Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome Within Mainstream Educational Settings and the Influencing Variables

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Summary of the Three Sections

The thesis includes three sections: (1) major research literature review, (2) major research journal article and (3) major research reflective account. The major research literature review is a systematic literature review of previous research on teachers' attitudes towards the inclusion of children with Down's Syndrome (DS) within mainstream educational settings and the influencing variables. The major research journal article is a quantitative paper contributing to knowledge within the field. The journal article aimed to provide a current psychometric assessment of teachers' attitudes towards the inclusion of children with DS as well as the influencing variables. The major research reflective account will focus on three areas, namely the rationale for the thesis, the importance of disseminating the findings and critical account of the research practitioner.

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List of Abbreviations

ADHD	Attention Deficit Hyperactivity Disorder
ASSIA	Applied Social Sciences Index & Abstracts
BTEC	Business and Technology Education Council
CASP	Critical Appraisal Skills Programme
DS	Down's Syndrome
DSE	'Down Syndrome Education'
EHC plan	Education, Health and Care plan
EP(s)	Educational Psychologist(s)
GCSE	General Certificate of Secondary Education
IAT	Implicit Association Test
IDP	Interaction with Disabled Persons Scale
MATIES	The Multidimensional Attitudes towards Inclusive Education Scale
NHS	National Health Service
PRISMA	The Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QES	Qualitative Evidence Synthesis
SATS	Statutory Assessment Tests
SENCOs	special education needs coordinators
SEND	special educational needs and disability
SPSS	Statistical Package for the Social Sciences
Std. Dev	Standard deviation
UK	United Kingdom
VIF	Variance Inflation Factor

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1. MAJOR RESEARCH LITERATURE REVIEW

Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome Within Mainstream Educational Settings and the Influencing Variables

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Abstract

Background: Inclusion is important for children with Down's Syndrome (DS) as it is thought to lead to improvements in the quality of education and equality of opportunity provided to pupils in mainstream educational settings. Also, inclusion is associated with improved academic progress, language and communication as well as social skills. Previous research on DS suggests that teachers' attitudes are potentially the most important factor associated with effective inclusion. The attitudes that are held by teachers are thought to be influenced by several variables.

Objectives: A review of the literature was conducted on teachers' attitudes towards the inclusion of children with DS within mainstream educational settings and the related variables. The two research questions are:

1. What does previous research tell us about mainstream teachers' attitudes towards the inclusion of children with DS?
2. What does previous research tell us about the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS?

Method: A systematic literature review was carried out, which involved critically appraising relevant evidence. The review established there were no previous literature reviews that considered teachers' attitudes towards inclusive education for children specifically with DS. A search strategy together with an inclusion and exclusion criteria were used to search a range of databases and a variety of DS websites. A narrative synthesis was used to analyse the data from the ten studies identified to be eligible for this systematic literature review.

Main results: This literature review found that attitudes towards the inclusion of children with DS are a mixture of positive, neutral or negative. Findings on some aspects of attitudes included that teachers were more positive about social inclusion than academic inclusion and that teachers have neutral attitudes towards children with DS attending mainstream educational settings. A range of teacher-related and educational-environmental-related variables were found to have an impact on teachers' attitudes towards the inclusion of children with DS. For example, understanding of inclusive practice and knowledge about DS as a condition.

Author's conclusion: The findings have implications for teacher training and professionals, such as Educational Psychologists. However, this review has highlighted the need for current UK based research using quantitative, psychometric and multidimensional measures of attitudes. This systematic literature review provides a good foundation of knowledge on this topic, to base future research on.

1.1 Background

1.1.1 Down's Syndrome

Down's Syndrome (DS) is a genetic disability typically caused by an extra chromosome or an extra part of chromosome number 21 (Alton, 1998). DS is considered to be the most commonly occurring chromosomal condition (National Down Syndrome Society, n.d.). Statistics show approximately 750 babies are born with DS in the United Kingdom (UK) each year, so for every 1,000 babies born, one will have DS (Down's Syndrome Association, n.d.-b).

DS is associated with specific physical characteristics, including a slightly flattened facial profile and an upward slant to the eyes. It is also associated with medical conditions, for example, hearing impairment (De Graaf, Van Hove, & Haveman, 2014). Children with DS also have some level of learning disability, which can be described as a reduced ability to learn at the same rate and in the same manner as typically developing peers of the same age (Engevik, Næss, & Berntsen, 2018). The extent of a learning disability experienced by a child with DS may be wide-ranging, from profound to very mild difficulties, with unequal delays in areas of development (De Graaf et al., 2014; Laws, Byrne, & Buckley, 2000). Individuals with DS often have relative strengths in aspects of processing visual information, receptive language and nonverbal social functioning and relative weaknesses in gross motor skills, expressive language and memory (De Graaf et al., 2014; Laws et al., 2000).

1.1.2 Down's Syndrome and the Inclusion Agenda

DS is considered to be a type of special educational needs and disability (SEND). The Department for Education (2015) defines SEND as a learning disability that requires special health and education support. The inclusion of children with SEND, including DS, has been the subject of significant debate since the 1960s, influenced by the movement of comprehensive schooling and the civil rights movement (Lambert & Frederickson, 2015). Inclusion is commonly referred to as 'a journey' or movement away from segregation and towards improvements in the quality of education and equality of opportunity provided to pupils in mainstream educational settings (Farrell, 2001, 2004; Frederickson & Cline, 2015). The inclusion debate reached a critical point with The Warnock Report (Department for Education and Science, 1978) which strongly endorsed the importance of inclusion for

children with SEND. This was subsequently reinforced in the Education Act 1981 and the Education Act 1993 as well as multiple government documents (Alton, 1998; Farrell, Dyson, Polat, Hutcheson, & Gallannaugh, 2007). For example, the 'Special Educational Needs and Disability Code of Practice: 0 to 25 years' (Department for Education, 2015) statutory guidance, highlights how the UK Government is committed to inclusive education of children and young people with SEND and the progressive removal of barriers to learning and participation in mainstream education. The SEND code of practice refers to the Equality Act 2010, which suggests that reasonable adjustments should be made to promote equality and inclusion for children with SEND (Department for Education, 2015). Concerning decisions about where children and young people with SEND should be educated, The Children and Families Act 2014 secures in law the general presumption of mainstream education (Children and Families Act, 2014).

Before the focus on inclusion, children with DS were considered 'ineducable', remaining either at home or attending centres run by health authorities to provide day-care and relief for parents (S. Buckley, 2000). Around the start of the Warnock Report, between the 1970s and 1980s, the majority of children with DS were being educated, however, this tended to be in special educational settings (S. Buckley, 2000). By the 1990s the presence of children with DS in mainstream educational settings had increased (Cuckle, 1999). A study of over 3,000 children aged five to sixteen with DS found that between the years of 1983 and 1996, the proportion of children with DS in mainstream educational settings increased from approximately 4% to 38% in England and Wales (Cuckle, 1997). Furthermore, research shows that by 1998, 70% to 80% of pupils with DS began their education in mainstream educational settings (Cuckle, 1999; Cunningham, Glenn, Lorenz, Cuckle, & Shepperdson, 1998), 35-40% completed their education in primary mainstream settings, and around 20-25% completed their education in secondary mainstream settings (Cuckle, 1999; Cunningham et al., 1998). Despite there being no current figures on the number of children with DS placed in mainstream educational settings, The Down's Syndrome Association (n.d.) suggests that most children with DS will attend their local mainstream primary school.

1.1.3 The Benefits of Inclusion for Children with Down's Syndrome

Research has highlighted the limited benefits for segregated placements and the associated benefits for inclusive placements for children with DS (Rietveld, 1986; Turner, Alborz, & Gayle, 2008). The benefits of mainstream education for children with DS include

better academic progress, improved language and communication as well as enhanced social skills. For example, Bird & Buckley (1999) researched teenagers with DS educated in mainstream educational settings and found considerable improvement in academic skills, particularly literacy skills. Similar findings were identified by Laws et al. (2000), who matched and compared 22 children aged 7 to 14 years old with DS in mainstream educational settings with 22 children with DS in special educational settings and found a higher proportion of children able to read in mainstream educational settings. These findings could be due to there being a stronger focus on academic curriculum in mainstream educational settings (Lambert & Frederickson, 2015; Laws et al., 2000). Also, mainstream educational settings are thought to provide a richer language environment that helps develop receptive and expressive language and communication skills (Laws et al., 2000). S. Buckley, Bird, Sacks, & Archer (2006) compared 28 teenagers with DS in specialist provision with 18 teenagers with DS in mainstream educational settings. The research found the language skills of the children in mainstream educational settings were more developed. Furthermore, benefits in communication skills in teenagers with DS who were educated in a mainstream schools are also described (Bird & Buckley, 1999). Likewise, Bird & Buckley (1999) described the social benefits in teenagers with DS attending mainstream educational settings, including social independence and competence. These findings were considered to be related to role models and friendships provided by typically developing children (Bird & Buckley, 1999). Also, pupils were thought to display significantly less difficult and anti-social behaviour as a result of these positive relationships (Bird & Buckley, 1999). The area in which special educational needs settings have been suggested to be better for children with DS is in developing daily living skills, including practical and personal care (Bird & Buckley, 1999). This could be because there is often more focus on self-help and social education in special educational settings (Lambert & Frederickson, 2015).

1.1.4 Mainstream Teachers' Attitudes towards Inclusion

Placing students with SEND within a mainstream educational setting does not automatically lead to inclusion (Lindner, Alnahdi, Wahl, & Schwab, 2019). Although it is difficult to guarantee effective inclusion, several key influencing factors have been suggested (Fox, Farrell, & Davis, 2004). One factor that has been frequently referred to in research as important to the effective inclusion of children with DS is teachers' attitudes

towards the inclusion of children with DS (Bird & Buckley, 1999; Cuckle, 1999; Fox et al., 2004; Hughes, 2006; McFadden, Tangen, Spooner-Lane, & Mergler, 2017; Petley, 1994).

An 'attitude' can be described as a person's viewpoint towards a particular person, object or idea (Gall, Borg and Gall, 1996 in De Boer et al., 2011). In the context of inclusive education, attitudes are considered to be multidimensional, comprising of three key parts: 'cognitive' which reflects what is known about SEND, 'affective' which is the emotional reaction to children with SEND, and 'behavioural' which includes either actual or intended behaviours towards children with SEND (Eagly & Chaiken, 1993; Nowicki & Sandieson, 2002). Attitudes towards the inclusion of children with SEND have been considered to play a significant role in implementing inclusive educational change successfully, as attitudes are thought to predict whether or not inclusive behaviours are intended and adopted (De Boer, Pijl, & Minnaert, 2011; MacFarlane & Woolfson, 2013). The Theory of Planned Behaviour, which is a psychological theory of behaviour, suggests that attitudes towards a behaviour is one of the key determinants of a person's behaviour (Ajzen, 1987). In the context of inclusive education, this means that inclusive education is influenced by the three dimensions of attitudes toward inclusion (Mahat, 2008). Teachers' attitudes are thought to be a key influencing factor, especially since teachers are regarded as key persons in the development and implementation of inclusive education (De Boer et al., 2011). The idea that teachers are more important than legislation to the success of inclusive education has previously been argued (McFadden, 2014).

Attitudes can be considered to be positive, neutral or negative. Teachers with positive attitudes towards the inclusion of children with SEND are thought to more ready to change and adapt the ways they work to meet the broad range of needs (Bender, Vail, & Scott, 1995; Sharma, Forlin, & Loreman, 2008). Likewise, teachers having positive attitudes are thought to beneficially influence other pupils' attitudes towards pupils with SEND (Nowicki & Sandieson, 2002; Sharma et al., 2008). Alternatively, negative attitudes have been considered a contributory barrier to successful inclusive practices (De Boer et al., 2011; MacFarlane & Woolfson, 2013). For example, negative attitudes have been found to lower expectations and increase stigma and discrimination, which in turn can lead to reduced learning opportunities (Campbell, Gilmore, & Cuskelly, 2003). This can result in a vicious cycle of impaired performance and further lowered expectations by the child with SEND and the teacher (Campbell et al., 2003). As negative attitudes can be unconscious, they often influence behaviour without the awareness of the individual (Mencap, 2015). The result of this is that attitudes impact whether; inclusive behaviours are intended and

adopted (MacFarlane & Woolfson, 2013), the learning environment is enabling for children with SEND (Monsen, Ewing, & Kwoka, 2014), and the classroom is cohesive (Monsen et al., 2014).

Previous research on teachers' attitudes towards SEND suggest the majority of teachers hold neutral or negative attitudes towards the inclusion of children with SEND (Avramidis & Norwich, 2002; De Boer et al., 2011). Research has identified the type of disability has an impact on attitudes held, with teachers being most negative about children with learning disabilities, behavioural difficulties (such as Attention Deficit Hyperactivity Disorder(ADHD)) and cognitive disabilities (Avramidis & Norwich, 2002, 2004; De Boer, Pijl, & Minnaert, 2010; De Boer et al., 2011). Despite pupils with DS showing marked individual differences, DS is a form of SEND associated with a learning disability, delays in cognitive development and behaviour suggestive of ADHD (Down's Syndrome Association, n.d.-b; Määttä, Tervo-Määttä, Taanila, Kaski, & Iivanainen, 2006). This leads to the prediction that teachers are likely to have negative attitudes towards the inclusion of children with DS. This could further be exacerbated by the fact that the degree of disability in DS is often overestimated by teachers (Wishart & Manning, 1996).

1.1.5 The Variables That Impact on Mainstream Teachers' Attitudes Towards Inclusion

Research suggests the extent to which teachers' attitudes towards the inclusion of children with DS are positive or negative is influenced by several variables (Avramidis & Norwich, 2002). A variable can be defined as something that can vary or change from one situation or person to another (Fisher & Warren, 2011). Avramidis and Norwich (2002) and De Boer et al. (2011) conducted literature reviews which included findings on the variables related to teachers' attitudes towards the inclusion of children with SEND. The researchers categorised these variables as teacher-related variables, educational-environmental-related variables and child-related variables. The teacher-related variables they found included gender, age and years of teaching experience, experience with inclusive education, training, grade level taught, experience or contact, teachers' beliefs and teachers' social political views. Educational-environmental-related variables included, for example, support services, restructuring of the physical environment and encouragement from the headteacher. The child-related variable discussed was the type of disability. It is valuable to reflect on the related variables that impact attitudes towards inclusion, as this will enable professionals to support school teachers to implement successful, inclusive education, to develop initiatives and interventions, to improve attitudes towards inclusion,

to increase inclusive behaviours and in develop more inclusive learning environments (Antonak & Livneh, 2000; MacFarlane & Woolfson, 2013; Monsen et al., 2014).

1.1.6 Objectives of this literature review

To provide a foundation of knowledge on this topic, a review of relevant literature will be conducted on teachers' attitudes towards the inclusion of children with DS within mainstream educational settings and the related variables. This review has two research questions:

1. *What does previous research tell us about mainstream teachers' attitudes towards the inclusion of children with DS?*
2. *What does previous research tell us about the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS?*

1.2 Method

A systematic literature review was conducted, which aimed to critically evaluate and integrate the findings of all relevant, high-quality studies addressing the research questions (Siddaway, 2014). The two research questions are as follows:

1. *What does previous research tell us about mainstream teachers' attitudes towards the inclusion of children with DS?*
2. *What does previous research tell us about the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS?*

This review of the literature was conducted using the recommended stages of scoping, planning, identification, screening, eligibility and research synthesis (Siddaway, 2014). The first step of scoping involved establishing there were no previous literature reviews which consider teachers' attitudes towards inclusive education for children specifically with DS.

1.2.1 Criteria for Considering Studies for This literature Review

Inclusion and exclusion criteria were formulated in the planning stage (Siddaway, 2014). Studies were included for analysis if they met the following criteria:

- Studies which addressed attitudes towards the integration or inclusion of children with DS. 'Inclusion' replaced the notion of 'integration' (Farrell, 2001; Shaw, 2017).
- Studies conducted in mainstream educational settings.
- No limitations were set for the kind of methodology used i.e. qualitative, quantitative and mixed methods, or on the teacher used as participants i.e. headteachers, special education needs coordinators (SENCOs) and teaching assistants.
- Studies conducted in any country were included. This is because inclusive education is a key policy in a number of countries (Lindsay, 2007).
- No language restrictions were applied to avoid English language bias.

Studies were excluded for analysis for the following reasons:

- Studies focused on other forms of SEND, for example, autism spectrum disorder or on SEND categories such as intellectual disability.
- Studies based in special educational settings.

- Studies on attitudes of people not involved in any form of teaching or not in the school setting.
- Studies which did not specifically refer to attitudes towards the integration or inclusion of children with DS.
- Studies not available in English.
- Grey literature in the form of theses was also excluded since these are not peer-reviewed and not indexed in major bibliographic resources.

1.2.2 Search Methods for Identification of Studies

Databases used to search for research included 'PsycINFO', 'Applied Social Sciences Index & Abstracts' (ASSIA), 'Web of Science' and 'SCOPUS'. The EBSCO host search engine was used to also search 'Child Development & Adolescent Studies', 'British Education Index', 'ERIC' and 'Open Dissertations'. A large range of databases were used since this research was considered to overlap with broad topic areas, for example, education, psychology and social science.

To identify studies, a sensitive search strategy was created by breaking down the research questions into individual concepts to create search terms (Siddaway, 2014). The search strategy included 'Down's Syndrome', 'inclusion' and 'attitudes' search terms (Table 1). These key terms were based on old and new key terms for each of the areas being researched. Tailored search strategies were used in each database using the key terms (Appendix A). This search was carried out during September 2019.

Since DS research is often published though specific DS resource areas, DS websites were used to search for relevant articles. This comprised of the current research projects from the Down's Syndrome Association (Down's Syndrome Association, n.d.-a) as well as research from 'Down Syndrome Education' (DSE) (Down Syndrome Education, n.d.-b). Also, the DSE has a library with a peer-reviewed journal focused on DS research called 'Down Syndrome Research and Practice' (Down Syndrome Education, n.d.-a). Articles with abstracts and/or titles with key terms (Table 1) were also included at the identification stage.

The results from each of the databases were exported to 'EndNote', a referencing software, to manage the citations. The results are reported in a flow diagram using 'The Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) (Figure 1). PRISMA is a validated tool that increases methodological quality and the standard of reporting (Panic, Leoncini, De Belvis, Ricciardi, & Boccia, 2013).

Table 1: *Key Terms Utilised in the Systematic Literature Review*

Down's Syndrome	Inclusion	Attitudes
down* Syndrome, down-syndrome, trisomy 21	inclusion, inclusive, Integration, mainstreaming	Attitude*, perception*, view*,

* is used for alternate word endings

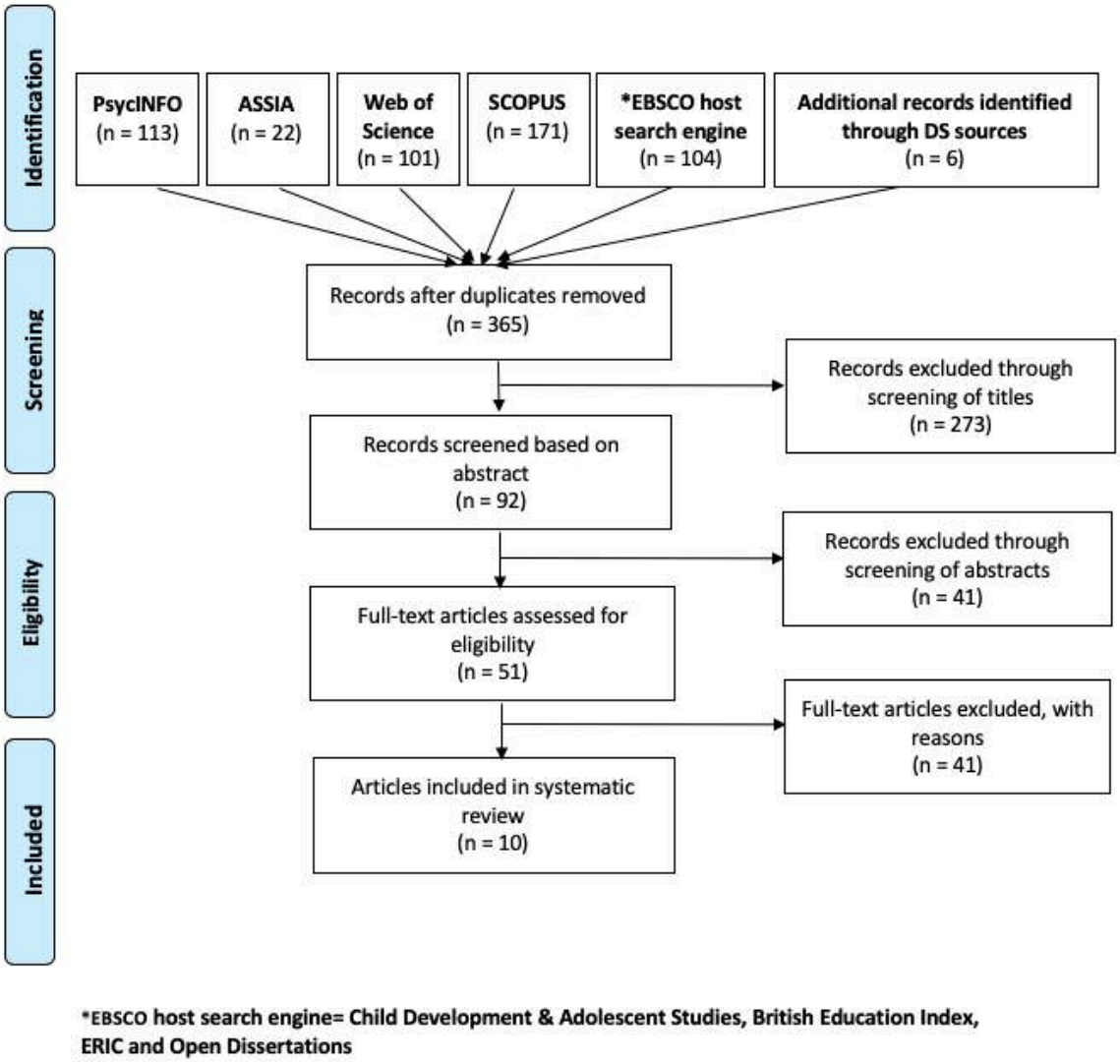

Figure 1: Studies for the Systematic Literature Review Using the PRISMA Flow Diagram (Prisma, 2015)

1.2.3 Data Collection and Analysis

A total of 365 studies were identified through the search engines once duplications were removed. These studies were screened based on their titles and 273 were excluded due to the title being unrelated to this research area. Next, the remaining 92 records were screened based on the abstract. A further 41 articles were excluded at this point, resulting in 51 articles being assessed for eligibility (Figure 1).

