to individuals with autism. Interestingly the term “autistic” was more endorsed by individuals with autism and their families than by professionals, who prefer the term “person with autism” (Kenny et al, 2016). This is another illustration of how we, as clinical psychologists whether we’re working clinically or researching, should attempt to put our own ideas behind those of the evidence and the beliefs of our clients or participants.

3.5 Reflections on the joint theses

I have already touched on some aspects of the joint theses process, and some of the challenges in terms of research design and the benefits of working together to develop the vignettes. Generally, the experience of being part of a joint project was a positive one where I felt a level of support from Alana and sense of joint responsibility that I definitely would not have had if I was working on an individual project. Being able to develop the study jointly, bounce ideas off one another, problem solve together and get second opinions was very beneficial. If there were

elements of uncertainty or confusion, we could rely on one another as support which greatly helped with the stress of carrying out empirical research. The nature of conducting a joint project meant that there was a lot of joint working at the beginning of the process, with the design and development of the study. During this time, we worked alongside each other well, communicating regularly and taking on equal amounts of work. We would often draft something and then review it for one another, so each element of the study was appraised by the other. Following data collection, there was some joint thinking in how to go about our respective analyses which felt supportive. Inevitably, the projects diverged at this point and became more individual for the analysis and write up. However, there was a continued sense of this project being a part of a joint theses and I had a clear sense of how the two projects worked in tandem throughout the process of completing this study.

More generally, I was anxious about undertaking the major research project and began the process with some trepidation. The experience of seeing a piece of empirical research through from conception to completion has allowed me to grow in confidence in terms of my understanding and skills in carrying out research. I feel it has equipped me to grow as a science based practitioner and encouraged me to incorporate research skills into my clinical work as I start qualified life.

3.6 Conclusions

In conclusion, the development of the study from conception to write up was, at times, challenging to adapt to. I am unsure if the design fully incorporated the change in research aims for this study. However, the development of clinical vignettes was a highly interesting aspect of the study to be a part of and I feel proud that we created valid and reliable vignettes that can be used in future research. The study raised some important questions for me about working with insignificant

results as well as considering how my work in research sits alongside my clinical practice in terms of the benefits of diagnosis.

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Appendices

Appendix I: Joint Thesis Statement – Trainee contribution to the project

This project was conducted jointly with another Trainee Clinical Psychologist at University College London (UCL), Alana Whitlock (Whitlock, 2019).

The development of the survey, including the vignettes, questions and response scales, was done jointly. We assigned half of the vignettes to write each and would swap drafts back and forth to ensure we were writing collaboratively. The cognitive interview for the pilot was created jointly, and Alana conducted the pilot via a primary school she has personal contact with. Once the survey was finalised we both recruited using our personal social media platforms. We collaborated in the process of cleaning the data and eliminating any participants who did not meet inclusion criteria. From that point onwards we worked independently to analyse the data separately and create two different empirical papers which were written up alone.

We attended research meetings together with our supervisor. We completed the ethics form and data protection form together and shared the responsibilities for the risk assessment form and request for funding form.

Appendix II: Social Media Recruitment Advert



UCL

PRIMARY SCHOOL TEACHERS – WE NEED YOU!

We are recruiting primary school teachers and trainee teachers to take part in our research study, looking at a range of mental health presentations in primary aged pupils.

If you decide to take part, we will make a £5 donation to charity of your choice on your behalf.

The online survey will take approximately 20 minutes of your time.

Please follow the link: _____

For further information please email

Alana.whitlock.16@ucl.ac.uk / kate.fulton.13@ucl.ac.uk

Appendix III: Recruitment Email Template



Recruitment Email template

Dear _____,

We are recruiting primary school teachers and trainee teachers to take part in a 20-minute online survey about a range of mental health presentations in primary school aged pupils and we need your help! We hope our study will add to a growing body of research which helps us understand more about how to recognise pupils in need of support at an early age.

We are asking you to disseminate this email with the link to the survey to your teaching staff. The first 162 participants of the study will be given £5 to donate to charity as a thank you for taking part in the study.

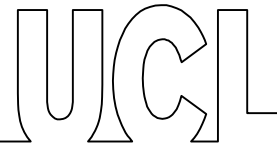
Our survey can be accessed here: _____

Many thanks for taking the time to read and disseminate this email. If you have any further questions please feel free to get in touch.