51 full texts were assessed for eligibility using the inclusion and exclusion criteria and ten studies were selected to be included (Figure 1). The ten studies were critically appraised, using a systematic tool for assessing the validity, results and contribution of qualitative research papers (Hill & Spittlehouse, 2003). This is used to assist readers with understanding the representation of the literature, the credibility of conclusions, and the transferability of the findings (Whiting, Wolff, Mallett, Simera, & Savović, 2017). The appraisal criteria selected for this research was the 'Critical Appraisal Skills Programme' (CASP) (CASP, 2018b), specifically the 'CASP Qualitative Checklist' (CASP, 2018a) appraisal tool. The checklist has ten research questions to which the researcher must respond 'yes', 'no' or 'do not know' (Table 2 and Appendix B with comments). All ten studies remained in the literature review as they were all considered to have value in answering the research questions.

1.2.4 Data Synthesis

A narrative synthesis of the review was conducted, rather than a meta-analytic aggregation which is frequently used in systematic literature reviews (Joanna Briggs Institute, 2019b; Siddaway, 2014). A narrative synthesis requires the use of words and text to summarise and explain the findings of a synthesis process (Joanna Briggs Institute, 2019a). The textual description for each of the individual studies included details of the context, data collection methods, the findings in terms of attitudes and variables.

1.3 Results

1.3.1 Critical Appraisal of the Included Studies

The CASP Qualitative Checklist (CASP, 2018a) assessed the validity, results and contribution of qualitative research papers using ten questions. Questions one to nine were answered with 'yes', no' or 'do not know' (Table 2 and Appendix B with comments). The tenth question; 'How valuable is the research?' is an open question answered qualitatively.

Table 2: *Findings From the CASP Qualitative Checklist (CASP, 2018a) Appraisal Tool*

	Are the results valid?						*What are the results?*		
	1 Was there a clear statement of the aims of the research?	2 Is a qualitative methodology appropriate?	3 Was the research design appropriate to address the aims of the research?	4 Was the recruitment strategy appropriate to the aims of the research?	5 Was the data collected in a way that addressed the research issue?	6 Has the relationship between researcher and participants been adequately considered?	7 Have ethical issues been taken into consideration?	8 Was the data analysis sufficiently rigorous?	9 Is there a clear statement of findings?
Rietveld (1986) and Rietveld (1988)	✖	✓/ ✖	✓	✓	✓	✓	?	✓	✓
Vlachou (1993)	✓	✓/ ✖	?	✖	?	?	?	?	✖
Petley (1994)	✓	✓/ ✖	✓	✖	✓	?	?	?	✖
Petty & Sadler (1996)	✓	✓/ ✖	✓	✓	✓	✓	?	?	✓
Wishart & Manning (1996)	✓	n/a	✓	✓	✓	✓	?	✓	✖
Gilmore, Campbell & Cuskelly (2003)	✓	n/a	✓	✓	✓	✖	?	✓	✖
Campbell et al (2003)	✓	n/a	✓	✓	✓	?	?	✓	✖
Fox et al. (2004)	✓	✓/ ✖	✓	✓	✓	✓	?	?	✓
Johnson (2006)	✖ .	✓/ ✖	✓	✖	✓	✖	✓	?	✖

*yes=✓, no=✖, do not know=**?**

The first statement in the CASP Qualitative Checklist (CASP, 2018a) assesses if there is a clear statement of the aims of the research. Seven studies had a clear statement of the aim or purpose of the research. In the two research papers by Rietveld (1986, 1988), it is difficult to establish the overall aim of the study. These studies researched the adjustment of eight children with DS from an early intervention programme with multiple very different aims, including to; investigate the validity of several claims concerning the integration of children with DS, provide base-line data on some specific issues pertinent to the integration issue, and give feedback to the early intervention staff so that modifications could be made to the programme. Johnson's (2006) research aims were also not made clear due to the focus of the paper being kept broad.

Whether a qualitative methodology was appropriate was also assessed. Five of the included studies used a qualitative methodology, three used a quantitative methodology and two papers used mixed methods. For the five that used qualitative methods, this was appropriate for the overall aims of the research, since the research sought to interpret the actions or subjective experiences of the research participants (Fisher & Warren, 2011). There is, however, an argument that for measuring attitudes, quantitative methods are more appropriate. This is because measuring attitudes requires careful measurements as people are usually unaware that they possess them (Fisher & Warren, 2011). Quantitative methods were used to measure attitudes in the research from Wishart & Manning (1996), Gilmore, Campbell & Cuskelly (2003) and Campbell et al (2003) and Rietveld (1986, 1988), and these research papers, therefore, could be considered to have appropriate methodology for measuring attitudes.

In terms of the appropriateness of the research design, Vlachou's (1993) study could not be assessed as there was no explanation of what research design was used. The other nine studies research designs were considered appropriate to address the aims of the research. However, a criticism of all of the studies was that the researchers did not appropriately address the reasoning behind why they had used the selected research design.

It was considered whether the data of all of the studies was collected in a way that addressed the research issues. Qualitative methods tended to involve interviews, whereas quantitative research studies used questionnaires. When using questionnaires to measure attitudes it is important to consider the psychometrics of the tools. Psychometrics is concerned with the quality of scales and items used to measure psychological constructs

(Fisher & Warren, 2011). The quality of a questionnaire is assessed by its reliability and validity (Fisher & Warren, 2011). Petty & Sadler (1996) used two self-developed questionnaires, however, there is no explanation of what was included or measured in the questionnaires. Rietveld (1986,1988) used a written questionnaire that was constructed to establish the extent to which teachers agreed or disagreed with the placement of a student with DS in their class. Six items measured attitudes towards inclusion in general and six measured items that were concerned specifically with teachers' perceptions of the child with DS in their class. These items were constructed by the authors and the extent to which these six questions provided reliable and valid measures were not made explicit in the research. Three studies (Campbell et al., 2003; Gilmore et al., 2003; Wishart & Manning, 1996) used a questionnaire that was created by Wishart and Manning (1996). The questionnaire consisted of 23 sets of questions aimed at eliciting information in five main areas. The areas were knowledge of DS, personal experience of DS (with either children or adults), the degree to which respondents felt that their course would prepare them for teaching a child with DS, their views on integration, and their attitudes towards children with DS. Findings on the attitudes towards the integration of children with DS were collected with an open-ended question on whether they thought children with DS should be integrated into mainstream primary classes. None of the researchers who used this questionnaire describe the reliability or validity of the questionnaires for measuring attitudes, limiting the quality of the findings. It could be concluded that none of the questionnaires demonstrated good psychometric properties, but they did address the research issue.

In terms of recruitment, different strategies were used in the studies. Some researchers focused on one specific school, including Vlachou (1993) and Petley (1994). Other researchers recruited schools from across a local authority, including Petty & Sadler (1996). Fox et al. (2004) recruited more broadly, as the research was conducted across 18 primary schools in six different LAs in North West England. Researchers that recruited trainee teachers, including Wishart & Manning (1996), Gilmore, Campbell & Cuskelly (2003) and Campbell et al (2003), appropriately selected them from universities or colleges. Another notable aspect of the recruitment strategies was six of the studies recruited from a school or schools that were undergoing the inclusion of children with DS. Vlachou (1993) used one primary school that had six children with DS, Petley (1994) conducted research in 10 primary schools, with each school having a student with DS. Likewise, Petty & Sadler (1996) used primary schools that had past or present experience of having a student with

DS, Fox et al. (2004) conducted research in 18 primary schools with each school having a child with DS and Johnson (2006) conducted research in a mainstream educational setting which had children with DS. Rietveld (1986, 1988) carried out research with eight children with DS who participated in an Early Years Intervention Programme and then attended their local mainstream educational setting. The findings from these studies, therefore, reflects the attitudes of teachers' who have undergone the inclusion of children with DS. The remaining four studies considered teachers' attitudes with and without experience. These included Wishart & Manning (1996), Johnson (2006), Gilmore et al. (2003) and Campbell et al (2003). This might provide more representative attitudes of the teacher population.

When considering the number of participants used, other than Johnson (2006), there appeared to be a substantial amount of participants. Johnson (2006) focused on six pupils and only used three headteachers. The methods used in this research were not made explicit, but this would typically not be considered a substantial number to make generalisations (Field, 2009).The remaining qualitative studies used between 9 and 19 participants, which would be considered enough for analysis (Field, 2009). Research using quantitative research methods also used substantially large numbers of teachers, including 231 trainee teachers (Wishart & Manning, 1996), 274 trainee teachers (Campbell et al., 2003) and 538 teachers (Gilmore et al., 2003).

Half of the studies either did not adequately consider the relationship between researcher and participants or appears to have a negative impact of the relationship. Gilmore et al. (2003) discusses how a limitation of the research was that the participants were known personally to their interviewers, and that this might have biased their responses towards more socially acceptable choices. Johnson (2006) is a teacher working in a school who has had previous involvement with the participants, therefore, the relationship between the researcher and participants potentially needs to be considered. Also, Petley (1994) was an Educational Psychologist (EP) working in the LA conducting the research herself, which might have led to bias in terms of incentives to find positive outcomes.

Nine of the studies did not provide information about ethical issues. It is, therefore, not possible to know if ethical issues have been taken into consideration. Johnson (2006) did consider ethical issues when obtaining the young people's views. This research did not, however, entail the approval from an ethics committee.

When considering the data analysis of the qualitative data, none of the researchers were explicit about the methods used, for example, if they used thematic analysis to analyse the interviews. For the quantitative studies the methods of data analysis tended to be made clearer, for example, the use of independent samples t-test. The research papers that appeared to have done more rigorous data analysis included Rietveld (1986,1988), Wishart & Manning (1996), Gilmore et al. (2003) and Campbell et al (2003).

Out of the ten studies, only three had a clear statement of findings. In most cases the researchers therefore did not establish the credibility of their findings, or the findings in relation to previous literature and current policy or practice.

In terms of the findings on attitudes and variables, none of the studies have explicitly discussed the contribution the findings made to existing knowledge or understanding. They also do not identify new areas of research or consider how the research may be used. Despite this, three studies that were considered to have high value, in terms of contributing to our understanding of attitudes towards the inclusion of students with DS were Wishart & Manning (1996), Gilmore et al. (2003), and Campbell et al (2003). Fox et al. (2004) was also considered to be of value since Peter Farrell, EP, and his co-researchers are considered to have expertise in the field on inclusion research.

1.3.2 Narrative Synthesis of the Findings

It was considered that, despite having some variability in terms of the value of the studies, all ten studies provide some value in answering the research question. As a result, the findings from all ten papers were synthesised to answer the two research questions:

1. *What does previous research tell us about mainstream teachers' attitudes towards the inclusion of children with DS?*
2. *What does previous research tell us about the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS?*

For the findings on research question 1, the aim of this study was to consider whether attitudes were positive, neutral or negative, as well as the cognitive, affective and behavioural dimensions of attitudes. On a theoretical level, the multidimensional theory of Eagly and Chaiken (1993) seemed a useful framework to present the results of the studies. However, on an empirical level, it was not possible to classify the studies according to the dimension because none of the studies defined the concept 'attitude' on a dimensional level and analyses of content and types of items in the various studies' questionnaires showed that none of those selected had concentrated specifically on any one of the

dimensions. The descriptors used, however, did appear to fit more with the cognitive dimension as opposed to the behavioural or affective, however, this was hard to state conclusively.

All of the studies included in this literature review measured attitudes towards the inclusion of children with DS, however, this varied, where some measured overall attitudes towards the inclusion of children with DS, and others measured specific aspects of attitudes including; attitudes towards the academic and social aspects of inclusion of children with DS, and attitudes towards the inclusion of children with DS in mainstream and special educational settings. The findings were, therefore, separated into these areas (Table 3).

The findings for research question 2 on the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS were categorised into themes. These included: Educational stage taught, contact with a child or adults with DS, experience of inclusive education of children with DS, understanding of inclusive practice, knowledge about DS as a condition, confidence in their ability to support the needs of children with DS, and access to environmental support for children with DS (Table 3). Seven of the studies included multiple variables that can impact on attitudes towards the inclusion of children with DS (Table 3). The other three studies did not consider any variables as part of their research.

The studies were ordered historically so that findings are introduced in chronological order in which they appear in the literature (Siddaway, 2014). This has been done to acknowledge the impact of the inclusion agenda over time since Lindsay's (2007) literature review on the effectiveness of inclusive education/mainstreaming identifies a general shift to a more positive attitude to inclusion over time.

Table 3: *Findings from the Studies Included in the Systematic Literature Review*

Citation	***Context***	***Data collection methods***	***Overall attitudes towards the inclusion of children with DS***	***Attitudes towards the academic and social aspects of inclusion of children with DS***	***Attitudes towards the inclusion of children with DS in mainstream and special educational settings***	***Variables considered and findings***
Rietveld (1986) *'The Adjustment to School of Eight children with Down's Syndrome from an Early intervention Programme'* ***Rietveld (1988)*** *'Adjusting to School: Eight Children with Down's Syndrome'*	New Zealand Eight children with DS (aged 6-7 years) who participated in an Early Years Intervention Programme and now attended their local mainstream school. Attitudes were measured for each child's class teacher, the headteacher	Attitudes towards integration were gained through a written questionnaire which was constructed to establish the extent to which teachers agreed or disagreed with the placement of a child with DS in their class. Six items measured attitudes towards integration in general and the other six measured items concerned specifically with teachers'	The average attitude score for the class teacher, the headteachers and other teachers were equally neutral. There was found to be considerable variation concerning teachers' attitudes towards integration, ranging from very positive to very negative. Rietveld (1988) states that even	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	*(this study did not consider attitudes towards mainstream and special educational settings)*	*(this study did not consider variables)*

	and two other teachers in each school. That is a total of 11 teachers.	perceptions of the child with DS in their class. The two sets of items were scored separately on a five-point scale (strongly agree-strongly disagree).	after a year of having a student with DS in their class, teachers were still uncertain about the value of integration.			
Vlachou (1993) *'Attitudes and the experience of integration'*	One primary school in Yorkshire, UK. This school has a total of 340 children, including 30 children with varied SEND, six of whom had DS.	Semi-structured interviews with 19 teachers and twelve parents with children with DS. Classroom observations of children with DS. Role-playing and group discussions take place with mainstream children.	The findings on teachers' attitudes towards integration include that the 19 teachers were quite negative about educating children with DS. There was some apprehension about what was to be expected of children with DS and how they can cope in mainstream classes.	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	*(this study did not consider attitudes towards mainstream and special educational settings)*	*Knowledge about DS* Knowledge of children's abilities can reduce prejudices and fears. A teacher will react differently when she/he is aware of the fact that children with DS hold a higher comprehensive ability than an oral expressive ability, compared with a teacher who is not aware of it. *Access to environmental support for children with DS* All the teachers interviewed stated that they were happy to include children with DS in their classes as long as a support teacher was also in the class. If there was no support teacher, then their attitudes towards integration turned out to be negative. It was observed that on some of the days when a support teacher was not in school, withdrawal of children with DS increased. For example, they were

						only included for story time or snack time. They felt that the teacher-student ratio, the limited classroom space, the academic demands, the administrative work imposed on them by the introduction of the National Curriculum, the shrinkage of budgets given to schools, and the needs of the children attending mainstream already exceeded and overestimated teachers' capabilities. They expressed the view that under such working conditions and with no support teachers, integration would have negative results for all the children. The formation of attitudes is thought to be highly connected with specific aspects of the social environment.
Petley (1994) *'An investigation into the experiences of parents and head teachers involved in*	The study took place in 10 primary schools in Hampshire, UK. Each of which had a student with DS.	Petley (1994), an EP, conducted a study on the experiences of parents and headteachers involved in the integration of primary aged children with DS into mainstream	Findings on attitudes towards integration were included for headteachers only and included that most of the nine headteachers were very	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	*(this study did not consider attitudes towards mainstream and special educational settings)*	*Experience of inclusive education* After having a child with DS in the school, most headteachers continued to feel positive and expressed the many benefits to integrating a student with DS. *Access to environmental support for children with DS*

*the integration of primary aged children with Down's syndrome into mainstream schoo**l'***		educational settings. Structured Interviews were conducted with the 10 mothers of children with DS and with nine of the headteachers (out of 10 possible).	positive about accepting the child with DS into their school.			Some of the headteachers thought that extensive support would be provided for children with DS, and once they found out this was not necessarily the case, they felt they would be more cautious of including a child with DS the next time.
Petty & Sadler (1996) *'The integration of children with Down syndrome in mainstream primary schools: Teacher knowledge, needs, attitudes and expectations'*	Primary schools in the North East of England, UK. Schools which had past of present experience of having a student with DS.	Petty & Sadler (1996) explored teachers' knowledge, needs, attitudes and expectations around the integration of children with DS in mainstream primary settings. Nine teachers with past or present experience of teaching pupils with DS in mainstream primary classes completed a semi-structured interview and two self-developed questionnaires.	*(this study did not consider overall attitudes)*	When asked how suitable they thought the mainstream placement was educationally; 2 teachers said very suitable, 5 said fairly suitable, 1 said not very suitable and no one selected not at all suitable. They were also asked how suitable they thought the mainstream placement was socially. 6	Teachers were also asked to state their views regarding the best educational placement for children with DS. Four thought mainstream school was the most suitable, three felt special school provision was more suitable, and three stated either special school or mainstream.	*Confidence in their ability to support the needs of children with DS* Positive teacher attitudes towards the integration of children with DS are likely to be related to feelings of self-confidence in their ability to meet the needs of such children. *Access to environmental support for children with DS* Positive teacher attitudes towards the integration of children with DS are likely to be influenced by the degree of support available, including classroom support, information/resources materials and professional guidance.