Kind regards,

Alana Whitlock and Kate Fulton
Trainee Clinical Psychologists
Research Dept of Clinical, Educational and Health Psychology
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Appendix IV: Ethical Approval



27th June 2018

Dr William Mandy
Department of Clinical, Educational and Health Psychology
UCL

Dear Dr Mandy,

Notification of Ethics Approval

Project ID/Title: 12891/001: Investigating the potential diagnostic bias and predictors of teachers' ability to identify Autism Spectrum Disorder

Further to your satisfactory responses to my comments, I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that I have ethically approved your study until **January 31st 2020**.

Notification of Amendments to the Research

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form' <http://ethics.grad.ucl.ac.uk/responsibilities.php>

Adverse Event Reporting – Serious and Non-Serious

It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator (ethics@ucl.ac.uk) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

Final Report

At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: <http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research>
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely



Professor Michael Heinrich
Joint Chair, UCL Research Ethics Committee

Cc: Alana Whitlock
Kate Fulton

Appendix V: Vignettes

Vignette 1 – ASD female phenotype, female name

Chloe is a 7-year-old pupil in your class. She is best friends with another girl in the class, Mia, although Chloe does not seem to be friends with any of the other children. You have noticed that Chloe dislikes it when Mia begins to play with the other children, wanting her exclusive focus. Chloe will also copy a lot of Mia's behaviours. Chloe loves meerkats, and has pictures of them over her books, and will often reference them in her creative writing in English. Chloe is a bright student, however she is generally quite nervous and will worry a lot about her work, as well as scare stories she hears from other children. The only times you really have difficulties with Chloe is during lunchtime, particularly in the summer; she suffers from mild eczema so you are required to put cream on her during the summer months, which Chloe becomes very distressed about. You have also been told by the lunch time staff that she is a fussy eater and will leave a fair amount of her food every lunchtime.

Vignette 1 – ASD female phenotype, male name

Charlie is a 7-year-old pupil in your class. He is best friends with another boy in the class, Mitch, although Charlie does not seem to be friends with any of the other children. You have noticed that Charlie dislikes it when Mitch begins to play with the other children, wanting his exclusive focus. Charlie will also copy a lot of Mitch's behaviours. Charlie loves meerkats, and has pictures of them over his books, and will often reference them in his creative writing in English. Charlie is a bright student, however he is generally quite nervous and will worry a lot about his work, as well as scare stories he hears from other children. The only times you really have

difficulties with Charlie is during lunchtime, particularly in the summer; he suffers from mild eczema so you are required to put cream on him during the summer months, which Charlie becomes very distressed about. You have also been told by the lunch time staff that he is a fussy eater and will leave a fair amount of his food every lunchtime.

Vignette 2 – ASD male phenotype, male name

Johnny is a 7-year-old pupil in your class. He loves playing tag and really enjoys being able to play during break time. He tries to join in with the other children but tends to be ignored. If there is any free time in the classroom, Johnny will spend it playing with his Harry Potter cards. There are a couple of boys in the class who love Harry Potter too, but Johnny is the most obsessed with it. He likes the routine of the classroom, but you have noticed that he can struggle moving from playtime where he is engaging in tag, back to the classroom. He is quite a nervous child who will worry a lot about things going wrong. When he gets upset he does find it quite difficult to calm himself down and you have observed that he responds well to quite clear rules and boundaries. He has been involved in a couple of arguments and fights with his peers which you and the other staff have to keep a keen eye on. Generally, Johnny is a fit and healthy child but you have noted that his lunch lacks healthy options like fruit.

Vignette 2 – ASD male phenotype, female name

Joanna is a 7-year-old pupil in your class. She loves playing tag and really enjoys being able to play during break time. She tries to join in with the other children but tends to be ignored. If there is any free time in the classroom, Joanna will spend it

playing with her Harry Potter cards. There are a couple of girls in the class who love Harry Potter too, but Joanna is the most obsessed with it. She likes the routine of the classroom, but you have noticed that she can struggle moving from playtime where she is engaging in tag, back to the classroom. She is quite a nervous child who will worry a lot about things going wrong. When she gets upset she does find it quite difficult to calm herself down and you have observed that she responds well to quite clear rules and boundaries. She has been involved in a couple of arguments and fights with her peers which you and the other staff have to keep a keen eye on. Generally, Joanna is a fit and healthy child but you have noted that her lunch lacks healthy options like fruit.