		In terms of measuring attitudes, teachers were asked about the suitability of mainstream placement for their student with DS both educationally and socially.		teachers selected very suitable, 1 chose fairly suitable, 2 said not very suitable and no one selected not at all suitable. The highest selected response for educationally was 'fairly suitable' while the highest selected response for socially was 'very suitable'.		
Wishart & Manning (1996) *'Trainee teachers' attitudes to inclusive education for children with Down's syndrome'*	The third year of a four-year primary school teacher-training degree from two large UK colleges of education, one in Scotland and one in	The researchers constructed and administered a questionnaire which consisted of 23 sets of questions covering knowledge of DS, personal experience of DS, the degree to which they felt their course prepared them to teach a	The findings suggest that despite seeing the benefits of inclusion, most of the sample had reservations about the inclusion of a child with DS in their class. In addition, only 13% of trainee	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	*(this study did not consider attitudes towards mainstream and special educational settings)*	*Contact with children or adults with DS* A number of chi-squared analyses were used. The researchers found that prior contact did have an influence on attitudes towards inclusive education. Those who have contact with a person with DS were significantly more positive in their attitudes towards having a child with DS assigned to their class (x^2= 17.67 (df3), P>0.0005); they were also more likely to say that

	Northern Ireland	student with DS, their views on inclusion and their attitudes. A total of 231 trainee teachers completed the questionnaire.	teachers would welcome the opportunity to teach in an integrated setting.			they would actively choose to teach children with SEND (x^2= 9.37 (df2), P>0.009).
Gilmore, Campbell & Cuskelly (2003) *'Listening to the views of those involved in the inclusion of pupils with Down's syndrome into mainstream schools'*	Australia Gilmore et al. (2003) conducted a study in Australia with 2,053 people from the community and 538 experienced teachers from early childhood settings, primary schools and secondary schools.	An adapted version of Wishart & Manning's (1996) questionnaire with 28 questions was used to collect information on developmental expectations, personality stereotypes, and attitudes towards inclusive education for children with DS. This was administered to teachers and people in the community.	*(this study did not consider overall attitudes)*	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	The majority of teachers reported that there were benefits in inclusion for both the children with DS as well as other children in the classroom, however, despite this, only 24% of teachers believed that the regular classroom with children of the same age was the best setting for children with DS. In	*Gender* Gender was found to not be a significant variable impacting on teachers' choice of the best classroom setting for children with DS. *Age* Age was found to not be a significant variable impacting on teachers' choice of educational setting. *Amount of teaching experience* Amount of teaching experience was found to not be a significant variable impacting on teachers' choice of educational setting. *Educational stage taught* There was a significant difference relating to the educational stage taught, x(6)=15.38, p<.05. Early childhood teachers were more

					comparison, 22% believed that children with DS should be in regular schools with younger children, 28% thought they should be in special schools and 26% thought they should be in some other setting.	likely to choose the regular classroom option (34%) compared with only 24% of primary teachers and 22% of secondary school teachers. *Experience of inclusive education* There was a significant difference in teachers' choices of the best educational setting according to whether or not they had previous classroom experience with a student with DS, $x(3)=13.44$, $p<.01$. Amongst those who reported having taught a student with DS, 33% believed that regular classrooms were the best educational setting for children with DS, while only 20% of the teachers without the experience of inclusion education saw inclusive classrooms as the best choice. *Knowledge about DS as a condition* The findings suggest that accurate knowledge is important for enhancing the acceptance of individuals with disabilities within their schools and communities. Teachers with higher levels of education (i.e., tertiary degrees and postgraduate qualifications)

						had more positive views about inclusion and educational settings, x(15)=39.61, p<.01. This is perhaps because their additional training had provided them with more knowledge about disabilities or increased confidence in their own ability to cope within inclusive classrooms *Access to environmental support for children with DS* Perceived lack of support and resources for teaching children with SEND is thought to have an impact on attitudes.
Campbell et al (2003) *'Changing student teachers' attitudes towards disability and inclusion'*	Australia A total of 274 education students (trainee teachers) studying early childhood, primary or secondary teacher education at an Australian university participated in the study.	Trainee teachers completed an adapted version of Wishart & Manning's (1996) questionnaire, as well as the Interaction with Disabled Persons Scale (IDP) to measure attitudes towards disability (Gething & Wheeler, 1992). Measurements at the beginning of the term, before the	*(this study did not consider overall attitudes)*	The percentages of trainee teachers who thought inclusion would be detrimental for the child with DS was 28% for educationally detrimental, 25% for socially, and 38% for emotionally. In addition to this, 31% thought it would be educationally	Trainee teachers' beliefs about the best educational setting for a child with DS was also considered. In terms of the most suitable educational placement, only 15% believed that children with DS would do	*Knowledge of DS as a condition* and *Understanding of inclusion* Trainee teachers engaged in formal instruction (a 1-hour lecture and a 2-hour tutorial per week) on human development. They also completed fieldwork using Wishart & Manning's (1996) questionnaire and the IDP combined with a fieldwork report. The aim of these was to see if knowledge of DS combined with an understanding of inclusion increased attitudes towards the inclusion of children with DS.

		intervention, offers an indication of what the trainee teachers' attitudes towards the inclusion of children with DS were.		detrimental to the other children in the class. However, more positively 93% of trainee teachers thought that it would be socially beneficial to the other children and 89% thought that it would be beneficial to the other children emotionally.	best in a regular classroom with children of the same age, 40% nominated a regular classroom with younger children of similar developmental level, and 32% believed that children with DS would do better in a separate school for children with SEND.	By the end of the semester, trainee teachers acquired more positive attitudes towards the inclusive education of children with DS. Teachers had a much more positive view of the benefits of inclusion for children with DS, with 90% rating it as beneficial educationally, 95% socially, and 86% believing it to be beneficial emotionally. The total of these three components showed a significant change in a t-test on views on the benefits of inclusion from the start of the semester ($t=9.932$, $df=270$, $p<0.001$). A paired t-test for trainee teachers' total scores for perceptions of the benefits of inclusion of a child with DS for the other children in the class also revealed a significant difference, with trainee teachers' attitudes becoming more positive ($t=4.752$, $df=271$, $p<0.001$). Trainee teachers' beliefs about the best educational setting for a child with DS also improved. By the end of the semester, 29% now nominated a regular primary classroom with children of the same age, and only 15% believed a

						separate school was the most beneficial placement. 47% chose a regular primary classroom with younger children of similar developmental level. It was also found that trainee teachers had more positive attitudes towards disability in general.
Fox et al. (2004) *'Factors associated with the effective inclusion of primary-aged pupils with Down's syndrome'*	18 primary schools in six different LAs in the north-west of England, UK. Each school had a child with DS. Each of the 18 schools was a mainstream school educating a student.	The researchers aimed to conduct a detailed study of the factors associated with the effective inclusion of primary-aged pupils with DS. Over a two-year period, observations, interviews and focus groups were used with different participants including staff, pupils with DS, parents and peers.	In relation to overall attitudes towards inclusion, the vast majority of class teachers, SENCOs and headteachers felt that the 'positives' outweighed the 'negatives'.	*(this study did not consider attitudes towards the academic and social aspects of inclusion)*	*(this study did not consider attitudes towards mainstream and special educational settings)*	*(this study did not consider variables)*
Johnson (2006)	Mainstream schools in	Methods included a questionnaire,	In terms of attitudes towards	*(this study did not consider*	*(this study did not consider*	*Experience of inclusive education*

'Listening to the views of those involved in the inclusion of pupils with Down's syndrome into mainstream schools'	Derbyshire, UK, with children with DS. The research was conducted by Johnson (2006), a teacher who provides an account of her involvement in the inclusion of six pupils with DS over five years.	survey and semi-structured interviews. These were used with different participants including parents, class teachers, headteachers, SEND teaching assistants, siblings, inclusion officers and young people.	the inclusion of children with DS, initially, two teachers were positive about inclusion and four teachers had a negative attitude since they believed the curriculum was not relevant. Out of the three headteachers interviewed at the start, two were already positive about inclusion and the third was not opposed to inclusion.	*attitudes towards the academic and social aspects of inclusion)*	*attitudes towards mainstream and special educational settings)*	Once the teachers had experienced inclusion first-hand, all except one had positive attitudes towards inclusion. *Access to environmental support for children with DS* All three headteachers had concerns about support, resources and for or about their staff. Two headteachers identified the child's speech or the speech therapy service as a difficulty or concern. They wanted to ensure that everyone was aware of the programme and that the other children will not lose out if time is spent with the child with DS.

1.4 Discussion

1.4.1 What Does Previous Research Tell Us About Mainstream Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome?

The findings on mainstream teachers' attitudes towards the inclusion of children with DS were separated into; overall attitudes towards the inclusion of children with DS, attitudes towards the academic and social aspects of inclusion of children with DS, and attitudes towards the inclusion of children with DS in mainstream and special educational settings.

Out of the ten studies included in this literature review, seven reported on overall attitudes. The findings suggest that there is a mixture of positive, neutral and negative attitudes towards the inclusion of children with DS. Some studies found teachers to have positive attitudes towards the inclusion of children with DS. For example, Petley (1994) found that most of the nine headteachers in the study were very positive about accepting a student with DS into their school. Fox et al. (2004) found that the vast majority of class teachers, SENCOs and headteachers felt that the 'positives' of inclusion outweighed the 'negatives'. Some studies also found attitudes to be negative, for example, Vlachou (1993) found that 19 teachers were negative about the inclusive education of children with DS and Wishart & Manning (1996) found that trainee teachers had reservations about inclusion. A range of teacher attitudes from very positive to very negative was found by Rietveld (1986,1988), while headteachers had neutral attitudes. Johnson (2006) also found teachers and headteachers to have a range of attitudes.

The variance in the findings was considered in relation to the critical appraisal. It appears that the variance is not related to factors such as the use of qualitative or quantitative approach, recruitment strategy, the experience of inclusion, quality of analysis or the quality of the studies. The date and location of the research also did not appear to have an impact on the findings. As the findings suggest there is a range of positive, neutral and negative overall attitudes towards the inclusion of children with DS, and since the variance cannot be explained, it is not possible to establish whether teachers have on average positive, neutral or negative attitudes towards the inclusion of children of DS.

Two of the studies in this literature review were considered to have findings around attitudes towards the social and academic aspects of inclusion (Campbell et al., 2003; Petty & Sadler, 1996). Attitudes towards academic and social inclusion appear to be positive (Petty & Sadler, 1996). These findings also include that teachers are more positive

about the social aspect of inclusion than academic aspects of inclusion (Campbell et al., 2003; Petty & Sadler, 1996). For example, Petty & Sadler (1996) found that the majority of teachers believed a mainstream educational setting was 'fairly suitable' educationally but 'very suitable' socially.

The literature review also included findings on teachers' attitudes towards the best educational setting for children with DS. The three research studies that reported findings on teachers' attitudes towards educational settings for children with DS, suggested that regardless of seeing the benefits on mainstream educational settings, teachers had neutral attitudes towards placement as they seemed to think that mainstream and special educational settings were equally suitable for children with DS (Campbell et al., 2003; Gilmore et al., 2003; Petty & Sadler, 1996). Gilmore et al. (2003) found that only 24% of teachers believed that the regular classroom with children of the same age was the best setting for children with DS, compared to 22% believing that children with DS should be in regular schools with younger children, 28% thought they should be in special schools and 26% thought they should be in some other setting.

1.4.2 What Does Previous Research Tell Us About the Variables That Impact on Mainstream Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome?

The variables that were found to have an association with teachers' attitudes, can be considered to be both teacher-related and educational-environmental-related variables (Avramidis & Norwich, 2002). No child-related variables were reported on. Each individual variable will be explored further:

I. Educational Stage Taught

Educational stage taught was found to have an impact on teacher attitudes towards educational settings, as early childhood teachers were most likely to choose mainstream classes for children with DS, followed by primary and then secondary school teachers (Gilmore et al., 2003). Gilmore et al. (2003) went onto suggest that differences in attitudes related to education stage could be due to it being easier for children with DS to be included in early childhood settings due to it being less demanding academically in terms of the curricular demands. This could be further influenced by the gap in cognitive ability between those with DS and their peers widening as they got older. Whilst some young people with DS gain qualifications such as the General Certificate of Secondary

Education (GCSE) and Business and Technology Education Council (BTEC), most are likely to have difficulties accessing and engaging with academic curriculum higher up in secondary school (Down's Syndrome Association, n.d.-c). Gilmore et al. (2003) also suggests that teachers trained to work with younger children had more positive attitudes because their training tends to focus more on developmental issues.

II. Contact with a Child or Adults with Down's Syndrome

Prior contact with a child or adult with DS was found to have a positive association with attitudes towards the inclusion of children with DS (Wishart & Manning, 1996). It was found that those with experience of DS were more positive in their attitudes towards having a child with DS assigned to their class, and they were also more likely to say that they would actively choose to teach children with special education needs. Research on SEND has related experience of contact to 'Contact Hypothesis' by Allport (1954) which suggests that increased contact enables teachers to get closer to children with SEND and that this might result in attitudes becoming more positive (Avramidis & Norwich, 2004).

III. Experience of Inclusive Education of Children with Down's Syndrome

Studies from this literature review suggest that having first-hand experience of inclusive education of children with DS leads to teachers having more positive attitudes towards the inclusion of children with DS (Johnson, 2006; Petley, 1994). Experience of inclusive education is also thought to have a positive association with attitudes towards school settings (Gilmore et al., 2003). Gilmore et al. (2003) found that amongst those who reported having taught a child with DS, 33% believed that regular classrooms were the best educational option for children with DS, while only 20% of the teachers without experience saw inclusive classrooms as the best choice.

IV. *Understanding of Inclusive Practice*

Campbell et al. (2003) suggests that having an understanding of inclusion, such as on a teacher training course, has a positive impact on attitudes as well as attitudes towards educational and academic inclusion and educational setting.

V. *Knowledge About Down's Syndrome as a Condition*

Gilmore et al. (2003) found that knowledge about DS potentially influence attitudes to inclusion. Teachers with higher levels of education have more positive views about the

inclusion of children with DS and are less likely to choose special school settings, potentially because their additional training has provided them with more knowledge about disabilities

VI. Confidence in Their Ability to Support the Needs of Children with Down's Syndrome

Petty and Sadler (1996) found that positive teacher attitudes towards the inclusion of children with DS is likely to be related to feelings of self-confidence in their ability to meet the needs of such children. It could be considered that the reason teachers' attitudes are impacted by the degree to which they feel prepared is due to increased self-efficacy. Self-efficacy is the belief we have in our abilities, specifically our ability to meet the challenges ahead of us and complete a task successfully. Research on SEND has suggested that teachers who have higher levels of self-efficacy are more likely to hold positive attitudes towards teaching children with and without SEND (Batsiou, Bebetsos, Panteli, & Antoniou, 2008).

VII. Access to Environmental Support for Children with Down's Syndrome

A range of education- environmental variables were found to have an impact on teachers' attitudes towards inclusion. Variables mentioned included the teacher-student ratio (Vlachou, 1993), the limited classroom space (Vlachou, 1993), school finances (Petty & Sadler, 1996; Vlachou, 1993), lack of resources for teaching children with special needs (Gilmore et al., 2003; Wishart & Manning, 1996), information/resources materials (Johnson, 2006; Petty & Sadler, 1996), support from professionals, for example, speech and language therapy (Johnson, 2006; Petty & Sadler, 1996), the academic demands (Vlachou, 1993), the administrative work imposed on them by the introduction of the National Curriculum (Vlachou, 1993), and the needs of the mainstream children already exceeded and overestimated teachers' human capabilities (Vlachou, 1993).

One key educational-environmental-related variable that was found to have an impact in research was the degree of support received through suitable staffing (Gilmore et al., 2003; Johnson, 2006; Petley, 1994; Petty & Sadler, 1996; Vlachou, 1993; Wishart & Manning, 1996). Vlachou (1993) found that all of the teachers interviewed stated that they were happy to include children with DS in their classes as long as suitable staffing, for example, a support teacher was also in the class. If there was no support teacher, then their attitudes turned out to be negative. It was observed that on some of the days when a

support teacher was not in school, withdrawal of children with DS increased. Similarly, Petley (1994) found that some of the headteachers had assumed that full support for children with DS attending their school would be provided and, in the absence of this, felt that they would be more cautious about including a student with DS next time.

Variables Found Not to Have an Impact on Attitudes from the Literature Review

Within the literature review, some variables were found to not have an impact on teachers' attitudes towards the inclusion of children with DS. Gilmore et al. (2003) concluded that the demographic variables of gender, age and years of general teaching experience were not significant factors influencing teachers' attitudes towards educational settings.

1.4.3 Agreements and Disagreements with Other Studies or Reviews

Research on teachers' attitudes towards SEND more generally, suggests that the majority of teachers hold neutral or negative attitudes towards the inclusion of children with SEND (Avramidis & Norwich, 2002; De Boer et al., 2011). Contrary to this, a mixture of attitudes were found, including positive attitudes towards the inclusion of children with DS. This goes against the prediction that teachers' attitudes towards the inclusion of children with DS will be, on average, negative, due to DS being associated with a learning disability, behavioural difficulties and cognitive disability, which are all associated with more negative attitudes (Avramidis & Norwich, 2002, 2004; De Boer et al., 2010, 2011).

In line with research on teachers' attitudes towards SEND more generally, teacher-related variables and educational-environmental-related variables were found to influence teachers' attitudes towards the inclusion of children with DS (Avramidis & Norwich, 2002; De Boer et al., 2011). For example, previous research on SEND has also found experience with inclusive education, educational stage taught, experience or contact and a range of environmental factors to have an impact. Previous research on SEND has, however, found the demographic variables of gender, age and years of teaching experience to be significant factors influencing teachers' attitudes (Avramidis & Norwich, 2002; De Boer et al., 2011).

1.5 Author's Conclusions

1.5.1 Implications for Practice

The findings from this literature review in terms of there being a mix of attitudes, in line with the Theory of Planned Behaviour, could have implications on the success of educating children with DS in mainstream settings. This being a barrier to inclusion could be reflected in debates around the extent to which schools are practicing inclusively. This is something for professionals, such as EPs, to take into consideration when working with teachers around the inclusion of students with DS. The issue of inclusion is understandably one that has a high profile in the work of EPs (Lambert & Frederickson, 2015).

The findings suggest that teachers who have a low experience of contact with children or adults with DS, a lack of experience of inclusive education of children with DS, a poor understanding of inclusive practice, a reduced knowledge about DS as a condition and less confidence in teacher ability to support the needs of children with DS, are more likely to have negative attitudes. These variables are related to the teachers themselves, so this has implications for teacher training, such as, it highlights the value of integrating more practical elements into the training. This is particularly the case for secondary school teachers who were found to have more negative attitudes than primary school teachers.

'Educational-environmental-related' variables were also found to have an impact on attitudes towards the inclusion of children with DS. Within mainstream educational settings, most children with DS will have a Statement (in Wales) or an Education, Health and Care plan (EHC plan) in England. Fox et al. (2004) found that the support received by 18 children with DS in their research varied from 15 to 30 hours per week and that the amount of support received was not associated with the pupils' needs but instead influenced by the common policies and practices prevalent in the school or local authority at the time. This suggests that there could be a system which does not consider individual children's variance in difficulty. The implications of the finding are for LAs and school staff responsible for budgets. Schools that have better environmental support, for example, suitable staffing and support from professionals, are more likely to have positive attitudes towards the inclusion of children with DS.

1.5.2 Limitations of the Literature Review

Only 10 articles met the inclusion criteria for this review which were purposefully broad to capture as many articles as possible. Out of the ten studies that met the inclusion criteria, two of them were derived from the same researcher's experiment (Rietveld, 1986, 1988). The small number of studies that were identified indicates the scarcity of research to date on this important area of analysis. Whilst there is no set number of studies recommend for a systematic literature review, this could be considered to be a low number of research papers. This is particularly restricting considering a few of the papers have limited methodological quality as identified by the CASP Qualitative Checklist (CASP, 2018a), particularly Johnson (2006) and Vlachou (1993) (Table 2 and Appendix B).

The importance of inclusion for children with SEND, including DS, has been continuously been informed by government legislation and acts. The studies were conducted between 1986 and 2006 where large changes are likely to have happened in the inclusion agenda and this might have an impact on attitudes towards inclusion. Another limitation of the dates conducted is that none of the studies were from the last 14 years. There are current tensions in the educational context in the UK which might have had an impact on teacher attitudes, for example, problematic funding (Down's Syndrome Association, 2019), increasing pressure on school staff (Down's Syndrome Association, 2019) and wider societal views such as antenatal screening (F. Buckley & Buckley, 2008).

Half of the studies focused on integration while the other half used the term inclusion. Even though the terms 'inclusion' and 'integration' are sometimes used interchangeably, the consensus is that 'inclusion' replaced the notion of 'integration' (Farrell, 2001; Shaw, 2017). Integration implies that children should fit or adapt to the school setting, whereas inclusion focuses on the school adapting to meet the needs of children (De Graaf et al., 2014; Engevik et al., 2018; Geoff, 2007). The implication for this change in terminology is that the emphasis is for teachers to have more responsibility to adapt their practice. This suggests that the findings of the studies which focused on integration might reflect a very different practice. This research synthesised the findings despite this, as the findings on attitudes appear to show little variation based on the terms used. In addition to this, there are debates around the extent to which practices are actually inclusive even when the term inclusion is used (Lindsay, 2007). None of the studies which did focus on inclusion defined it, which leaves room for diverse interpretations of what this means. Norwich (2008) suggests that inclusion should be seen on a continuum of most included to most separate. The most separate could be considered to be segregation

which can result in stigmatisation and can restrict access to educational opportunities (Frederickson & Cline, 2015). None of the researchers discussed how they viewed inclusion in terms of where they were on the inclusion continuum and some of the descriptions used could be considered to be more akin to integration. This poses a limitation of the research, as the extent to which the findings reflect attitudes towards inclusion are difficult to establish.

Whilst a lot of the previous research has used qualitative methods for measuring attitudes, quantitative methods such as questionnaires are more appropriate (Antonak & Livneh, 2000; Fisher & Warren, 2011). Out of the studies that did use questionnaires to measure attitudes, reliability and validity were not measured, but could be considered to be low, since none of the measurements encapsulated how broad attitudes are. None of the measurements were described as standardised or as psychometric measurements. This meant that the extent to which the findings in previous research are applicable to the three dimensions described by Eagly & Chaiken's (1993) was hard to establish. Antonak and Livneh (2000) argue that multidimensional and psychometrically sound instruments are imperative to explore the relationship between attitudes towards individuals with SEND and their full inclusion.