Vignette 3 – Separation anxiety, female name

Becky is a 7-year-old pupil who arrives late to your class every day. When she gets to school she is often very tearful and distressed, and in the past you have had to physically coax Becky from her Mum when they enter the classroom. Becky will often complain of sickness, such as nausea or headaches, which you believe is in an attempt to go home. She suffers from mild eczema, which is often used as a reason to stay home from school as Becky will often say her skin is too sore to sit on the classrooms carpet. Becky is often tearful and withdrawn, and even when she is encouraged to play with the other children she will refuse to go to the far end of the playground, stating that she is scared of being taken by a stranger near the gates. When you have tried to encourage Becky by giving her extra input and sending her on an 'important' errand to another classroom, she became very tearful at the prospect because she did not want to walk around the school alone.

Vignette 3 – Separation anxiety, male name

Ben is a 7-year-old pupil who arrives late to your class every day. When he gets to school he is often very tearful and distressed, and in the past you have had to physically coax Ben from his Mum when they enter the classroom. Ben will often complain of sickness, such as nausea or headaches, which you believe is in an attempt to go home. He suffers from mild eczema, which is often used as a reason to stay home from school as Ben will often say his skin is too sore to sit on the classroom carpet. Ben is often tearful and withdrawn, and even when he is encouraged to play with the other children he will refuse to go to the far end of the playground, stating that he is scared of being taken by a stranger near the gates. When you have tried to encourage Ben by giving him extra input and sending him on an ‘important’ errand to another classroom, he became very tearful at the prospect because he did not want to walk around the school alone.

Vignette 4 – ADHD, male name

James is a 7-year-old pupil in your class. He is working below expected levels and struggles with his maths and English, which makes him describe school as “rubbish”. He can find it difficult to focus during class and will often distract peers or interrupt you when you are giving instructions. You have noticed that he actively refuses to comply with requests and rules. It has become difficult to manage James in the classroom as a result of this, and he has become one of the more challenging pupils in the year group. James prefers to be out of the classroom and engages well in PE. He loves playing tag and says he wants to play sport when he grows up. He can become boisterous with his peers, which has led to other children being hurt

accidentally, after which he seems genuinely sorry and seems as though he did not really know what he was doing. After break time he can struggle with the transition back to the classroom and will often fidget in his seat. Generally, James is a fit and healthy child but you have noticed that his lunch lacks healthy options.

Vignette 4 – ADHD, female name

Jade is a 7-year-old pupil in your class. She is working below expected levels and struggles with her maths and English, which makes her describe school as “rubbish”. She can find it difficult to focus during class and will often distract peers or interrupt you when you are giving instructions. You have noticed that she actively refuses to comply with requests and rules. It has become difficult to manage Jade in the classroom as a result of this, and she has become one of the more challenging pupils in the year group. Jade prefers to be out of the classroom and engages well in PE. She loves playing tag and says she wants to play sport when she grows up. She can become boisterous with her peers, which has led to other children being hurt accidentally, after which she seems genuinely sorry and seems as though she did not really know what she was doing. After break time she can struggle with the transition back to the classroom and will often fidget in her seat. Generally, Jade is a fit and healthy child but you have noticed that her lunch lacks healthy options.

Appendix VI: The Online Survey in Full

An online study investigating school professionals' understanding of a range of mental health problems in children

Please save or print this information sheet if you would like to keep a copy. Alternatively, you could contact the research team to request a copy.

This study has been approved by the UCL Research Department of Clinical, Educational and Health Psychology Ethics Chair
Project ID Number: 12891/001

We would like to invite you to participate in this research project. You should only participate if you want to, and choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, please read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or you would like more information.

What is this research about? The purpose of this research is to gauge your knowledge on a range of mental health presentations.

What will I have to do? If you agree to take part, you will be asked to complete an online survey. There will be a series of case studies for you to read followed by questions about how likely you would be to refer the child on to more specialist services. There will then be a series of questions for you to answer about your professional experience and training as well as a few questions about your demographic information.

Who can take part? We are inviting any primary school teachers, trainee primary school teachers, or SENCOs to take part in the study.

Are there any risks or possibility of discomfort? The risks involved in participating are minimal. If you find yourself becoming distressed during the study, you can choose to stop at any time. If you feel upset or distressed as a result of participation, please contact the research principal investigator who will be able to provide information for accessing resources or services which you may find helpful.

How will we maintain your privacy and confidentiality? You will be asked to give some demographic information, such as your age, gender, and ethnicity. All information will be stored confidentially and only the researchers involved in the study will have access or process the data. Participation cannot take place without your agreement. All data will be collected and stored in accordance with the Data Protection Act 1998. If you choose to withdraw from the study, you have the option of also requesting that all data be deleted.

When and where will the study take place? The study will take place at a time convenient to you. The survey will take approximately 20 minutes to complete.

Will I be compensated for my participation? The first 162 people to take part in the study will be given £5 to donate to charity at the end of the survey.

What if I have questions about the project? If you have any questions or require more information about this study, please contact the principal investigator or researchers using the contact details below:

Researchers: *Kate Fulton, University College London, 1-19 Torrington Place, London WC1E 7HE, Email: kate.fulton.13@ucl.ac.uk*
Alana Whitlock, University College London, 1-19 Torrington Place, London WC1E 7HE, Email: Alana.whitlock.16@ucl.ac.uk

Principal Investigator: *Dr William Mandy, University College London, 1-19 Torrington Place, London WC1E 7HB, Tel: 020 7679 5922, Email: will.mandy@ucl.ac.uk*

If you feel you require any additional support or participation has harmed you in any way, you can contact the principal investigator using the details above for further advice and information

1. I confirm that I understand that my participation is voluntary and that I am free to withdraw at any time and without giving any reason.
2. I confirm that I understand that all data will be confidential and personal details will not be included in reports or publications.
3. I also understand that should the research be published in a journal that requires making the data available, the data will be provided only in a form that preserves the anonymity of all of the participants.
4. I agree to my data being collected, processed and stored according to the Data Protection Act of 1998 and to be destroyed after a minimum of 10 years.
5. I agree to take part in the above study.

- Yes
- No

Thank you for agreeing to take part in this study. You will now be presented with a series of 4 fictional cases of primary school aged children. Please read these carefully before answering the questions below each one. Please also note that there are no right or wrong answers, we are just interested in your views.

Vignette 1 – ASD Female Phenotype, Female name

Chloe is a 7-year-old pupil in your class. She is best friends with another girl in the class, Mia, although Chloe does not seem to be friends with any of the other children. You have noticed that Chloe dislikes it when Mia begins to play with the other children, wanting her exclusive focus. Chloe will also copy a lot of Mia's behaviours. Chloe loves meerkats, and has pictures of them over her books, and will often reference them in her creative writing in English. Chloe is a bright student, however she is generally quite nervous and will worry a lot about her work, as well as scare stories she hears from other children. The only times you really have difficulties with Chloe is during lunchtime, particularly in the summer; she suffers from mild eczema so you are required to put cream on her during the summer months, which Chloe becomes very distressed about. You have also been told by the lunch time staff that she is a fussy eater and will leave a fair amount of her food every lunchtime.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0 100

Extremely unlikely Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0 100

Extremely unlikely Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0 100

Extremely unlikely Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0 100

Extremely unlikely Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0 100

Extremely unlikely Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0 100

Extremely unlikely Extremely likely

Vignette 1 – ASD Female Phenotype, Male name

Charlie is a 7-year-old pupil in your class. He is best friends with another boy in the class, Mitch, although Charlie does not seem to be friends with any of the other children. You have noticed that Charlie dislikes it when Mitch begins to play with the other children, wanting his exclusive focus. Charlie will also copy a lot of Mitch's behaviours. Charlie loves meerkats, and has pictures of them over his books, and will often reference them in his creative writing in English. Charlie is a bright student, however he is generally quite nervous and will worry a lot about his work, as well as scare stories he hears from other children. The only times you really have difficulties with Charlie is during lunchtime, particularly in the summer; he suffers from mild eczema so you are required to put cream on him during the

summer months, which Charlie becomes very distressed about. You have also been told by the lunch time staff that he is a fussy eater and will leave a fair amount of his food every lunchtime.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0

100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0 100

Extremely unlikely

Extremely likely

Vignette 2 – Separation Anxiety, Female name

Becky is a 7-year-old pupil who arrives late to your class every day. When she gets to school she is often very tearful and distressed, and in the past you have had to physically coax Becky from her Mum when they enter the classroom. Becky will often complain of sickness, such as nausea or headaches, which you believe is in an attempt to go home. She suffers from mild eczema, which is often used as a reason to stay home from school as Becky will often say her skin is too sore to sit on the classrooms carpet. Becky is often tearful and withdrawn, and even when she is encouraged to play with the other children she will refuse to go to the far end of the playground, stating that she is scared of being taken by a stranger near the gates. When you have tried to encourage Becky by giving her extra input and sending her on an 'important' errand to another classroom, she became very tearful at the prospect because she did not want to walk around the school alone.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0 100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0 100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0 100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0 100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0