1.5.3 Implications for Future Research

The literature review has identified a requirement for additional research in this area. One key reason is that there have been conflicting findings from previous research, which meant it was not possible to establish teachers' attitudes towards the inclusion of children of DS. To provide clarity over these findings, it could be considered important to conduct further research that is psychometric, uses quantitative methods such as a questionnaire, and uses a multidimensional measure of attitudes (Antonak & Livneh, 2000; Ewing, Monsen, & Kielblock, 2018). Ewing, Monsen, & Kielblock (2018) completed a critical review of published questionnaires on teachers' attitudes towards inclusive education and found that 'The Multidimensional Attitudes towards Inclusive Education Scale' (MATIES) (Mahat, 2008) was the only teacher questionnaire with adequate psychometric properties that addressed the affective, cognitive and behavioural dimensions of attitudes. Therefore, this is the recommended method for measuring attitudes towards inclusion.

Other reason to conduct future research derives from the limitations of the studies included in this literature review. The limitations highlight the value of conducting current research in the UK, research on inclusion as opposed to integration, focusing on teachers

across a range of schools and LAs, and measuring the attitudes of teachers who both have and not had the experience of including a student with DS. In previous research some of the schools or LAs selected were done so because they specifically had the experience of the inclusion of a student with DS. This will not accurately represent all teachers, many of whom will not have had the experience of including a student with DS. Also, this is particularly important for the experience of inclusion, as this was a variable found to impact on overall attitudes towards the inclusion of children with DS and attitudes towards educational settings. Doing this will also help with the generalisability of the findings.

A range of 'teacher-related' and 'educational environmental-related' variables were found to have an impact. Two variables that were not considered were 'engagement with the medical model of disability' and 'engagement with the social model of disability'. The medical model locates disability within individual pathology and views disability as a 'personal tragedy' (Oliver, 1996). The social model defines disability as the product of specific social and economic structures and aims to address the oppression of, and discrimination against disabled people, which it suggests is caused by 'institutional and cultural forms of exclusion' (Thomas, 1999; Reeve, 2002). This variable was considered by Runswick-Cole (2008) who conducted research on parents' attitudes to mainstream and special educational settings. The findings suggested parents who lean towards the medical model of disability were more likely to choose special schools, whereas those who focused more on the social model choose mainstream schools, at least at the beginning of their child's education. Therefore, it could be considered valuable to consider how previously found variables, as well as these new variables, have an impact on teachers' attitudes towards the inclusion of children with DS in the current context.

1.6 Summary

A systematic literature review was conducted on *'teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables'*. As there have been no previous literature reviews conducted in this area, this has provided a foundation of knowledge on this topic. The review focused on two clearly focused questions:

1. *What do previous studies tell us about mainstream teachers' attitudes towards the inclusion of children with DS?*
2. *What do previous studies tell us about the variables that impact on mainstream teachers' attitudes towards the inclusion of children with DS?*

All relevant studies were included and critically analysed and synthesised in a narrative way.

The findings include that attitudes towards the inclusion of children with DS are a mixture of positive, neutral or negative. Findings were included on aspects of inclusion and it appeared that teachers were more positive about social inclusion than academic inclusion (Campbell et al., 2003; Petty & Sadler, 1996). The findings on teachers' attitudes towards educational settings indicate that regardless of having positive, neutral or negative attitudes, teachers seemed to feel that mainstream and special educational settings are equally suitable for children with DS (Campbell et al., 2003; Gilmore et al., 2003; Petty & Sadler, 1996).

Attitudes towards the inclusion of children with DS were found to be influenced by a number of variables. The teacher-related variables found to have a positive association with attitudes towards the inclusion of children with DS included; experience of contact with children or adults with DS (Wishart & Manning, 1996), the experience of inclusive education of children with DS (Gilmore et al., 2003; Johnson, 2006; Petley, 1994), understanding of inclusive practice (Campbell et al., 2003), knowledge about DS as a condition (Gilmore et al., 2003), and confidence in teacher ability to support the needs of children with DS (Petty & Sadler, 1996). Educational stage taught (Gilmore et al., 2003) had a negative association, as the younger the student, the more positive the teacher attitude. A range of educational-environmental-related variables, for example, suitable staffing, school finances and support from professionals, were also found to have an impact on teachers' attitudes towards inclusion (Gilmore et al., 2003; Johnson, 2006; Petley, 1994; Petty & Sadler, 1996; Vlachou, 1993; Wishart & Manning, 1996). Age, gender and length of teaching experience were found to not have an impact on attitudes towards educational setting (Gilmore et al., 2003).

Whilst previous research findings have implications for teacher training and education professionals, this literature review highlights the importance of conducting research that reflects the current educational context across the UK. This research should use a psychometrically sound and multidimensional instrument for measuring attitudes, such as the MATIES (Mahat, 2008), as it may provide clarity on overall attitudes towards the inclusion of children with DS. Likewise, it could bring to light the variables that impact teachers' attitudes towards the inclusion of children with DS in the current educational climate. This systematic literature review provides a useful foundation of knowledge to base future research on.

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2.MAJOR RESEARCH JOURNAL ARTICLE

Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome Within Mainstream Educational Settings and the Influencing Variables

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Abstract

Background: A factor that has been frequently referred to as being important in relation to the effective inclusion of children with Down's Syndrome (DS) is teachers' attitudes towards their inclusion. From reviewing previous research, it is difficult to establish whether teachers have positive, neutral or negative attitudes towards the inclusion of children of DS. Likewise, it is not possible to determine the three dimensions of attitudes, namely cognitive, affective and behavioural. The attitudes that are held by teachers are thought to be influenced by a range of teacher-related and environmental-educational related variables. Reflecting on the related variables enables professionals to support teachers to implement successful and inclusive education.

Objectives: This research aimed to investigate teachers' attitudes towards the inclusion of children with Down's Syndrome (DS) and the influencing variables. There were two research questions:

1. *What are mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*
2. *What variables impact on mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*

Method: 100 teachers completed an online questionnaire (69 primary school teachers and 18 secondary school teachers). An adapted version of 'The Multidimensional Attitudes towards Inclusive Education Scale' (MATIES) was used to measure attitudes. The questionnaire also collected data on relevant variables informed by the literature review, and multiple-linear regressions were used to explore the variables that predicted teachers' overall attitudes and the dimensions of inclusion.

Findings: The findings on attitudes include that teachers have on average positive attitudes overall, positive attitudes for the three dimensions and neutral attitudes towards educational setting. They were also found to be more positive about the social than academic inclusion of children with DS. The variables found to influence attitudes were categorised into teacher-related practice variables, teacher-related demographic variables and environmental variables. The most prominent teacher-related practice variable was experience of inclusion, with more experience resulting in more positive attitudes towards inclusion. There was also found to be value in teachers having high confidence in the understanding of inclusion and a moderate level of confidence in their knowledge of DS. Findings regarding teacher-related demographic variables include that secondary school teachers, male teachers and teachers with less experience have less positive attitudes. Educational-environmental-related variables were also found, with a significant positive association between access to environmental support and the behavioural dimension of attitudes.

Author's conclusion: There are implications of the findings for service users, namely children with DS and their parents, such as the impact of neutral attitudes. There are also implications for Educational Psychologists (EPs), particularly around teacher training.

2.1 Introduction

2.1.1 Down's Syndrome and the Inclusion Agenda

Down's Syndrome (DS) is a genetic disability usually caused by either an extra chromosome or an extra part of chromosome number 21 (Alton, 1998). Approximately 750 babies with DS are born in the United Kingdom (UK) each year, so for every 1,000 babies born, one will have DS (Down's Syndrome Association, n.d.-b). DS is considered to be a type of special educational needs and disability (SEND). The Department for Education (2015) defines SEND as a learning disability that requires special health and education support.

The importance of inclusion for children with SEND, including DS, was strongly endorsed by the Warnock Report (Department for Education and Science, 1978) and subsequently by statutory guidance, such as 'the Special Educational Needs and Disability (SEND) Code of Practice: 0 to 25 years' (Department for Education, 2015). Effective inclusion in mainstream schools is thought to lead to improvements in the quality of education and equality of opportunities (Farrell, 2001, 2004; Frederickson & Cline, 2015). Likewise, research suggests inclusion has benefits for children with DS including academic progress, increased language and communication, and enhanced social skills (Bird & Buckley, 1999; S. Buckley, Bird, & Sacks, 2006; Laws et al., 2000).

2.1.2 Mainstream Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome

Placing students with SEND in a mainstream educational setting does not automatically lead to inclusive practices (Lindner et al., 2019). Therefore, it is useful to consider the factors that contribute to successful inclusion. Teachers' attitudes towards the inclusion of children with DS is a factor that has been frequently referred to overtime as important for the effective inclusion of children with DS (Bird & Buckley, 1999; Cuckle, 1999; Fox et al., 2004; Hughes, 2006; McFadden et al., 2017; Petley, 1994). An 'attitude' can be described as a person's viewpoint towards a particular person, thing or idea (Gall, Borg and Gall, 1996 in De Boer et al., 2011). In the context of inclusive education, attitudes are considered to be multidimensional, comprising of three key dimensions: 'cognitive' that reflects what is known about SEND, 'affective' is the emotional reaction to children with SEND, and 'behavioural', which includes either actual or intended behaviours towards children with SEND (Eagly & Chaiken, 1993; Nowicki & Sandieson, 2002). The Theory of

Planned Behaviour, a psychological theory of behaviour, suggests that attitudes towards a behaviour are one of the key determinants of a person's behaviour (Ajzen, 1987). In the context of inclusive education, the theory suggests inclusive education can be influenced by the three dimensions of attitudes towards inclusion (Mahat, 2008). This suggests that positive attitudes towards SEND play a considerable role in the successful implementation of inclusive educational change (De Boer et al., 2011; MacFarlane & Woolfson, 2013), while negative attitudes may be considered a contributory barrier to successful inclusive practices (De Boer et al., 2011; MacFarlane & Woolfson, 2013).

Previous research exploring teachers' attitudes towards the inclusion of children with DS is mixed. Some studies have found teachers were positive about the inclusion of children with DS (Fox et al., 2004; Petley, 1994). However, other research either found that teachers held negative attitudes around educating students with DS in mainstream schools (Vlachou, 1993; Wishart & Manning, 1996) or a range of positive and negative attitudes (Johnson, 2006; Rietveld, 1986, 1988). Therefore, it is not possible to establish from previous research whether teachers hold on average positive, neutral or negative attitudes. In addition to this, the extent to which these findings are applicable to Eagly & Chaiken's (1993) three dimensions is also difficult to establish. The limited findings could be the consequence of the methods used, which were mainly qualitative and without multidimensional measures of attitudes. Antonak and Livneh (2000) argued that multidimensional and psychometrically sound instruments (that are reliable and valid) are imperative to explore attitudes towards SEND.

2.1.3 The Variables That Impact on Mainstream Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome

Research suggests the extent to which attitudes are positive, neutral or negative can be influenced by several variables (Avramidis & Norwich, 2002). A variable can be defined as something that can vary from one situation or from one person to another (Fisher & Warren, 2011). By reflecting on the related variables that impact attitudes, it enables professionals to support teachers to implement successful and inclusive education and to develop initiatives and interventions. Also, it will help to improve attitudes towards inclusion, to increase inclusive behaviours and develop more inclusive learning environments (Antonak & Livneh, 2000; MacFarlane & Woolfson, 2013; Monsen et al., 2014).

Previous research on teachers' attitudes towards the inclusion of children with DS found that, what can be categorised as a range of teacher and educational-environmental-related variables, have a relationship with teachers' attitudes towards the inclusion of children with DS (Avramidis & Norwich, 2002). The teacher-related variables found to have a positive impact include: the experience of contact with children or adults with DS (Wishart & Manning, 1996), the experience of inclusive education of children with DS (Gilmore et al., 2003; Johnson, 2006; Petley, 1994), understanding of inclusive practice (Campbell et al., 2003), knowledge about DS as a condition (Gilmore et al., 2003), and confidence in their ability to support the needs of children with DS (Petty & Sadler, 1996). Educational stage taught also had an association, with the younger the student, the more positive the attitudes (Gilmore et al., 2003). A range of educational-environmental-related variables were also found to impact on teachers' attitudes towards inclusion, for example, suitable staffing, school finances and support from professionals (Gilmore et al., 2003; Johnson, 2006; Petley, 1994; Petty & Sadler, 1996; Vlachou, 1993; Wishart & Manning, 1996). Variables found to not have an impact on attitudes were the demographic variables of the teachers' age and gender and the length of teaching experience (Gilmore et al., 2003). These have, however, been found to be significant in previous research on SEND (Avramidis & Norwich, 2002; De Boer et al., 2011). 'Engagement with the medical model of disability' and 'engagement with the social model of disability' are two additional variables that could also be considered to have an impact on attitudes. This is suggested based on the findings of Runswick-Cole (2008), which concluded that parents who lean towards the medical models of disability are more likely to choose special schools, whereas those who focus more on the social model will choose mainstream schools, at least at the beginning of their child's education.

2.1.4 Current Research

A factor that has been frequently referred to as being important in relation to the effective inclusion of children with DS is teachers' attitudes towards their inclusion (Bird & Buckley, 1999; Cuckle, 1999; Fox et al., 2004; Hughes, 2006; McFadden et al., 2017; Petley, 1994). From reviewing previous research, it is difficult to establish whether teachers have positive, neutral or negative attitudes towards the inclusion of children of DS. Likewise, it is not possible to determine teachers' attitudes towards the three key dimensions, namely cognitive, affective and behavioural. Measuring teachers' attitudes in this area will support in identifying and addressing any barriers towards the successful implementation of

inclusive education policies (Ewing et al., 2018). This research also explored the teacher and educational-environmental-related variables that impact teachers' overall attitudes and the dimensions of attitudes towards the inclusion of children with DS. The variables included were based on previous research, alongside teachers' engagement with the medical model of disability and engagement with the social model of disability. The following research questions were explored:

1. *What are mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*
2. *What variables impact on mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*

2.2 Methodology

2.2.1 Theoretical Perspective

The theoretical perspective adopted for this research was that of critical realism. Critical realism uses components of both positivist and constructivist approaches to provide a detailed account of ontology and epistemology (Fletcher, 2017). Fletcher (2017) describes how the critical realist stance assumes that human knowledge captures only a small part of a deeper and vaster reality. The research design employed was primarily quantitative.

2.2.2 Data Collection

Questionnaires are considered to be a useful way of measuring theoretical construct, such as attitudes (Fisher & Warren, 2011). Ewing, Monsen, & Kielblock (2018) completed a critical review of published questionnaires on teachers' attitudes towards inclusive education. The findings suggested the 'Multidimensional Attitudes towards Inclusive Education Scale' (MATIES) (Mahat, 2008) was the only teacher questionnaire with adequate psychometric properties that addressed the dimensions of attitudes. This is a self-report measure of attitudes, which is considered to be a good way of assessing psychological constructs, such as attitudes, in an economical way (Cross, 2005). The 18 items in the original MATIES were found to successfully meet the standards for internal reliability, content validity, construct validity, criterion validity and convergent validity (Mahat, 2008). The MATIES was modified to focus specifically on DS (Appendix C).

The 18 items of the MATIES were used to collectively measure teachers' overall attitudes towards the inclusion of children with DS (Figure 2). The 18 items were also split to measure cognitive, affective and behavioural dimensions of attitudes (Figure 2). In this research, each of the 18 items used a scaled format from 0-10 (Appendix D).

In addition to the MATIES, the questionnaire collected data on teacher and educational-environmental-related predictor variables (Table 4). The variables included significant and non-significant variables from previous research of teachers' attitudes towards the inclusion of children with DS. The two additional variables of 'engagement with the medical model of disability' and 'engagement with the social model of disability' were included in this research. The questions included a mixture of multiple-choice questions and Likert scales (Appendix D), which generated both ordinal and categorical variables (Table 4).

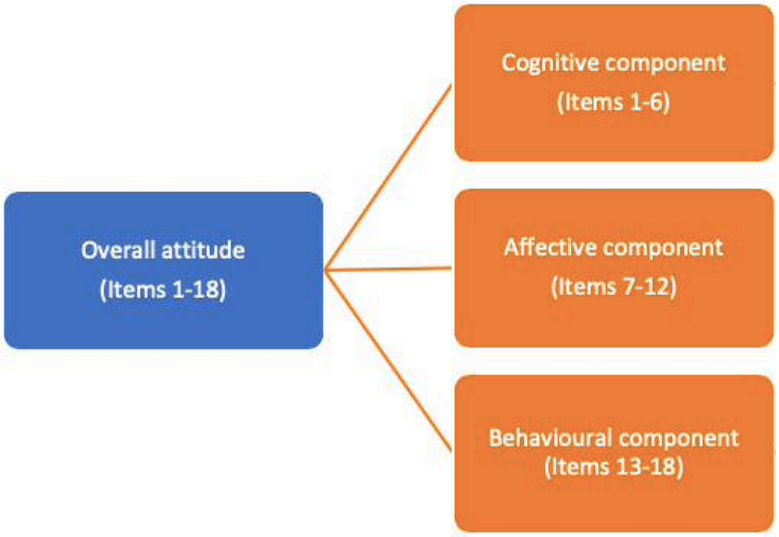


Figure 2: How the MATIES (Mahat, 2008) Measures Attitudes

Table 4: *The types of variable*

Variables	Type of data
Experience of contact with children or adults with DS	Ordinal
Experience of inclusive education of children with DS	Ordinal
Knowledge about DS as a condition	Ordinal
Understanding of inclusive practice	Ordinal
Confidence in their ability to support the needs of children with DS	Ordinal
Access to environmental support for children with DS (overall)	Ordinal
Engagement with the medical model of disability	Ordinal
Engagement with the social model of disability	Ordinal
Educational stage taught	Categorical
The teachers' gender	Categorical
Years of teaching experience	Categorical
Age	Categorical

2.2.4 Data Analysis

To analyse the data on attitudes, mean attitude scores and standard deviations were obtained for overall attitudes, all three attitude dimensions and for each of the 18 items individually. Half of the 18 items needed to be reverse coded (three of the items on the cognitive subscale and all of the items on the affective subscale) to ensure that higher scores indicated more positive attitudes toward the inclusion of children with DS. As Mahat (2008) does not provide a categorical description of attitude scores, a set of rules were developed and used to evaluate the attitude scores. Negative scores were 0 to 4, neutral

scores included scores above 4 and up to 7 and positive scores were scores of 7 to 10. This set of rules were based on the research conducted by De Boer, Pijl, & Minnaert (2010). The percentage of teachers that had negative, neutral and positive attitudes was also calculated.

A multiple-linear regression was selected for analysing the data as it is an extremely useful tool for looking beyond the data by allowing researchers to predict an outcome based on several predictors (Field, 2009). The Statistical Package for the Social Sciences (SPSS) was used to run these. A total of four multiple-linear regressions were used with the outcome variables of; overall attitudes, the cognitive dimension of attitudes, the affective dimension of attitudes, and the behavioural dimension of attitudes.

To input the variables into the multiple-linear regressions, each of the variables were converted into quantitative data (Appendix E). Access to environmental support was the average of multiple factors related to the environment (Appendix E). These were combined since they appeared to be overlapping and difficult to separate. For example, 'Financial resources/ funding' might be related to 'Suitable staffing'. Dummy variables were created for years of teaching experience since there were four groups (Field, 2009). Age was originally included in the regression models, but it was removed as it was found to be non-significant across all four multiple-linear regression models. Also, it complicated the analysis due to being another dummy variable with four groups.

Hierarchical blockwise entry was used to input the predictor variables into the four multiple-linear regressions models. Hierarchical regression is a statistical method used to show whether individual predictor variables explain a statistically significant amount of variance of the outcome variable after accounting for all other variables within the model (Field, 2009). Three models were generated from the hierarchical blockwise entry for each of the multiple-linear regressions (Table 5). The input of the eleven variables into the chosen Models were determined by the literature review. Model A included variables identified within the literature review as being predictors of teachers' attitudes towards the inclusion of students with DS. Model B included the new predictor variables regarding engagement with the social and medical model of disability. Model C included previously found non-significant predictor variables from DS research included the teachers' gender and years of teaching experience.