100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0

100

Extremely unlikely

Extremely likely

Vignette 2 – Separation Anxiety, Male name

Ben is a 7-year-old pupil who arrives late to your class every day. When he gets to school he is often very tearful and distressed, and in the past you have had to physically coax Ben from his Mum when they enter the classroom. Ben will often complain of sickness, such as nausea or headaches, which you believe is in an attempt to go home. He suffers from mild eczema, which is often used as a reason to stay home from school as Ben will often say his skin is too sore to sit on the classroom carpet. Ben is often tearful and withdrawn, and even when he is encouraged to play with the other children he will refuse to go to the far end of the playground, stating that he is scared of being taken by a stranger near the gates. When you have tried to encourage Ben by giving him extra input and sending him on an ‘important’ errand to another classroom, he became very tearful at the prospect because he did not want to walk around the school alone.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0 100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0 100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0 100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0 100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0 100

Extremely unlikely

Extremely likely

Vignette 3 – ASD Male Phenotype, Male name

Johnny is a 7-year-old pupil in your class. He loves playing tag and really enjoys being able to play during break time. He tries to join in with the other children but tends to be ignored. If there is any free time in the classroom, Johnny will spend it playing with his Harry Potter cards. There are a couple of boys in the class who love Harry Potter too, but Johnny is the most obsessed with it. He likes the routine of the classroom, but you have noticed that he can struggle moving from playtime where he is engaging in tag, back to the classroom. He is quite a nervous child who will worry a lot about things going wrong. When he gets upset he does find it quite difficult to calm himself down and you have observed that he responds well to quite clear rules and boundaries. He has been involved in a couple of arguments and fights with his peers which you and the other staff have to keep a keen eye on. Generally, Johnny is a fit and healthy child but you have noted that his lunch lacks healthy options like fruit.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0

100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0

100

Extremely unlikely

Extremely likely

Vignette 3 – ASD Male Phenotype, Female name

Joanna is a 7-year-old pupil in your class. She loves playing tag and really enjoys being able to play during break time. She tries to join in with the other children but tends to be

ignored. If there is any free time in the classroom, Joanna will spend it playing with her Harry Potter cards. There are a couple of girls in the class who love Harry Potter too, but Joanna is the most obsessed with it. She likes the routine of the classroom, but you have noticed that she can struggle moving from playtime where she is engaging in tag, back to the classroom. She is quite a nervous child who will worry a lot about things going wrong. When she gets upset she does find it quite difficult to calm herself down and you have observed that she responds well to quite clear rules and boundaries. She has been involved in a couple of arguments and fights with her peers which you and the other staff have to keep a keen eye on. Generally, Joanna is a fit and healthy child but you have noted that her lunch lacks healthy options like fruit.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

| | |
|--------------------|------------------|
| 0 | 100 |
| | |
| Extremely unlikely | Extremely likely |

How likely is it that this child has an Anxiety Disorder?

| | |
|--------------------|------------------|
| 0 | 100 |
| | |
| Extremely unlikely | Extremely likely |

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

| | |
|--------------------|------------------|
| 0 | 100 |
| | |
| Extremely unlikely | Extremely likely |

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

| | |
|--------------------|------------------|
| 0 | 100 |
| | |
| Extremely unlikely | Extremely likely |

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

| | |
|--------------------|------------------|
| 0 | 100 |
| | |
| Extremely unlikely | Extremely likely |

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0

100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0

100

Extremely unlikely

Extremely likely

Vignette 4 – ADHD, Male name

James is a 7-year-old pupil in your class. He is working below expected levels and struggles with his maths and English, which makes him describe school as “rubbish”. He can find it difficult to focus during class and will often distract peers or interrupt you when you are giving instructions. You have noticed that he actively refuses to comply with requests and rules. It has become difficult to manage James in the classroom as a result of this, and he has become one of the more challenging pupils in the year group. James prefers to be out of the classroom and engages well in PE. He loves playing tag and says he wants to play sport when he grows up. He can become boisterous with his peers, which has led to other children being hurt accidentally, after which he seems genuinely sorry and seems as though he did not really know what he was doing. After break time he can struggle with the transition back to the classroom and will often fidget in his seat. Generally, James is a fit and healthy child but you have noticed that his lunch lacks healthy options.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Anxiety Disorder?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0 100