Interaction effects were also explored within the four multiple-linear regression models. An interaction effect is the simultaneous effect of two or more predictor variables on an outcome variable (Lavrakas, 2008). It is important to explore this as it shows how

predictor variables are working together, it provides a better representation of the relationship between predictor and outcome variables, and it explains more of the variability in the outcome variable (Lavrakas, 2008). To avoid problems with multicollinearity, centred variables were created before creating product terms. Interactions found were included in Model A of the regression model (Table 5). This included the interaction between experience of inclusion of DS and understanding of inclusive practice, as well as the interaction between experience of inclusion of DS and knowledge of DS as a condition. The nature of the interaction effects found in the multiple-linear regression models were explored using scatter plots (Appendix F). Correlations were calculated for the groups that were created and categorised as; perfect (+/- 1), strong (+/- 9,8,7), medium (+/- 6,5,4), weak (+/- 3,2,1) and zero (0) (Fisher & Warren, 2011)

A significance level of 0.05 was set for the multiple-linear regressions. This reduces the likelihood of falsely concluding there has been an effect when there has not. Significant variables were analysed further using effect size which is a standardised measure of the magnitude of a phenomenon. Effect sizes were calculated using Cohen's f^2, which is a standardised measure of effect size (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012). The effect sizes were categorised as small ($f^2 \geq 0.02$), medium ($f^2 \geq 0.15$), or large ($f^2 \geq 0.35$) (Selya et al., 2012).

Conducting multiple-linear regressions requires the consideration of influential cases and for several assumptions regarding the data to be met (Field, 2009). No influential cases were found in the data and the assumptions of linearity and homoscedasticity, multivariate normality, independent errors and multicollinearity were also considered to be met (Appendix G).

Table 5: *Regression Model Using Hierarchical Blockwise Entry*

Model 1	Model 2	Model 3
• Educational stage taught • Experience of contact with children or adults with DS • Experience of inclusive education of children with DS • Understanding of inclusive practice • Knowledge about DS as a condition • Confidence in their ability to support the needs of children with DS • Access to environmental support for children with DS (overall) • Experience of inclusion of DS x Understanding of inclusive practice • Experience of inclusion of DS x Knowledge of DS as a condition	• Engagement with the medical model of disability • Engagement with the social model of disability	• The teachers' gender • Years of teaching experience

X= interaction effect

2.2.5 Participants

Participants were qualified teachers working in mainstream settings across the UK. Participants were recruited using opportunity sampling, via schools or online recruitment such as social media and networking sites. A total of 100 teachers completed the online questionnaire on Qualtrics, which is an online survey tool. Participants included 88 females and 8 males, of which 69 were primary school teachers and 18 were secondary school teachers. Just over one quarter of the teachers had no experience of supporting a child with DS.

Six of the participants were also involved in the piloting stage. They were sent an online version of the questionnaire to complete, to allow for an evaluation of the methods

used and questions asked in the research (Fisher & Warren, 2011). Any issues raised by the pilot participants were addressed.

2.2.6 Ethical Considerations

This research was approved by Cardiff University Ethics Committee in March 2019. Ethical issues were taken into consideration and actions were implemented (see Major Research Reflective Account).

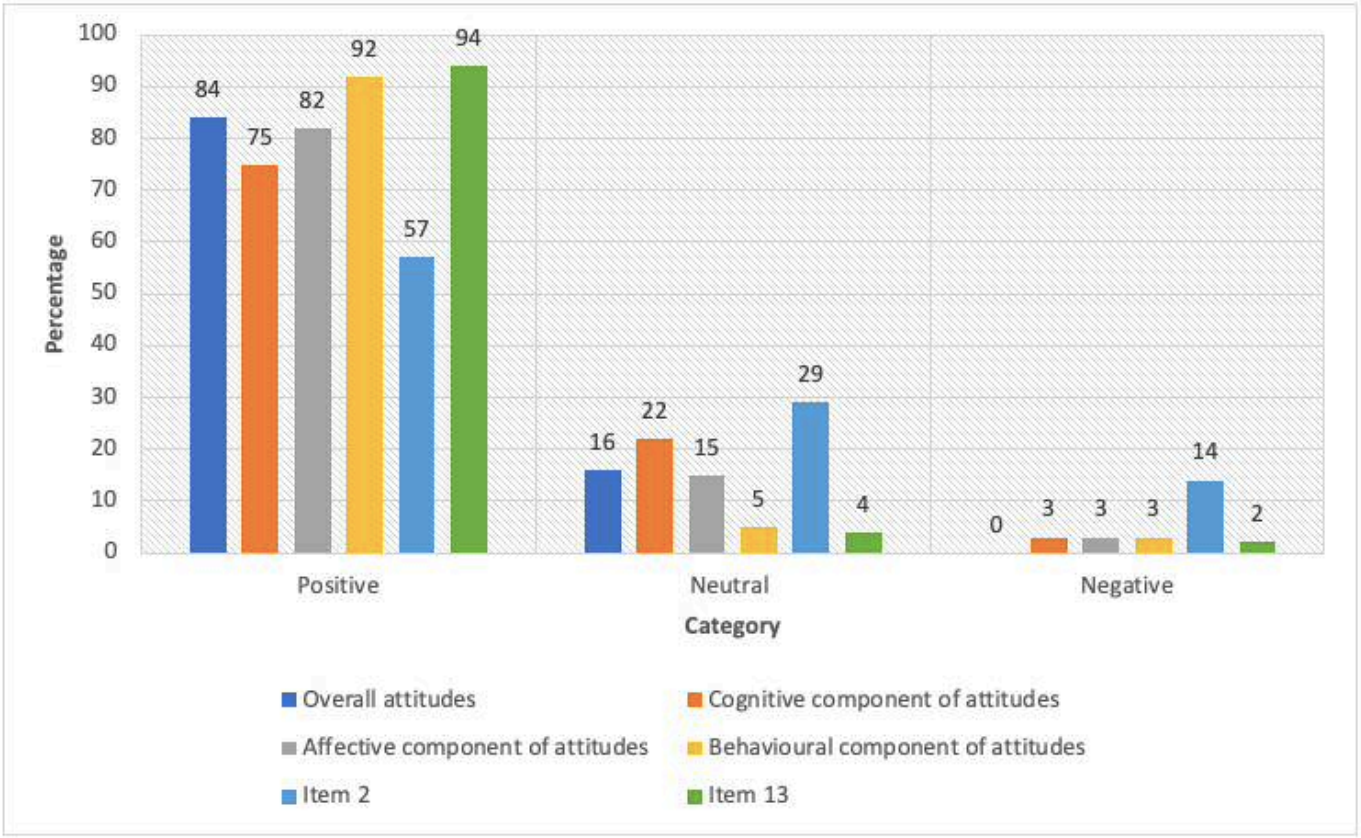
2.3 Results

Table 6: *Descriptive Statistics of Attitude Scores*

MATIES question	Mean attitude item score from a scale of 0-10	Mean attitude dimension score	Mean overall attitude score
1) I believe that an inclusive school is one that permits academic progression of children with Down's Syndrome regardless of their ability. (cognitive)	8.61 (Std. Dev .1.90) (positive)	**Cognitive=** 8.00 (Std. Dev 1.47) (positive)	8.33 (Std. Dev 1.24) (positive)
2) I believe that children with Down's Syndrome should be taught in special education schools. (cognitive) (Reverse scored)	6.62 (Std. Dev 2.40) (neutral)		
3) I believe that inclusion facilitates socially appropriate behaviour amongst children with Down's Syndrome. (cognitive)	8.43 (Std. Dev .1.92) (positive)		
4) I believe that any student with Down's Syndrome can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs. (cognitive)	7.56 (Std. Dev 2.46) (positive)		
5) I believe that children with Down's Syndrome should be segregated because it is too expensive to modify the physical environment of the school. (cognitive) (Reverse scored)	8.76 (Std. Dev 2.00) (positive)		
6) I believe that children with Down's Syndrome should be in special education schools so that they do not experience rejection in the regular school. (cognitive) (Reverse scored)	7.92 (Std. Dev 2.20) (positive)		
7) I get frustrated when I have difficulty communicating with children with Down's Syndrome. (affective) (Reverse scored)	7.33 (Std. Dev 2.53) (positive)	**Affective=** 8.27 (Std. Error 1.54) (positive)	
8) I get upset when children with Down's Syndrome cannot keep up with the day-to-day curriculum in my classroom. (affective) (Reverse scored)	8.08 (Std. Dev 2.50) (positive)		
9) I get irritated when I am unable to understand children with Down's Syndrome. (affective) (Reverse scored)	8.52 (Std. Dev 2.16) (positive)		
10) I am uncomfortable including children with Down's Syndrome in a regular classroom with other children without a disability. (affective) (Reverse scored)	8.95 (Std. Dev 1.66) (positive)		
11) I am disconcerted that children with Down's Syndrome are included in the regular classroom, regardless of the severity of the disability. (affective) (Reverse scored)	8.22 (Std. Dev 2.34) (positive)		
12) I get frustrated when I have to adapt the curriculum to meet the individual needs of children with Down's Syndrome. (affective) (Reverse scored)	8.54 (Std. Dev 1.74) (positive)		
13) I am willing to encourage children with Down's Syndrome to participate in all social activities in the regular classroom. (behavioural)	9.01 (Std. Dev 1.43) (positive)	**Behavioural=** 8.73 (Std. Dev 1.37) (positive)	
14) I am willing to adapt the curriculum to meet the individual needs of all children with Down's Syndrome regardless of their ability. (behavioural)	8.47 (Std. Dev 1.92) (positive)		
15) I am willing to physically include children with Down's Syndrome with a severe disability in the regular classroom with the necessary support. (behavioural)	8.32 (Std. Dev 2.08) (positive)		
16) I am willing to modify the physical environment to include children with Down's Syndrome in the regular classroom. (behavioural)	8.76 (Std. Dev 1.66) (positive)		
17) I am willing to adapt my communication techniques to ensure that all children with Down's Syndrome with an emotional and behavioural disorder can be successfully included in the regular classroom. (behavioural)	8.88 (Std. Dev 1.51) (positive)		
18) I am willing to adapt the assessment of individual children with Down's Syndrome in order for inclusive education to take place. (behavioural)	8.95 (Std. Dev 1.52) (positive)		

Positive scores (≥7), neutral scores (<7 and ≥5), negative scores (<5)

Standard deviation (Std. Dev) is the dispersion of a dataset relative to its mean (2 decimal places)



Positive scores (≥7), neutral scores (<7 and ≥5), negative scores (<5)

Figure 3: Percentage of Positive, Neutral and Negative Attitudes

Table 7: *Multiple-Linear Regression Model for Overall Attitudes*

	Model A			Model B			Model C		
Predictor variable	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***
Intercept	6.675***	.534		6.454***	.617		6.984***	.669	
Primary school *(Educational stage taught)*	-.624**	.231	-.231	-.625**	.234	-.231	-.517*	.236	-.191
Experience of contact with children or adults with DS	.003	.130	.003	.030	.134	.027	.117	.133	.104
Experience of inclusion of DS	.541***	.134	.494	.519***	.137	.474	.367*	.149	.335
Knowledge about DS as a condition	-.129	.129	-.107	-.146	.131	-.121	-.155	.134	-.128
Understanding of inclusive practice	.305*	.146	.169	.290	.151	.161	.163	.153	.090
Confidence in ability to support the needs of students with DS	.084	.127	.071	.095	.128	.081	.179	.137	.152
Access to environmental support for students with DS (overall)	.082	.049	.150	.092	.051	.169	.096	.051	.176
Experience of inclusion of DS*Understanding of inclusive practice	-.460***	.136	-.271	-.441**	.141	-.260	-.396**	.137	-.233
Experience of inclusion of DS* Knowledge about DS as a condition	-.251*	.104	-.231	-.242*	.106	-.222	-.214*	.102	-.196
Engagement with the medical model of disability				.019	.101	.015	.015	.098	.012
Engagement with the social model of disability				.093	.109	.074	.101	.110	.081
Male *(Gender)*							-.770	.413	-.163
Fewer than 6 years *(Years of general teaching experience)*							-.151	.268	-.053
Between 6 and 10 years *(Years of general teaching experience)*							-.501	.261	-.186
Between 11 and 14 years *(Years of general teaching experience)*							-.583	.348	-.148
Adjusted R^2	.561			.554			.590		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The response is compared to female, primary school teachers with over 14 years of general teaching experience

Standard error (Std. Error) is how well a sample represents the population

Table 8: *Multiple-Linear Regression Model for the Cognitive Dimension of Attitudes*

	Model A			Model B			Model C		
Predictor variable	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***
Intercept	6.363***	.757		5.875***	.860		6.515***	.945	
Primary school *(Educational stage taught)*	-.614	.328	-.195	-.623	.326	-.198	-.531	.333	-.169
Experience of contact with children or adults with DS	-.129	.184	-.099	-.059	.187	-.045	.063	.188	.048
Experience of inclusion of DS	.580**	.189	.456	.521**	.191	.410	.296	.210	.233
Knowledge about DS as a condition	.022	.182	.015	-.023	.182	-.016	-.072	.189	-.051
Understanding of inclusive practice	.359	.208	.171	.308	.211	.147	.143	.216	.068
Confidence in ability to support the needs of students with DS	.042	.179	.031	.073	.179	.054	.228	.193	.167
Access to environmental support for students with DS (overall)	.025	.070	.039	.053	.071	.084	.060	.073	.095
Experience of inclusion of DS*Understanding of inclusive practice	-.586**	.193	-.298	-.526**	.197	-.267	-.464*	.193	-.235
Experience of inclusion of DS* Knowledge about DS as a condition	-.214	.148	-.169	-.187	.147	-.148	-.154	.144	-.121
Engagement with the medical model of disability				.010	.141	.007	.005	.138	.003
Engagement with the social model of disability				.256	.152	.176	.250	.155	.172
Male *(Gender)*							-1.244*	.583	-.226
Fewer than 6 years *(Years of general teaching experience)*							-.088	.378	-.027
Between 6 and 10 years *(Years of general teaching experience)*							-.521	.369	-.167
Between 11 and 14 years *(Years of general teaching experience)*							-.438	.492	-.096
Adjusted R2	.346			.357			.394		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The response is compared to female, primary school teachers with over 14 years of general teaching experience

Standard error (Std. Error) is how well a sample represents the population

Table 9: *Multiple-Linear Regression Model for the Affective Dimension of Attitudes*

	Model A			Model B			Model C		
Predictor variable	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***
Intercept	6.427***	.722		6.581***	.836		7.628***	.919	
Primary school *(Educational stage taught)*	-.494	.313	-.150	-.487	.317	-.148	-.453	.324	-.137
Experience of contact with children or adults with DS	.132	.175	.096	.105	.181	.076	.239	.183	.175
Experience of inclusion of DS	.662***	.180	.496	.686***	.185	.513	.436*	.204	.326
Knowledge about DS as a condition	-.286	.174	-.195	-.269	.177	-.183	-.356	.183	-.242
Understanding of inclusive practice	.345	.198	.157	.369	.205	.168	.226	.210	.103
Confidence in ability to support the needs of students with DS	.004	.171	.003	-.010	.174	-.007	.142	.188	.099
Access to environmental support for students with DS (overall)	.111	.067	.167	.100	.069	.150	.077	.071	.116
Experience of inclusion of DS*Understanding of inclusive practice	-.461*	.184	-.223	-.488***	.191	-.236	-.457*	.188	-.221
Experience of inclusion of DS* Knowledge about DS as a condition	-.266	.141	-.200	-.277	.143	-.208	-.231	.140	-.174
Engagement with the medical model of disability				.012	.137	.008	.008	.134	.005
Engagement with the social model of disability				-.106	.148	-.069	-.161	.151	-.105
Male *(Gender)*							-1.052	.567	-.182
Fewer than 6 years *(Years of general teaching experience)*							-.520	.368	-.150
Between 6 and 10 years *(Years of general teaching experience)*							-.721*	.358	-.219
Between 11 and 14 years *(Years of general teaching experience)*							-.284	.478	-.059
Adjusted R2	.461			.449			.480		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The response is compared to female, primary school teachers with over 14 years of general teaching experience

Standard error (Std. Error) is how well a sample represents the population

Table 10: *Multiple-Linear Regression Model for the Behavioural Dimension of Attitudes*

	Model A			Model B			Model C		
Predictor variable	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***	***b***	**Std. Error**	***β***
Intercept	7.235***	.661		6.906***	.762		6.809***	.842	
Primary school *(Educational stage taught)*	-.764**	.286	-.261	-.764**	.289	-.261	-.566	.297	-.193
Experience of contact with children or adults with DS	.006	.161	.005	.044	.165	.036	.050	.167	.041
Experience of inclusion of DS	.380*	.165	.321	.349*	.169	.295	.370	.187	.313
Knowledge about DS as a condition	-.121	.159	-.093	-.146	.162	-.112	-.037	.168	-.028
Understanding of inclusive practice	.213	.181	.109	.193	.187	.099	.120	.192	.062
Confidence in ability to support the needs of students with DS	.206	.157	.162	.221	.159	.174	.167	.172	.132
Access to environmental support for students with DS (overall)	.109	.061	.185	.124	.063	.209	.151*	.065	.255
Experience of inclusion of DS*Understanding of inclusive practice	-.333	.169	-.182	-.307	.174	-.167	-.266	.172	-.145
Experience of inclusion of DS* Knowledge about DS as a condition	-.274*	.129	-.233	-.261*	.130	-.222	-.256*	.128	-.217
Engagement with the medical model of disability				.034	.125	.025	.031	.123	.023
Engagement with the social model of disability				.130	.135	.096	.214	.138	.158
Male *(Gender)*							-.013	.519	-.002
Fewer than 6 years *(Years of general teaching experience)*							.154	.337	.050
Between 6 and 10 years *(Years of general teaching experience)*							-.260	.328	-.089
Between 11 and 14 years *(Years of general teaching experience)*							-1.028*	.438	-.241
Adjusted R2	.425			.418			.445		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The response is compared to female, primary school teachers with over 14 years of general teaching experience

Standard error (Std. Error) is how well a sample represents the population

2.3.1 The MATIES

Table 6 demonstrates the mean, standard deviation and categorisation for each item, each dimension and for overall attitudes. Some key findings include that overall attitudes were found to be on average positive (8.33, Std. Dev 1.24), as were all three dimensions; cognitive (8.00, Std. Dev 1.47), affective (8.27, Std. Dev 1.54) and behavioural (8.73, Std. Dev 1.37). Out of the 18 items in the MATIES, 17 of the mean scores were categorised as positive. Item 2 had the lowest mean score and was the only item categorised as neutral (6.62, Std. Dev 2.40). Item 13 had the highest mean score (9.01, Std. Dev 1.43).

Figure 3 illustrates percentages of the teachers who had positive, neutral and negative attitudes. It was found that out of the 100 teachers, 84% had positive attitudes, 16% had neutral attitudes and 0% had negative attitudes towards the inclusion of children with DS. Item 2 and 13 were included due to having the highest and lowest mean scores. Item 2 had the highest number of negative responses and neutral responses; 14% of teachers were negative and 29% were neutral. Item 13 had the highest percentage of positive scores; 94% of teachers had positive attitudes.

2.3.2 Multiple-Linear Regressions

Overall Attitudes

Table 7 represents the first multiple-linear regression with the outcome variable of overall attitudes. All three regression models demonstrated statistical significance, Model A ($F(9,69) = 12.058$, $p = .000$), Model B ($F(11,67) = 9.795$, $p = .000$), Model C ($F(15,63) = 8.483$, p.000). Model A accounted for 61.1% of the variance in attitudes towards the inclusion of children with DS. Introducing the engagement with the medical model of disability and engagement with the social model of disability variables meant that Model B explained 61.7% of the variance in attitudes. Adding the teachers' gender and years of teaching experience meant that Model C explained 66.9% of the variance in attitudes.

Three significant variables were found to influence overall attitudes to the inclusion of children with DS across the three Models. These included educational stage taught (Model A effect size= 0.19, $p < 0.01$; Model B effect size= 0.20, $p < 0.01$; Model C effect size= 0.16, $p < 0.05$), experience of inclusion of DS (Model A effect size= 0.24, $p < 0.001$; Model B effect size= 0.22, $p < 0.001$; Model C effect size= 0.10, $p < 0.05$) and understanding of inclusive practice (Model A effect size= 0.06, $p < 0.05$).

Across the three Models, statistically significant interaction effects were also found between experience of inclusion of DS and understanding of inclusive practice (Model A $p < 0.001$, Model B $p < 0.01$, Model C $p < 0.01$). The correlation between experience of inclusion of DS and overall attitudes was strong if you had low understanding of inclusion (r=0.76), medium for moderate understanding (r=0.57), and weak for high levels of understanding (r=0.24) (Appendix F).

The interaction between experience of inclusion of DS and knowledge of DS as a condition were also significant across all three Models (Model A $p < 0.05$, Model B $p < 0.05$, Model C $p < 0.05$). In terms of knowledge of DS as a condition, the correlation between experience of inclusion of DS and overall attitudes was medium if you have low knowledge of DS (r=0.55), weak for moderate knowledge of DS (r=0.38), and medium if you have high levels of knowledge of DS (r=0.65) (Appendix F).