Extremely unlikely Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0 100

Extremely unlikely Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0 100

Extremely unlikely Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0 100

Extremely unlikely Extremely likely

Vignette 4 – ADHD, Female name

Jade is a 7-year-old pupil in your class. She is working below expected levels and struggles with her maths and English, which makes her describe school as “rubbish”. She can find it difficult to focus during class and will often distract peers or interrupt you when you are giving instructions. You have noticed that she actively refuses to comply with requests and rules. It has become difficult to manage Jade in the classroom as a result of this, and she has become one of the more challenging pupils in the year group. Jade prefers to be out of the classroom and engages well in PE. She loves playing tag and says she wants to play sport when she grows up. She can become boisterous with her peers, which has led to other children being hurt accidentally, after which she seems genuinely sorry and seems as though she did not really know what she was doing. After break time she can struggle with the transition back to the classroom and will often fidget in her seat. Generally, Jade is a fit and healthy child but you have noticed that her lunch lacks healthy options.

Based on the information above, please answer the following questions. We understand that you have limited information to base your answers, however please answer to the best of your ability.

How likely is it that this child has Attention Deficit Hyperactivity Disorder (ADHD)?

0 100

Extremely unlikely Extremely likely

How likely is it that this child has an Anxiety Disorder?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has an Autism Spectrum Disorder (e.g. autism or Asperger's)?

0

100

Extremely unlikely

Extremely likely

How likely is it that this child has a disruptive behavioural disorder (such as oppositional defiant disorder or conduct disorder)?

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child WITHIN your school e.g. the school SENCO

0

100

Extremely unlikely

Extremely likely

How likely would you be to seek additional support or advice regarding this child from an Educational Psychologist?

0

100

Extremely unlikely

Extremely likely

How likely would you be to recommend that this child has an assessment from a medical (e.g. GP) or mental health professional?

0

100

Extremely unlikely

Extremely likely

You have almost completed the survey; we now just need to ask some brief questions about your teaching experiences.

What is your age? (Years)

What is your gender?

Please choose the statement that best describes you:

- I am currently practising as a Teacher
- I am currently training to become a Teacher
- I am trained as a Teacher but no longer practising
- I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

I was previously another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

Other (Please specify)

Display this question if:

I am currently practising as a Teacher OR I am trained as a Teacher but no longer practising

How many years in total have you practised as a teacher?

Display this question if:

I am currently practising as a Teacher OR I am currently training to become a Teacher OR I am trained as a teacher but no longer practising

Please choose the option that best describes your teaching qualification

- PGCE (1 year full time or 2 years part time)
- BSc/BA in Education (3 year degree)
- School-centred initial teacher training (1 year full time)
- Other (please specify)

In what type of schools have you practised? Please tick all that apply.

- Mainstream state-funded nursery
- Mainstream state-funded primary school
- Mainstream state-funded secondary school
- Mainstream state-funded sixth form college
- Mainstream independent nursery
- Mainstream independent primary school
- Mainstream independent secondary school
- Mainstream independent sixth-form college
- Maintained special school for children with special educational needs
- Maintained special school for children with Autism
- Independent special school for children with special educational needs
- Independent special school for children with Autism

- Other (please specify)

Have you ever practised at a mainstream school with any of the following? Please tick all that apply.

- Specialist behavioural unit (e.g. nurture group)
- Specialist educational needs provision unit
- Autism Resource Base
- None of the above

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

Where in the UK is your current school located?

- North East
- North West
- Yorkshire and The Humber
- East Midlands
- West Midlands
- East of England
- London
- South East
- South West
- Wales
- Scotland
- Northern Ireland

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

How many years have you spent in your current school?

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

What is your primary role in your current school?

- Teacher
- Teaching Assistant
- Headteacher
- Deputy Headteacher
- Assistant Headteacher
- SENCo
- Inclusion Leader
- Phase Leader
- Other (please specify)

Display this question if:

I am trained as a Teacher but no longer practising OR I was previously another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

What was your primary role in school?

- Teacher
- Teaching Assistant
- Headteacher
- Deputy Headteacher
- Assistant Headteacher
- SENCo
- Inclusion Leader
- Phase Leader
- Other (please specify)

Do you currently teach a class?