Cognitive Dimension of Attitudes

The second multiple-linear regression was conducted with the outcome variable of the cognitive dimension of attitudes (Table 8). All three regression models demonstrated statistical significance, Model A (F (9,69) =5.586, p=.000), Model B (F (11,67) =4.930, p=.000), Model C (F (15,63) =4.379, p.000). Model A accounted for 42.1%, Model B accounted for 44.7%, and Model C accounted for 51.0% of the variance in the cognitive dimension of attitudes.

The cognitive dimension of attitudes can be predicted by two variables, namely experience of inclusion of DS (Model A effect size= 0.13, $p < 0.01$; Model B effect size= 0.11, $p < 0.01$) and gender of the teacher (Model C effect size= 0.07, $p < 0.05$). A statistically significant interaction effect was found between experience of inclusion of DS and understanding of inclusive practice in all three Models; (Model A $p < 0.01$, Model B $p < 0.01$, Model C $p < 0.05$). The correlation between experience of inclusion of DS and the cognitive dimension of attitudes was strong if you have a low understanding of inclusion (r=0.73), medium for a moderate understanding (r=0.49), and almost zero for high levels of understanding (r=0.08) (Appendix F).

Affective Dimension of Attitudes

The third multiple-linear regression was conducted with the outcome variable of the affective dimension of attitudes (Table 9). All three regression models demonstrated statistical significance, Model A (F (9,69) =8.420, p=.000), Model B (F (11,67) = 6.789,

p=.000), Model C (F (15,63) =5.809, p.000). Model A accounted for 52.3%, Model B accounted for 52.7%, and Model C accounted for 58.0% of the variance in attitudes towards affective dimension of attitudes.

The affective dimension had two significant variables: experience of inclusion of DS (Model A effect size= 0.19, $p < 0.001$; Model B effect size= 0.20, $p < 0.001$; Model C effect size= 0.07, $p < 0.05$) and years of general teaching experience (Model C effect size= 0.07, $p < 0.05$). A statistically significant interaction effect was found between the experience of inclusion of DS and understanding of inclusive practice in all three Models (Model A $p < 0.05$, Model B $p < 0.001$, Model C $p < 0.05$). The correlation between experience of inclusion of DS and the affective dimension of attitudes was strong if you have a low understanding of inclusion (r=0.72), medium for a moderate understanding (r=0.56), and weak for high levels of understanding(r=0.31) (Appendix F).

Behavioural Dimension of Attitudes

The fourth multiple-linear regression was conducted with the outcome variable of the behavioural dimension of attitudes (Table 10). All three models contributed significantly to the regression model, (F (9,69) =7.398, p=.000), (F (11,67) =6.099, p=.000), (F (15,63) =5.177, p.000). Model A accounted for 49.1%, Model B accounted for 50.0%, and Model C accounted for 55.2% of the variance in the behavioural dimension of attitudes.

The behavioural dimension had the following four significant variables: educational stage taught (Model A effect size= 0.29, $p < 0.01$; Model B effect size= 0.30, $p < 0.01$), experience of inclusion of DS (Model A effect size= 0.08, $p < 0.05$; Model B effect size= 0.06, $p < 0.05$), access to environmental support for children with DS (Model C effect size= 0.04, $p < 0.05$), and years of general teaching experience (Model C effect size= 0.011, $p < 0.05$). A statistically significant interaction effect was found between experience of inclusion of DS and knowledge of DS as a condition in all three Models (Model A $p < 0.05$, Model B $p < 0.05$, Model C $p < 0.05$). The correlation between experience of inclusion of DS and the behavioural dimension was medium if you have a low knowledge of DS (r=0.41), weak for moderate knowledge of DS (r=0.10), and medium if you have high levels of knowledge of DS (r=0.65) (Appendix F).

2.4 Discussion

The following research questions were explored in this research:

1. *What are mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*
2. *What variables impact on mainstream teachers' overall attitudes, as well as the dimensions of attitudes towards the inclusion of children with DS?*

2.4.1 What Are Mainstream Teachers' Overall Attitudes, as well as the Dimensions of Attitudes Towards the Inclusion of Children with Down's Syndrome?

Overall Attitudes Towards the Inclusion of Children with Down's Syndrome

This research identified that teachers' have on average positive attitudes towards the inclusion of children with DS (8.33, Std. Dev 1.24). A range of neutral (16% of teachers) to positive (84% of teachers) attitudes were found. The provides novel findings in this area, as previous research had mixed findings resulting in difficulties drawing clear conclusions. Since this is the only research conducted on attitudes and DS in the last 14 years and on average positive attitudes were found, it could be suggested that these findings confirm a shift to more positive attitudes to inclusion over time (Lindsay, 2007). In addition, as prior research has highlighted the majority of teachers to hold neutral or negative attitudes toward inclusion of children with SEND (Avramidis & Norwich, 2002; De Boer et al., 2011), and this research found neutral to positive attitudes, this findings also suggests that teachers could be more positive about the inclusion of children with DS than other forms of SEND. The findings could be related to attribution theory Weiner (1985) which explores the perception of responsibility. It has been found that categorical labels may sometimes have a protective effect on negative attitudes, as feelings of sympathy might be evoked when there is the belief that the person is not responsible for their actions (Lambert & Frederickson, 2015).

In this research attitudes are considered to be multidimensional, comprising of three key parts: 'cognitive' that reflects what is known about DS, 'affective' is the emotional reaction to children with DS, and 'behavioural' that includes either actual or intended behaviours towards children with DS (Eagly & Chaiken, 1993; Nowicki & Sandieson, 2002). The MATIES measured all three dimensions and teacher attitudes for all of them were separately found to be on average positive. The findings included the behavioural dimension had the highest score (8.73, Std. Dev 1.37), followed by the

affective dimension (8.27, Std. Dev 1.54), whilst the cognitive dimension had the lowest mean score (8.00, Std. Dev 1.47). This suggests the actual or intended behaviour of teachers is more inclusive than their emotional reaction and their beliefs or knowledge about educating children with DS. The behavioural dimension being the highest could be because teachers are professionals who genuinely want to do what is best for all students (Squires, 2012). In line with The Theory of Planned Behaviour (Ajzen, 1987), the cognitive, behaviour and affective dimensions of attitudes being on average positive should play a considerable role in the successful implementation of inclusive education (De Boer et al., 2011; MacFarlane & Woolfson, 2013). It is, however, important to consider that for all three dimensions there were teachers with a range of negative, neutral and positive attitudes.

The findings from the MATIES can be broken down further into the results from the items. The item with the lowest mean score and the only average neutral mean attitude score was item 2 which stated 'I believe that children with Down's Syndrome should be taught in special education schools' (6.62, Std. Dev 2.40). As the item was reversed scored this could be considered to measure attitudes towards the inclusion of children with DS attending mainstream educational settings. The neutral attitudes could suggest that teachers were on average neither positive nor negative about children with DS being taught in special education schools. When considering the percentages of teachers who hold certain attitudes, 57% disagreed that children with DS should attend special educational settings, 29% were neutral and 14% of teachers were in support of children attending special schools, this finding could suggest that just over half of the teachers believed children with DS should be educated in mainstream settings, while the remaining were either neutral towards this or have a preference for special educational settings. It can also be concluded that teachers hold a range of negative to positive attitudes regarding setting.

This research supports findings on teachers' thinking that mainstream and special educational settings were equally suitable for children with DS (Campbell et al., 2003; Gilmore et al., 2003; Petty & Sadler, 1996). This suggests teachers see the value of special educational settings (Croll & Moses, 1999). The value for special educational settings could be due to mainstream teachers having the perception that special educational settings have more support available. For example, it has been believed that mainstream educational settings may be unable to provide individualised language teaching and regular access to specialist professionals, such as speech and language therapists (Laws et al.,

2000). Special educational settings have also been associated with developing children's daily living skills, including practical and personal care, which is often seen as a priority for children with SEND (Bird & Buckley, 1999).

The item on the MATIES that teachers were most positive about was item 13. This item stated, 'I am willing to encourage children with Down's Syndrome to participate in all social activities in the regular classroom' (9.01, Std. Dev 1.43). This could be considered to measure the social aspect of inclusion, suggesting that teachers are very positive about the social inclusion of children with DS. Tuersley-Dixon & Frederickson (2016) researched the social inclusion of children with complex needs and found them to have equivalent social inclusion to their mainstream classmates. They went on to suggest that social acceptance was associated with the visibility of a child's disability with children with more obvious needs, such as DS, being more socially accepted than their peers with less visible disabilities. Social exchange theory suggests that the desire for affiliation with others relates to the sum of the perceived costs and benefits of interacting with them (Lambert & Frederickson, 2015). Children with DS tend to show strengths in social understanding and social development, therefore, it could be considered that these attributes mean there are increased benefits in interacting with them, which could contribute to positive attitudes (S. Buckley, Bird, & Sacks, 2006). This could also be related to the perception that these children will need less social inclusion support development (S. Buckley, Bird, & Sacks, 2006).

Previous research on DS has compared the findings on social inclusion to academic inclusion suggesting that teachers were more positive about the social aspect of inclusion than academic aspects of inclusion (Campbell et al., 2003; Petty & Sadler, 1996). Therefore, this research compared item 13 with item 14: 'I am willing to adapt the curriculum to meet the individual needs of all children with Down's Syndrome regardless of their ability', which could be considered to measure attitudes towards academic inclusion. Attitudes towards academic inclusion were still positive (8.47, Std. Dev 1.92), however were less positive than social inclusion (9.01, Std. Dev 1.43), supporting previous research. Attitudes towards academic inclusion could reflect the current educational climate of results and performance-based accountability, with an emphasis on students' academic performance. Fox et al. (2004) found league tables and examination results can lead to tensions between school staff wanting to include a child with DS, while at the same time raising the academic achievements of the 30 or so other learners in the class (Fox et al., 2004; Kendall, 2017). Similarly, throughout the years, there has been a strong bias for the more intellectually

able and higher-functioning students to be placed in a mainstream school (Cunningham et al., 1998). Whilst some young people with DS gain academic qualifications most are likely to have difficulties accessing and engaging with academic curriculum, particularly in secondary school (Down's Syndrome Association, n.d.-c). Many researchers argue that the curriculum is not inclusive for this reason (Lambert & Frederickson, 2015).

2.4.2 What Variables Impact on Mainstream Teachers' Overall Attitudes, as Well as the Dimensions of Attitudes Towards the Inclusion of Children with Down's Syndrome?

The variables found to predict overall attitudes, or an attitude dimension can be grouped into teacher-related practice variables, teacher-related demographic variables, and educational-environmental-related variables. Teacher-related variables have been further dissected from previous research (Avramidis & Norwich, 2002).

Teacher-related Practice Variables

The teacher-related practice variables found to be a significant predictor of attitudes or a dimension of attitudes include experience of inclusion of DS and understanding of inclusion. There was also found to be significant interactions between experience of inclusion of DS and understanding of inclusion, as well as between experience of inclusion of DS and knowledge of DS as a condition.

This research found that experience of inclusion of DS had a positive association with attitudes towards the inclusion of children with DS. Experience of inclusion of DS had a positive small to medium significant association with overall attitudes (Model A effect size= 0.24, $p < 0.001$; Model B effect size= 0.22, $p < 0.001$; Model C effect size= 0.10, $p < 0.05$), a small significant association with the cognitive dimension (Model A effect size= 0.13, $p < 0.01$; Model B effect size= 0.11, $p < 0.01$), a small to medium significant association with the affective dimension (Model A effect size= 0.19, $p < 0.001$; Model B effect size= 0.20, $p < 0.001$; Model C effect size= 0.7, $p < 0.05$), and a small significant association with the behavioural dimension (Model A effect size= 0.08, $p < 0.05$; Model B effect size= 0.06, $p < 0.05$). This is in line with previous research suggesting that the experience of inclusion is a variable that is linked to teachers' attitudes towards the inclusion of children with DS (Johnson, 2006; Petley, 1994).

Novel findings in this research include the interaction effects between experience of inclusion of DS and understanding of inclusion as well as experience of inclusion and knowledge of DS. Cole, Gaeth, & Singh (1986) describe how self-report measures may

reflect self-confidence more than any actual state of knowledge. This is because people who are self-confident may report more knowledge than those with less confidence. This implies the findings provide insights into teachers' confidence of their knowledge of DS and their confidence in their understanding of inclusion. This was considered in the interpretation of the findings.

Teachers' confidence in their understanding of inclusion was only found to have a small significant positive association with overall attitudes towards inclusion in one Model (Model A effect size=0.06, $p < 0.05$), however its interaction with experience of inclusion of DS was significant in all three Models for overall attitudes (Model A $p < 0.001$, Model B $p < 0.01$, Model C $p < 0.01$), the cognitive dimension (Model A $p < 0.01$, Model B $p < 0.01$, Model C $p < 0.05$) and the affective dimension of attitudes (Model A $p < 0.05$, Model B $p < 0.001$, Model C $p < 0.05$). This means that the nature of the relationship between experience of inclusion of DS and attitudes changes depending on teachers' confidence in their understanding of the inclusion of children with DS. The correlations suggest the higher the teachers' confidence in their understanding of inclusion, the less the experience of inclusion has an impact on attitudes towards inclusion (Appendix F). Maybe, because the more a teacher thinks they understands inclusion, the less their experience of inclusion matters. Furthermore, this could suggest that having high confidence in their understanding of inclusion is likely to result in a positive attitude towards the inclusion of children with DS, regardless of the individual's experience. As the interaction is significant for the cognitive and affective dimension this suggests that having a high level of confidence in their understanding of inclusion has a positive impact on what teachers know about DS and their emotional reaction to children with DS.

A significant interaction was found between experience of inclusion and teachers' confidence in their knowledge of DS, despite knowledge of DS not being a significant predictor. The interaction was significant in all three Models for overall attitudes (Model A $p < 0.05$, Model B $p < 0.05$, Model C $p < 0.05$) and the behavioural dimension of attitudes (Model A $p < 0.05$, Model B $p < 0.05$, Model C $p < 0.05$). The nature of the relationship between experience of inclusion of DS and attitudes changes depending on the teachers' confidence in their knowledge of DS. When a teacher has moderate confidence in their knowledge of DS, the teachers' experience of inclusion has less of an impact upon attitudes (Appendix F). These results suggest that having moderate confidence in knowledge of DS overrides the value of experience of inclusion on attitudes. When teachers have a low or

high confidence in their knowledge of DS as a condition, experience has more of an impact on attitudes.

The findings on teacher-related practice variables include that experience of inclusion is the most important variable for positive attitudes towards inclusion. The findings on the interactions suggest that, while confidence in understanding of inclusion needs to be high, confidence in knowledge of DS needs to be moderate to have an impact on attitudes towards inclusion. This indicates that there is value in teachers having a high confidence in their understanding of inclusion and moderate confidence in their knowledge of DS if they do not have experience of including children with DS.

Teacher-Related Demographic Variables

The demographic factors found to be significant predictors of overall attitudes or a dimension of attitudes include educational stage taught, teachers' gender and years of teaching experience. For all four multiple-linear regressions, the significance and the effect size of the teacher-related practice variables in Model A reduced when the variables of gender and years of experience were accounted for. This finding suggests that when controlling for the demographic variables of gender and years of experience, some of the effects of the other variables on attitudes can be accounted for.

The findings suggested a medium significant negative association between educational stage taught with overall attitudes (Model A effect size= 0.19, $p < 0.01$; Model B effect size= 0.20, $p < 0.01$; Model C effect size= 0.16, $p < 0.05$) and the behavioural dimension of attitudes (Model A effect size= 0.29, $p < 0.01$; Model B effect size= 0.30, $p < 0.01$). Teachers in primary schools had more positive attitude scores than those in secondary schools. This being significant for the behavioural dimension could suggest that secondary school teachers have significantly less predisposition to act inclusively towards children with DS than primary school teachers. Gilmore et al. (2003) suggested it is easier for children with SEND to be included in early childhood settings as the curriculum is academically less demanding. This can be influenced by the gap between those with DS and their peers widening as they get older (Gilmore et al., 2003; Wishart & Manning, 1996). Also, it has been suggested that it could be that teachers trained to work with younger children have more positive attitudes because their training tends to focus more on developmental issues. Likewise, it has been argued that the ethos of primary schools tends to be more holistic and inclusive, whilst the ethos and structure of secondary schools is more subject-based (Avramidis & Norwich, 2004). Research suggests that the more

teachers are subject driven, as it is in secondary schools, the more this has a negative impact on attitudes towards inclusion (Avramidis & Norwich, 2002). These findings could explain the reason for there being challenges with children with DS attending mainstream secondary schools. Cunningham et al. (1998) found that although approximately 70% to 80% of pupils with DS in the UK begin their education in mainstream primary schools, with only 20% to 25% complete their education in mainstream secondary schools. Despite this research being dated, the findings mirror the current context as there appears to be a discrepancy in the number of children with DS attending mainstream primary and secondary schools.

This current research also found that the teachers' gender was a small significant predictor of the cognitive dimension of attitudes, with females being more positive than males (Model C effect size= 0.07, $p < 0.05$). This is shown in the descriptive statistics suggesting females had on average positive attitudes (8.10, Std. Dev 5.32), while males had neutral attitudes (6.75, Std. Dev 3.26) for the cognitive dimension of attitudes. This suggests that female teachers have more positive thoughts about the inclusion of children with DS than male teachers. This could be considered to relate to the findings from Sirlopu et al. (2008) around females holding more positive stereotypes than males about people with DS. It could be possible that gender being a predictor of the cognitive dimension is related to females, as mothers are more sensitive, emotional and sympathetic about the continuing care of children with mental disabilities (Alghazo & Naggar Gaad, 2004).

Another significant predictor for the affective and behavioural dimension of attitudes was the amount of teaching experience. For the affective dimension, there was a small significant difference (Model C effect size= 0.07, $p < 0.05$), with those with between 6 and 11 years of general teaching experience having more negative attitudes than 14 years of teaching experience. For the behavioural dimension, there was also a small significant difference (Model C effect size= 0.011, $p < 0.05$), with those with between 11 and 14 years of general teaching experience having more negative attitudes that those with more than 14 years of teaching experience. The results indicated that teachers who have less years of general teaching experience have more negative affective and behavioural attitudes. This suggest the more years of experience teachers have, the more positive their feelings towards inclusion and the higher their predisposition to act inclusively becomes. Previous research on SEND often reports an impact of years of experience, although the direction of the finding has varied (Avramidis & Norwich, 2004; De Boer et al., 2011). In this research, it

could be considered that the findings relate to newly qualified teachers not having the experience of working inclusively with students with DS (Alghazo & Naggar Gaad, 2004).

Educational-Environmental-Related Variables

In line with previous research on DS, access to environmental support for children with DS was found to have a small significant positive association with attitudes, specifically the behavioural dimension of attitudes (Model C effect size= 0.04, $p < 0.05$). These findings suggest the extent to which teachers think they have environmental support often impacts the way they behave or intend to behave towards children with DS, although not the way they think or feel about children with DS. This could be due to the implementation of an inclusive programme placing a demand on environmental support factors (Avramidis, Bayliss, & Burden, 2000). It is not surprising to find that environmental support does not impact on the affective dimension i.e. how teachers' feel about children with DS.

Non-Significant Predictors of Overall Attitudes and the Dimensions of Attitudes

It is also interesting to consider the variables that were found to be non-significant. The finding that experience of contact with children or adults with DS was non-significant challenges earlier research (Wishart & Manning, 1996) and the 'Contact hypothesis' by Allport (1954). Other research has however suggested that it could be that increased contact with children or adults predicts more positive attitudes directly towards people with DS (Macmillan, Tarrant, Abraham, & Morris, 2014). Confidence in their ability to support the needs of children with DS was also non-significant and goes against previous findings that suggests positive teacher attitudes towards inclusion are likely to be related to feelings of self-efficacy in their ability to meet the needs of such children (Petty & Sadler, 1996). Significant findings were, however, found in confidence in their understanding of inclusion and knowledge of DS. Engagement with the social model of disability and engagement with the medical model of disability were added to the regression model as additional covariates in Model B in order to see whether attitudes are moderated by the addition of these new factors. The coefficient scores remained fairly constant from Model A to B, with only a 0.6% increase in the variance explained for overall attitudes, 2.6% for the cognitive dimension, 0.4% for the affective dimension and 0.9% for the behavioural dimension. This suggests that these two variables are not likely to be having much of an impact on attitudes. Knowledge about DS as a condition was not found to be significant as a variable on its own, however, its interaction with experience of inclusion was significant.

Age of the teacher was also found to be non-significant, although it was removed from the regression model.

Overall, these findings suggest that direct contact with children with DS, self-efficacy, the way people view disability, knowledge about DS, and age of the teacher does not necessarily lead to favourable changes in attitude.

2.5 Author's conclusions

2.5.1 Implications of the Research

There are implications of the findings for service users, namely children with DS and their parents. Faragher (2019) describes how research into DS improves the broader understanding of DS, in order to enable informed decisions at critical points in time. One example of this is that teachers were found to be more positive about social inclusion than academic inclusion. This could mean that children with DS and their parents are likely to experience difficulties around times of academic pressure, such as Statutory Assessment Tests (SATS). Having an understanding of these difficulties might help inform decisions at key points in time.

Inclusion is notably an important part of the work of Educational Psychologists (EPs) (Lambert & Frederickson, 2015). Much of the work of EPs is carried out at an individual-child level, and these research findings could be considered to have an impact at this level. For example, some teachers were found to have neutral attitudes, and in line with the Theory of Planned Behaviour this could be considered to be a contributory barrier to successful inclusion. Working with teachers could also be a useful process as recognising ableist values and practices and seeking to disestablish ableist attitudes is thought to result in more positive attitudes (Cologon, 2013).

Research suggests this transition can be difficult for parents with a child with DS and therefore, is a time where support from professionals, such as EPs, is required (Byrnes, 2012; Lightfoot & Bond, 2013). Attitudes were found to be positive overall, but secondary school teachers were found to hold on average, less positive attitudes towards the inclusion of children with DS. This is something to consider when children are transitioning from primary to secondary school. In addition to this, teachers had neutral attitudes towards mainstream settings which might influence the decisions that are made about which settings children with DS should attend at points of transition. Parents have the right to choose the type of school they wish their child to attend (All Party Parliamentary Group on Down Syndrome, 2012), and attitudes of school staff are considered to be one of the most important factors influencing parents' choice of placement for their child with DS (Devarakonda, 2005; Kendall, 2017).

EPs also have an important role in delivering training to school staff. The research findings suggest the value of providing training for teachers both during teacher training and in-school training. The findings emphasise the value of teachers gaining experience in

the inclusion of DS, having high confidence in their understanding of inclusion and having moderate confidence in their knowledge of DS as a condition. It is important to note that knowledge of DS was not found to be a significant predictor on its own and understanding of inclusion was only significant in one Model of overall attitudes. This is reflected in previous research which suggests that information-based training results in changes in knowledge but not necessarily more positive attitudes towards inclusion (Campbell et al., 2003). This highlights the importance of combining information with practical experience of inclusion. Campbell et al. (2003) confirm this by illustrating the value of combining information-based instruction with structured fieldwork experiences in changing attitudes towards disability and inclusion.

This research also highlights the importance of environmental factors, particularly around teachers having time, on the behavioural dimension of attitudes. The findings indicate the amount of environmental support teachers anticipate having for children with DS in schools is low, with an average score of 4.89 (on a scale of 0-10, 0 being the lowest and 10 the highest). The factors teachers felt they had the least of were related to time in term of planning and reflective practice (Figure 4). It could be suggested that the low scores in these areas make the placement of these children challenging (Avramidis et al., 2000). In addition, reflective practice in itself is thought to be important for more positive attitudes towards inclusion (Cologon, 2013). Headteachers have a role in ensuring teachers have enough time to meet the needs of children with SEND, particularly around time for planning and reflective practice.

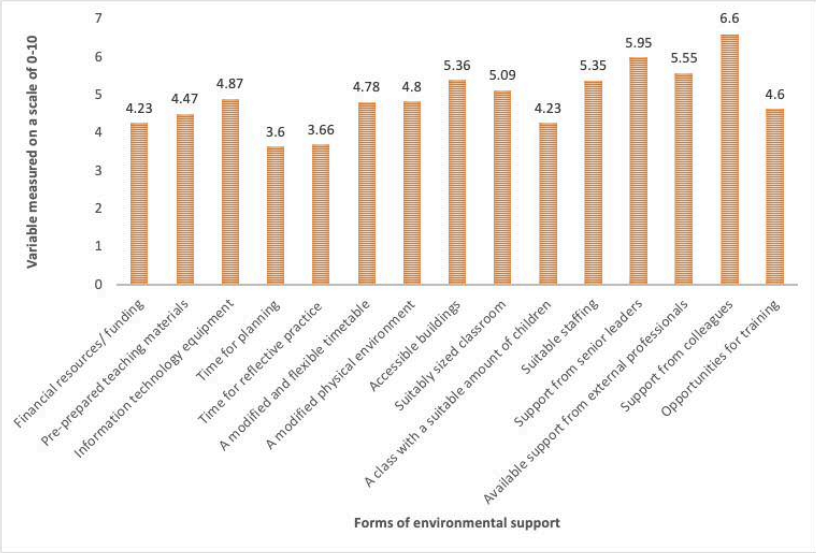


Figure 4: The Extent to Which Teachers Think Their Schools Have Forms of Environmental Support for Students with Down's Syndrome

2.5.2 Limitations

On average, attitudes were found to be positive. Some of the methods used in this research might have skewed the results. Convenience sampling was used which may present a limitation, in terms of self-selection bias and a specialist interest bias with regards to the people who completed the questionnaire. The recruitment method was via DS websites, which could have been more likely to attract teachers with an interest, possible preconceived views and a consideration of a strength inclusion. To avoid this, participant could have been recruited exclusively from schools and across all staff members. The participants might have also been more positive than the representative population of teachers. Out of the 100 participants, 88 were females and 69 were primary school teachers and females and primary school teachers were found to have more positive attitudes towards the inclusion of children with DS. Information on the teacher workforce published in 2020 suggests that there are roughly an equal number of primary and secondary teachers, and that around 75% if these are females (Department for Education, 2020).

Using questionnaires to measure teachers' attitudes towards inclusion appears to be a widely used and accepted method for measuring attitudes. One potential limitation of a questionnaire is that it is a self-report measure which can invite socially desirable responses (Gilmore et al., 2003). Socially desirable responses are ones in which respondents give responses that are honest but positively biased or, answers that portray them in in the best possible way (Fisher & Warren, 2011). Another potential limitation of using a questionnaire is that attitudinal ambivalence might not have been captured. Attitude ambivalence can be described as a person holding mixed attitudes (positive and negative) towards the same object (Conner & Sparks, 2002). Methods that measure subjective or implicit attitudes could be considered to be preferable for measuring attitudes. Implicit attitude tests would have offered a more robust measurement in terms of measuring a person's positive or negative bias (Mencap, 2015). Forms of implicit attitude test that could be used alongside explicit attitude tests in future research include timed word sorting tests such as the 'Implicit Association Test' (IAT) (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Mencap, 2015). Using a combination of qualitative and quantitative methods may have also helped recognise teachers subjective attitudes (Fisher & Warren, 2011). Future research would, therefore, benefit from using a mixed-methods design which was the original aim of this research. Another technique that could have been useful for extracting teachers' subjective attitudes is Q methodology (Cross, 2005). Q

methodology requires the participants to sort a set of attitude phrases or into piles according to some criterion, such as favourability, intensity of agreement, or descriptiveness (Antonak & Livneh, 2000). This is then sorted and analysed onto clusters and the participants are characterised (Antonak & Livneh, 2000).

2.5.3 Future Research

In line with the Theory of Planned Behaviour, positive attitudes are considered to contribute to inclusive behaviours (Mahat, 2008). The extent to which attitudes are translated into actual behaviours was, however, not tested in this research. This is important to consider since, despite research generally emphasising the impact of attitudes on behaviour, some research has challenged this claim (Gilmore et al., 2003). For example, research has found that the teachers' personality and sense of professionalism has resulted in inclusive behaviours, regardless of the attitudes held (Gilmore et al., 2003). Future research would benefit from measuring the impact of these variables on attitudes as well as the resulting inclusive behaviours, and the Theory of Planned Behaviour provides a useful framework to do so (Mahat, 2008).

The variables of engagement with the social model of disability and engagement with the medical model of disability were included, as previous research findings from Runswick-Cole (2008) suggested engagement with models of disability are associated with attitudes towards educational settings. Descriptive statistics collected on the medical and social model of disability suggested that overall, teachers are more engaged in the medical model of disability than they are in the social model of disability (Figure 5). This research did not explore the variables that predicted specific items on the MATIES, and it could have been useful to explore the impact of engagement with models on item 2, which measured attitudes towards educational setting, was the only neutral score. In line with the findings from Runswick-Cole (2008), it could be that teachers leaning towards special educational settings, reflects their engagement with the medical model of disability. Future research into these variables, as well as other variables that could be related, would be beneficial to measure those that predict teachers' attitudes towards educational setting.

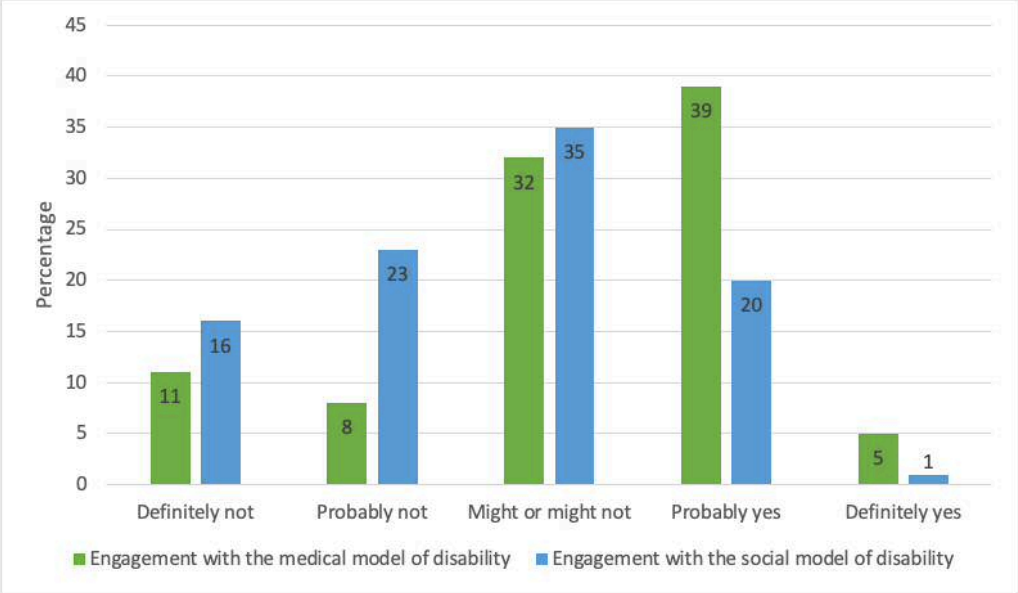


Figure 5: The Extent to Which Teachers Are Engaged with the Social and Medical Model of Disability

2.6 Summary

This research aimed to explore teachers' attitudes towards the inclusion of children with DS within mainstream educational settings and the influencing variables using psychometric measures. Research in the field of DS is considered to be under threat (Faragher, 2019). Prior to this research, no research has been conducted in the last 14 years on teachers' attitudes towards the inclusion of students with DS. Also, previous research did not use psychometrically sound instruments for measuring attitudes. This research used the MATIES, which is a psychometric measurement of attitudes which is also multidimensional. Findings on the dimensions provide novel research findings as are findings on the interactions of the variables.

The findings include that teachers' overall attitudes towards the inclusion of children with DS are, on average, positive. This suggests that teachers are more positive about the inclusion of children with DS than found in previous research or other forms of SEND. Despite having positive attitudes overall, teachers have on average, neutral attitudes towards inclusion in educational settings, with 57% disagreeing that children with DS should attend special educational settings, 29% being neutral towards special schools, and 14% of teachers in support of children attending special schools. Other findings include that teachers were most positive about the social inclusion of children with DS and in line with previous research, it was found that teachers were more positive about the social aspect of inclusion than academic aspects of inclusion. In the context of inclusive education, attitudes are considered to be multidimensional, comprising of three key parts: cognitive, affective and behavioural. Teacher attitudes for all of the dimensions were separately found to be positive, with the behavioural dimension being the most positive.

The variables that predict teachers' overall attitudes towards inclusion and the dimensions of attitudes were explored. The variables found to predict teachers' attitudes towards the inclusion of children with DS were grouped into teacher-related practice variables, teacher-related demographic variables, and educational-environmental-related variables. Teacher-related practice variables found to positively predict attitudes towards inclusion were experience of inclusion of DS and confidence in their understanding of inclusive practice. Two significant interaction effects were found. The results suggest the higher the teachers' confidence in their understanding of inclusion, the less experience of inclusion has an impact on attitudes towards inclusion. In addition, when a teacher had moderate confidence in their knowledge about DS, the teachers' experience of inclusion has less of an impact upon attitudes. Therefore, confidence in their understanding of inclusion needs to be high and confidence in their knowledge of DS needs to be moderate to have an impact on attitudes towards inclusion.

Teacher-related demographic variables were also found to have an impact with males, secondary school teachers and teachers with fewer years of experience, all having more negative attitudes towards the inclusion of students with DS. Teachers' gender was only significant for the cognitive dimension of attitudes, whereas years of general teaching experience was significant for the affective and behavioural dimension. Educational-environmental-related variables were also found, with a positive significant association between access to environmental support and the behavioural dimension of attitudes.

Understanding teachers' attitudes and the variables that predict attitudes towards inclusion enables professionals to implement change to promote successful inclusion. For example, professionals, such as EPs, providing training which provides teachers with a high confidence in their understanding of inclusion and having moderate confidence in their knowledge of DS as a condition alongside as much practical experience of inclusion of children with DS as possible. The limitations of the design could be related to the participants being disproportionally female and from primary schools, biasing attitudes to

appear more positive. Overall, these research findings provide novel and valuable contributions to understanding teachers' attitudes towards the inclusion of children with DS within mainstream educational settings and the influencing variables.

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3. MAJOR RESEARCH REFLECTIVE ACCOUNT

Teachers' Attitudes Towards the Inclusion of Children with Down's Syndrome Within Mainstream Educational Settings and the Influencing Variables

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3.1 The Rationale for the Thesis

3.1.1 Background

From the beginning of this research project, I wanted to focus on an issue that was relevant to children and young people with Down's syndrome (DS), since this is an area of personal interest. This developed whilst I was working as a one-to-one teaching assistant for two children with DS in Year 1 and Year 2 within a mainstream primary school. I became interested in the inclusion of children with special educational needs and disabilities (SEND) through this experience. My interest in this area continued after I completed my teacher training, as an aspect of my role was to include children with SEND into my mainstream classroom.

My interest in this area further developed when I started delivering intervention groups for the 'Down's Syndrome Association'. These were groups that I facilitated in order to provide small group interventions for children with DS around speech, communication and interaction. These groups were also an informal space for parent discussion and inclusion was a common topic of concern raised.

3.1.2 Identifying and Exploring Gaps in the Literature

I started the research project by conducting literature searches on relevant research on DS in an educational context. I considered it important that the research focused on education and was deemed relevant for Educational Psychologists (EPs) and teachers. This process revealed two areas of potential research: transitioning from primary to secondary school and inclusion in mainstream educational settings. Both of these areas were of interest to me and are relevant to the role of an EP. Research is currently being undertaken by researchers at University College London (UCL) and Roehampton University on 'School transition concerns from parents, professionals, and children with Down syndrome and Williams syndrome'. Therefore, I decided to focus on inclusion as there was no current research being carried out and because inclusion is an area of particular relevance to EPs and teachers when working with children with SEND (Lambert & Frederickson, 2015). The inclusion agenda is also of particular relevance to children with DS, since before the focus on inclusion, children with DS were considered 'ineducable', remaining either at home or attending centres run by health authorities to provide day-care and relief for parents (S. Buckley, 2000).

3.1.3 Development of the Research Question

The next stage was to develop a research question. A key paper in helping develop a specific research question came from Fox, Farrell & Davis (2004), who researched the 'factors associated with the effective inclusion of primary-aged pupils with Down's syndrome'. The factors considered to be associated with effective inclusion included the organisation and impact of support arrangements, attitudes of staff and parents towards the inclusion of children with DS and relationships with peers (Figure 6). These findings were researched further and it was identified that teachers' attitudes towards inclusion is an important factor for inclusion (Bird & Buckley, 1999; Cuckle, 1999; Fox et al., 2004; Hughes, 2006; McFadden et al., 2017; Petley, 1994). Therefore, it was considered valuable for the research questions to be focused on attitudes towards inclusion for children with DS. Teachers were selected since teachers are regarded as key persons in the development and implementation of inclusive education (De Boer et al., 2011).

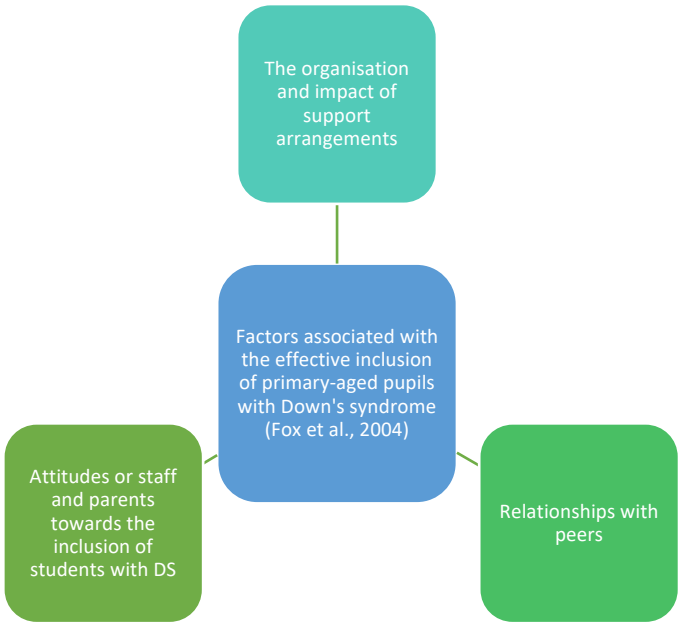

Figure 6: The Factors Associated with Effective Inclusion

The specific research questions that were explored were developed by looking at excising research in the area. For the literature review De Boer et al. (2011) conducted a literature review on "Regular primary schoolteachers' attitudes towards inclusive education: a review of the literature". Their research questions were: (1) attitudes of teachers towards inclusive education, (2) variables which relate to these attitudes, and (3)

the effects of teachers' attitudes on the social participation of pupils with special needs. They found nothing related to question 3, therefore, my literature review included research question 1 and 2. This then informed the empirical paper which provided up to date research on the same research questions.

3.1.4 Theoretical perspective

Social constructionism is one of the most influential perspectives on the Educational Psychology Doctorate at Cardiff University. This recognises that all experiences are historically and socially contingent (Fisher & Warren, 2011). As a practitioner, I adopted a social constructionist stance, however, as a researcher, the theoretical perspective I adopted was of critical realism. Critical realism uses components of both positivist and constructivist approaches to provide a detailed account of ontology and epistemology (Fletcher, 2017). It takes a realist ontology which is the notion that something is real i.e. that attitudes exist. It takes a relativist epistemology which suggests that there are lots of equally valid views of the world. Fletcher (2017) describes how the critical realist stance assumes that human knowledge captures only a small part of a deeper and vaster reality.

Groff (2004) identifies three conditions that are required for critical realism in research. The extent to which the three conditions are met in this research will be explored.

1. It must be intransitive. Bhaskar, one of the key critical realist thinkers, viewed intransitive objects of knowledge as those that would exist whether humans were present or not to investigate them. Attitudes can be said to "pre-exist" in the sense that they exist separately in the mind from the immediate conscious intention behind individual agency (Booker, 2018).
2. It is characterised by ontological depth. Critical realism argues that ontology (i.e. what is real, the nature of reality) is not reducible to epistemology (i.e. our knowledge of reality) (Fletcher, 2017). This is based on the premise that human knowledge captures only a small part of a deeper reality (Fletcher, 2017). This was an assumption taken throughout this research.
3. It contains causal mechanisms. Critical realism argues there are causal mechanisms embedded within unseen structures underpinning psychological events, which it is the task of the researcher to identify. Psychologists consider attitudes to be structures which, when embedded in theory, are assumed to have a causal role in influencing or determining the behaviour of an individual in a particular context at a

particular moment (Booker, 2018). The variables in this research are also considered to have a causal mechanism on attitudes.

3.1.5 The Rationale for the Major Research Literature Review

Part 1 of the research consisted of a literature review on teachers' attitudes towards the inclusion of children with DS within mainstream educational settings and the influencing variables. No literature reviews have previously been conducted on teachers' attitudes towards the inclusion of students with DS. However, two literature reviews were conducted on teachers' attitudes towards the inclusion of children with SEND (Avramidis & Norwich, 2002; De Boer et al., 2011) and were used to guide this research.

A systematic literature review is considered to be a valid method of conducting a literature review since "systematic reviews aim to address these problems by identifying, critically evaluating and integrating the findings of all relevant, high-quality individual studies addressing one or more research questions" (Siddaway, 2014, p. 1). The alternative to using a systematic literature review is a narrative review, which can be considered to be more biased to personal interpretation (Fisher & Warren, 2011).

A sensitive search strategy was applied to a range of databases to select relevant studies. The search strategy included the following three sets of search terms: 'Down's Syndrome', 'inclusion' and 'attitudes'. A potential limitation of this research comes from the search terms selected, for example, DS has historically been described using other terms such as 'mongoloid'. I did not include this term, or similar, as 'Down's Syndrome' has always been the official name and therefore, should have been picked up in all research papers.