- Yes
- No

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

How many children with a diagnosis of Autism Spectrum Disorder are currently in your class?

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

How many children with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) are currently in your class?

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

How many children with a diagnosis of Anxiety Disorder are currently in your class?

Approximately how many children with a diagnosis of Autism Spectrum Disorder have you worked with throughout your professional career?

Approximately how many children with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) have you worked with throughout your professional career?

Approximately how many children with a diagnosis of an Anxiety Disorder have you worked with throughout your professional career?

Did you have any experience of working with children with any of the below diagnoses prior to beginning your teacher training, either in a voluntary or paid capacity? Please tick all that apply.

- Anxiety Disorder
- Attention Deficit Hyperactivity Disorder (ADHD)
- Autism Spectrum Disorder (Autism or Asperger's)
- Disruptive Behavioural Disorder (Oppositional Defiant Disorder or Conduct Disorder)
- None of the above

Do you have personal experience of any of the following e.g. through relatives, colleagues, friends? Please tick all that apply.

- Anxiety Disorder
- Attention Deficit Hyperactivity Disorder (ADHD)
- Autism Spectrum Disorder (Autism or Asperger's)
- Disruptive Behavioural Disorder (Oppositional Defiant Disorder or Conduct Disorder)
- None of the above

Display this question if:

I am currently practising as a Teacher OR I am another member of teaching staff (e.g. SENCO, Teaching Assistant etc.) OR I am trained as a Teacher but no longer practising OR I was previously another member of teaching staff (e.g. SENCO, Teaching Assistant etc.)

Have you received any specific training (e.g. CPD courses) on any of the following since obtaining your primary qualification? Please tick all that apply.

- Anxiety Disorder
- Attention Deficit Hyperactivity Disorder (ADHD)
- Autism Spectrum Disorder (Autism or Asperger's)
- Disruptive Behavioural Disorder (Oppositional Defiant Disorder or Conduct Disorder)
- None of the above

END OF SURVEY - Please click to the next page to fully submit your responses

We would like to thank you for your participation in this research project. Now you have completed the survey, we would like to request that you do not share any details of this questionnaire to others to ensure any future responses are not invalidated. We thank you for your co-operation with this.

What if I have been affected by this study? If you find yourself feeling distressed or upset as a result of your participation, please contact the research principal investigator or researchers who will be able to provide information for accessing resources or services which you may find helpful.

What if I have questions about the project? If you have any questions or would like to

know more information about the study, please contact the researchers using the contact details below:

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If you feel you require any additional support or participation has harmed you in any way, you can contact the principal investigator using the details above for further advice and information.

As a further thank you for your participation in our study, we would like to donate £5 to a charity of your choice. If you are interested in this, please pick from the list below and we will donate on your behalf.

- MIND
- NSPCC
- UNICEF

Appendix VII: Cognitive Interview Schedule

Prior to beginning the survey:

- Stress to the individual that we are not primarily collecting survey data on them, but rather testing a questionnaire that has questions that may be difficult to understand, hard to answer, or that make little sense
- Make clear that although we are asking them to answer the questions as carefully as possible, we are primarily interested in the ways that they arrived at those answers and the problems they encountered. Therefore, any detailed help they can give us is of interest, even if it seems irrelevant or trivial
- Might be helpful to add “I didn’t write these questions, so don’t worry about hurting my feelings if you criticise them – my job is to find out what is wrong with them”.

Introduction:

- What do you understand by the term ‘vignette’?
- What do you understand by the term ‘demographics’?
- Could you tell me what you are consenting to and your rights in regards to this?
- Are there any aspects that you would need clarifying further before you felt happy to agree?
- General question – How does it read? Is it clear enough?

Vignettes:

- General feedback on vignette – is there anything that is unclear? Do you feel it represents a primary school aged child?
- Do you know what is meant by ADHD/Autism/Conduct Disorder/Anxiety/Depression?
- What information did you use to get to your response?
- What do you understand by ‘referring’?
- Feedback on rating scales – are they easy to use? How do you feel about them and the options?
- How easy/difficult was it to come to your responses? Did you feel the presentations in the vignettes were obvious/ambiguous?

Demographics/Experience:

- Do the choices provided fit with your desired response?
- Is each question clearly written?
- For ‘years practising’ question – how did you get to this number?
- What do you understand by ‘training on autism’?

Overall

- Overall experience filling it out?
- Layout? Ease of use? Time taken? Repetitiveness?