An important part of conducting a systematic literature review is the inclusion and exclusion criteria that is applied when reviewing the literature. Originally, I wanted to see if I could only include research in the United Kingdom (UK) as it was considered that the inclusion of children with DS could be different compared to countries outside of the UK. I then decided to broaden this out since key papers in this area came from outside of the UK, primarily Australia. In addition to this, inclusion is a key policy in a number of countries, including the UK and US (Lindsay, 2007). This is reflected in The Salamanca Statement being signed by the representatives of 92 countries This called on governments to adopt the principals of inclusive education and enrolling all children in regular schools unless there are compelling reasons to do otherwise (Lambert & Frederickson, 2015). This is related to arguments around human dignity and human rights (Lambert & Frederickson, 2015).

The inclusion criteria were also originally any professionals working with children with DS. However, this became challenging in terms of synthesising the findings from the different research papers, which resulted in only teachers' attitudes towards inclusion being included in the research. In the end, more research was gathered by broadening up to any type of teacher, for example, headteachers and special educational needs coordinators (SENCOs). The difference between different types of teachers were considered, however, not much variation was found in the results and therefore, the findings were not separated.

A total of ten papers were selected for analysis. As the majority of research studies used qualitative methods, this research is a 'Qualitative Evidence Synthesis' (QES). Typically, systematic literature reviews contain quantitative data and therefore, a meta-analysis is used. As there was limited published research found using QES and systematic literature reviews in the field of educational psychology, it was challenging to find examples of good practice. Due to this, it was more difficult to navigate my way through the process of conducting a systematic literature review. However, this was overcome by broadening out the domains in which I searched for systematic literature reviews that could be used to guide my skills as a researcher. For example, I followed some of the structures implemented in the 'Cochrane Database of Systematic Reviews' (Cochrane, 2020).

Many QES authors choose to appraise the quality of studies included in their syntheses to assist readers with understanding the representation of the literature, the credibility of conclusions, and the transferability of the findings (Whiting et al., 2017). A common way of doing this is through structured appraisal tools as this is thought to provide an objective evaluation of research (Majid & Vanstone, 2018). Majid & Vanstone (2018) identified and described quality appraisal tools for appraising individual qualitative research studies, designed to inform researchers engaging in QES. The appraisal criteria I selected for this research was the 'Critical Appraisal Skills Programme' (CASP) (CASP, 2018b), specifically the 'CASP Qualitative Checklist' (CASP, 2018a) appraisal tool. Majid & Vanstone (2018) described how the CASP qualitative checklist does not identify with a particular discipline, was developed by authors primarily working in the UK, considers ethics, and is the tool most commonly used in QES. I also selected this tool as it is recommended for a novice researcher, a decision-maker, and is short and easy-to-follow. It was important to be short since I am an individual researcher and time and resources were limited.

Critical realism uses components of both positivist and constructivist approaches to provide a detailed account of ontology and epistemology (Fletcher, 2017). The CASP qualitative checklist takes a positivist stance. It is my understanding that no checklist takes a critical realist stance, although it might have been worth also exploring the 'SRQR' critical appraisal tool, which takes a constructivist stance (Majid & Vanstone, 2018). Another limitation of using this checklist for this literature review, is that some of the studies have quantitative findings. These studies should have potentially been analysed using separate quantitative methods. However, I decided not to do this as I felt the CASP qualitative checklist questions provided an appropriate framework for analysing all studies. This also made it easier to synthesise the findings from the different research studies, a key principal of conducting a systematic literature review.

The CASP qualitative checklist assessed the validity, results and contribution of qualitative research papers. Appraisal tools are often used as a way of deciding which studies to include and exclude in a QES (Majid & Vanstone, 2018). Despite having some variably in terms of the value of the studies, it was considered that all ten studies provided some value in answering the research question. Another reason for including the findings from all ten papers in this literature review was despite there officially being no clear rules on the minimum number of papers, ten studies could be considered to be low for a systematic literature review. This poses a limitation of the systematic literature review, since what could be considered as 'low' quality findings were included. However, I reduced the impact of this on the interpretation by reporting on the quality of the findings.

A criticism of the format of the CASP Qualitative Checklist is that it focuses on the evaluation of studies rather than on evidence of analytic rigor, originality, or scholarly contribution to the field (Majid & Vanstone, 2018). As a result of this, a narrative synthesis of the findings was also conducted, which requires the use of words and text to summarise and explain the findings of a synthesis process (Joanna Briggs Institute, 2019a).

3.1.6 The Rationale for the Major Research Journal Article

For Part 2, the research paper aimed to investigate teachers' attitudes towards the inclusion of children with DS and the influencing variables. This was informed by the findings from the literature review. Critical realism emphasises the importance of using existing theory as a starting point for empirical research (Fletcher, 2017). Initial theories should be used to facilitate a deeper analysis in order to build a new and more accurate explanation of reality (Fletcher, 2017).

Completing this research required approval from Cardiff University Ethics Committee. This involved the consideration of ethical issues and the implementation of actions (Table 11). Ethical approval was easy to gain (approved in March 2019). The questionnaire was sent out in May 2019 and data collection ended in November 2019. The total duration of the project was approximately 12 months. No further ethical concerns arose during this research.

Table 11: *Ethical Considerations and Actions*

Ethical considerations	Actions
Informed Consent	Informed Consent was gained. If teachers were recruited via schools, headteachers received a 'Gatekeeper Letter' (Appendix H) and 'Gatekeeper Information Sheet' (Appendix I), explaining the nature of the research. To ensure they knew what was expected of them the headteacher agreed for the school to participate, by signing and returning a confidential 'Gatekeeper Consent Form' (Appendix J). This included contact details of the researcher, the researcher's university supervisor and the Cardiff University School of Ethics Committee Secretary, should any participant have required further information or clarification. Once consent was received, the headteacher was asked to circulate an online questionnaire to all school staff. This process was not required for online recruitment. All teachers had a link to an online questionnaire on Qualtrics. At the start of the questionnaire, teachers were provided with a 'Teacher Information Sheet' (Appendix K) and an anonymous 'Teacher Consent Form' (Appendix L) as participation was optional. The questionnaire took around 15 minutes and could be done in their own time.
Anonymity and Confidentiality	Once complete, the questionnaire was stored on the Qualtrics programme securely and anonymously
Withdrawal for research	Withdrawal from the questionnaires was not possible since the process was anonymous, and participants were made aware of this.
Debriefing	There was an online 'Teacher Debrief Form' (Appendix M) at the end of the questionnaire. No payments or incentives were offered as part of this research.

Antonak and Livneh (2000) argued that psychometrically sound instruments are imperative to explore the relationship between attitudes towards individuals with SEND and the full inclusion of these individuals within society. Also, they recommend the use of multidimensional measures of attitudes that consider cognitive, affective and behavioural dimensions to evaluate attitudes towards individuals with SEND (Antonak & Livneh, 2000; Ewing et al., 2018). As a result, I decided to use a psychometrically sound instrument for measuring attitudes towards DS. Researchers highlight the value of modifying existing attitude measures, rather than 're-inventing the wheel' (Ewing et al., 2018; Fisher & Warren, 2011). A difficulty that I encountered during this stage of the research was that

there were no existing questionnaire specifically measuring teachers' attitudes towards the inclusion of children with DS. However, there were standardised measures of attitudes toward the inclusion of children with SEND. Ewing, Monsen, & Kielblock (2018) completed a critical review of published questionnaires on teachers' attitudes towards inclusive education and found that the MATIES (Mahat, 2008) was the only teacher questionnaire with adequate psychometric properties addressing the affective, cognitive and behavioural dimensions of attitudes. Something that could have been taken into consideration is that the MATIES only used one definition of attitudes, namely the multidimensional theory. This was not considered to be an issue, since this is the very predominant definition in this field and there is a consensus from researchers that this is the best definition of attitudes.

An adapted version of The MATIES (Mahat, 2008) focusing specifically on DS was used. This questionnaire has been previously adapted for research on attitudes towards the inclusion of children with social, emotional and behavioural difficulties used a modified version of the MATIES (MacFarlane & Woolfson, 2013). Therefore, I believed it was appropriate to select this questionnaire and modify it for research on DS. A further modification made to the MATIES (Mahat, 2008) was the scale used. It originally used a six-point Likert Scale but for this research, I decided to put each of the 18 items into a scaled format from 0-10. A scale of 0-10 was used because it provides better anchors than text, a much broader spread of the results for better predictive analysis, a mid-point making it easier for participants to rate it and it avoids having to convert textual scales into numbers which means participants selected the number themselves (Waypoint Research Group, 2017). A potential limitation of adapting the MATIES is that it might have compromised the reliability and validity of the questionnaire. This was not measured as the original questionnaire had been rigorously tested and the changes were minor. Also, it was felt that since DS is a form of SEND that impacts a broad range of areas, the majority of the questions were still appropriate.

A potential issue of focusing on DS specifically is that teachers may have multiple interpretations of the label DS (Avramidis & Norwich, 2004). This occurs when teachers attribute different characteristics based on their experience. These attributions could be positive or negative and be largely unpredictable across a population of teachers. This could be considered to be a limitation of the results as the findings will be biased by each persons' personal experience. To account for this, teachers were asked how many children with DS they had worked with. Only 19 teachers had worked with only one student with DS, suggesting that since the majority of teacher have worked with more than one student,

generalisations from one student are not likely to have had too much of an impact. In future research, the problem of multiple interpretations might be alleviated further by providing specific descriptions (in the form of vignettes or examples) of the behaviours and characteristics of persons with disabilities, rather than referring to a group of persons by a disabling condition (Avramidis & Norwich, 2004). The vignette approach offers a number of benefits for eliciting data on attitudes, including depersonalisation that encourages the participant to think beyond their own circumstances (Schoenberg & Ravdal, 2000). The vignette approach was not used in this research, since despite being a useful method in some ways, there are also several problems of the vignette approach for data collection and analysis (Schoenberg & Ravdal, 2000). Some of the shortcoming described by Schoenberg & Ravdal (2000) include participants not giving responses due to their lack of faith in their own opinion or perceived lack of knowledge, and there being multiple ways in which the participants could interpret the vignettes. As teachers were considered to generally have a broad understanding of DS it was decided that on balance, it was not better to include vignettes.

Self-report or direct measures were used when exploring the variables around knowledge. This included the questions 'How good is your knowledge about Down's Syndrome as a condition?' and 'How good is your understanding of inclusive practice?'. Kanwar, Grund, & Olson (1990) conducted research on measures of knowledge by comparing direct and indirect measures of knowledge. Some examples of direct measures would include paper-and-pencil tests and free-association methods. They found that indirect and direct measures are equally valid for measuring the knowledge levels of people who have had formal training in the domain of interest, but not for people who have not had training. This implies that caution needs to be taken when interpreting the findings as the participants actual knowledge or understanding. This was overcome in this research by interpreting the findings as teachers' confidence of their knowledge and understanding of inclusion. This is based on the findings of Cole, Gaeth, & Singh (1986) who describe how a problem with self-report measures is that they may reflect self-confidence more than any actual state of knowledge. This is because people who are self-confident may report more knowledge than those with less confidence.

In addition to this, for the questions measuring understanding and experience of inclusion, there could have been different interpretations of what inclusion meant, particularly interpretations that resemble integration. Even though the terms 'inclusion' and 'integration' are sometimes used interchangeably, the consensus is that 'inclusion'

replaced the notion of 'integration' (Farrell, 2001; Shaw, 2017). Integration implies that children should fit or adapt to the school setting, whereas inclusion focuses on the school adapting to meet the needs of children (De Graaf et al., 2014; Engevik et al., 2018; Geoff, 2007). The implication for this change in terminology is that the emphasis is for teachers to have more responsibility to adapt their practice. In terms of this research, this could have altered the reliability of the question in measuring understanding of inclusion. This highlights the value of future research using direct measures or from exploring the impact of actual knowledge of DS and understanding of inclusion on attitudes towards DS. The later could be done by using pre and post measures of attitudes, whereby teachers undergo procedures which increase their actual knowledge/ understanding. This could be done, for example, through training which combines information-based training with practical experience.

The research questionnaire was first piloted to ensure that the questions were written and formatted in the best way possible. Piloting is an important part of the research process (Fisher & Warren, 2011). A questionnaire can be an effective way of collecting data from large numbers of people (Fisher & Warren, 2011). A total of 100 questionnaires were collected for this research, which could be considered a large sample size for this type of research.

The questionnaire was analysed on the Statistical Package for the Social Sciences (SPSS), which is the most commonly used programme within the field of Psychology. Four multiple-linear regressions were used to consider the variables predict overall attitudes, as well as the dimensions of attitudes. An advantage of this form of analysis, as opposed to carrying out several bivariate correlations, is that regression analysis corrects for correlations among the predictor variables (Brace, Kemp, & Snelgar, 2006) (Brace, Kemp & Snelgar, 2006). This helps to examine the unique contribution of predictor variables in accounting for variance in each outcome variable.

Hierarchical Blockwise Entry was used to input the data into four multiple-linear regressions. Hierarchical regression was selected as a way to show if the predictor variables explain a statistically significant amount of variance on the outcome variable after accounting for all other variables (Field, 2009). Three models were used for each of the four outcomes variables. The chosen Models were determined by the literature review. Model A includes variables identified within the literature review as being predictors of teachers' attitudes towards the inclusion of children with DS. Model B includes the new predictor variables regarding engagement with the social and medical model of disability.

Model C includes additional demographic predictor variables regarding teachers' gender and years of teaching experience. This was based on research from Gilmore et al. (2003) who found that gender, age and years of general teaching experience were not significant factors influencing teachers' attitudes towards educational settings. Age was removed from the final regression model as it was found to be non-significant across all four multiple-linear regression models and it complicated the analysis due to being another dummy variable with four groups. The research from Gilmore et al. (2003) only looked at the impact of these variables on attitudes towards educational setting and therefore, these potentially should not have been interpreted as previously found non-significant variables. These variables potentially should have been added into Model A, however I decided to include them in Model C since they were non-significant, and they were the only demographic variables. I did not want to focus too much on demographic variables as the aim of the research was to look at variables that could be used to implement change.

A potential limitation of the multiple-linear regressions was the sample size used. Green (1991) gives rules for the minimum acceptable sample size for a multiple-linear regression, which is that the sample size should be 50 + 8k, where k is the number of predictors. In Model A there were 9 predictor variables, in Model B there were 11 and in Model C there were 15 (due to dummy variables). With nine predictor variables, research should have 122 participants, with eleven predictor variables research should have 138 participants and with 15 there should be 170. This research had 100 participants, although once participants with missing data were removed, there were only 79 participants. This might have impacted on the strength of the multiple-linear regression. However, multiple-linear regressions are considered to be a robust method that still functions well even without ideal conditions (Field, 2009). The other option would have been to remove variables from the multiple-linear regression. However, I felt that the non-significant factors were important to include in the findings. It would have been preferable to have run another round of recruiting teacher to have more participants if there had been more time available.

Another limitation of the multiple-linear regressions is the generalisability/ cross-validation. SPSS produces an adjusted R^2 score which is a gauge of how well the model predicts the outcome of a different sample. It also produces a multiple-linear correlation coefficient R^2 which is a gauge of how well the model predicts the observed data. Cross-validation is carried out by subtracting the difference between the coefficient. Ideally, you would like the R^2 and adjusted R^2 values to be the same or very close. The shrinkage of the

data was quite large in this research. For example, for overall attitudes Model A, if the model was derived from the population rather than the sample, it would account for 56.1% instead of 61.1% which is 5% less variance in the outcome (Appendix N). This indicates that there are some potential limitations around how well the model can predict the outcome in a different sample.

This research used a quasi-experimental design, which is research that involves the manipulation of an independent variable without the random assignment of participants to conditions or orders of conditions. This has limitations, including that it is harder to infer causation from quasi-experimental designs (that from experimental designs) (Fisher & Warren, 2011). This is because without the random allocation of participants, it cannot be certain that the predictor variable categories are responsible for any differences. There is an increased risk of confounding variables having an impact on quasi-experimental designs. Using a between-participants design also increases the risk of there being confounding variables (Fisher & Warren, 2011). However, this was unavoidable in this research since multiple variables were selected and it was not possible to allocate participants to groups.

The research initially aimed to carry out a follow-up focus group, but due to time restraints and the extensive findings from the first part of the research, this was not possible. There could have been advantages to using qualitative data, such as recognising peoples' subjective experience and producing unexpected insights about human nature (Fisher & Warren, 2011).

3.2 Contribution to knowledge and dissemination

3.2.1 Findings from the Thesis

The findings include that teacher's overall attitudes and the dimensions of attitudes, on average, were positive. This research provides novel findings in this area since previous research in the literature review had a mix of findings, making it difficult to establish whether teachers hold positive, neutral or negative attitudes towards the inclusion of children of DS.

Positive attitudes towards the inclusion of students with DS could be considered to be beneficial in the inclusion process, as positive attitudes are considered to play a considerable role in implementing inclusive behaviours (De Boer et al., 2011; MacFarlane & Woolfson, 2013). According to the Theory of Planned Behaviour (a theory that links thinking to behaviour), two other factors to consider include perceived social pressure to perform or not perform the behaviour (subjective norms) and perceived ease or difficulty of performing the behaviour (perceived behavioural control) (Mahat, 2008). These factors were not considered in this research and would be required to fully explore the impact of attitudes on behaviour.

Based on findings from previous research on SEND (De Boer et al., 2011), the results from this current research suggest that teachers are more positive about the inclusion of children with DS than other forms of SEND. These findings were surprising and are the opposite of what was hypothesised. A possible reason for these results being as positive could be due to participant bias. For example, the research found that females and primary school teachers have more positive attitudes towards the inclusion of children with DS. Out of the 100 participants, there were 88 females and 69 primary teachers, which could have resulted in more positive attitudes than the representative population of teachers. It could also be that there is something about children with DS that makes teachers more positive. This could relate to theories of psychology such as attribution theory i.e. the child is not held responsible for their actions (Lambert & Frederickson, 2015). Qualitative findings could be useful to explore this more.

Despite having positive attitudes overall, teachers had, on average, neutral attitudes towards educational settings, with 57% disagreeing that children with DS should attend special educational settings, 29% being neutral towards special schools, and 14% in support of children attending special schools. These findings support previous findings from the literature review, including teachers' thinking that mainstream and special educational

settings are equally suitable for children with DS (Campbell et al., 2003; Gilmore et al., 2003; Petty & Sadler, 1996). The variables related to school settings were not explored further in this research. It was not possible to apply multiple-linear regression, as this should only be run for continuous outcome variables, while one Likert scale is considered to be categorical (Field, 2009). Alternative methods for analysing categorical variables should have been explored, for example, through the use of loglinear analysis (Field, 2009). Some of the other variables that might have been related and could have been included in this research are the social model of disability, the medical model of disability and environmental support.

The literature review revealed that teachers were the most positive about the social inclusion of children with DS. Social inclusion in this research was measured through investigating item 13, although might not have captured the complexity of social inclusion. Tuersley-Dixon & Frederickson (2016) describes social inclusion as a multifaceted concept with some of the components including relationships, social acceptance, contact and self-perceptions. In addition, attitudes towards social inclusion have been shown to change depending on educational stage with acceptance of disabilities diminishing with age (Morgan & Wisely, 1996), especially with widening gaps in social interaction (Cambra & Silvestre, 2003). Due to the large amount of primary school teachers in this research, it could have been useful to explore the variables that predict social inclusion by including more teachers in secondary schools.

The variables explored and how they predict attitudes were considered from a critical realist perspective. The aim at this stage was to focus on causal mechanisms and conditions affecting attitudes (Fletcher, 2017). The variables that were found to positively predict overall attitudes towards inclusion were experience of inclusion of DS and understanding of inclusive practice. There were significant interactions between experience of inclusion of DS with understanding of inclusive practices and between experience of inclusion of DS with knowledge about DS as a condition. Results showed a high confidence in understanding of inclusion and a moderate level of confidence in knowledge on DS results in a lower association between experience of inclusion and attitudes. This suggests the value of providing teachers with training to provide them with high confidence in understanding of inclusion and moderate confidence in knowledge of DS as a condition. These are novel and useful findings that explore the relationship between confidence in understanding inclusion, experience and knowledge and could be useful concerning other forms of SEND.

Educational stage taught, teachers' gender and years of general teaching experience were also found to be significant predictors of either a dimension of attitudes or overall attitudes. However, caution needs to be taken when interpreting these findings in order not to result in discrimination, for example, gender discrimination.

Access to environmental support has been found to predict impact on the behavioural dimension. Access to environmental support has been measured through using an average of multiple components related to the environment. I decided to combine some of these components since they appeared to be overlapping and hard to separate, for example, 'Financial resources/ funding' might be related to 'Suitable staffing (including learning support assistants/ one-to-one support)'. This was necessary as when running a multiple-linear regression, there is an assumption that the variables do not overlap (Field, 2009). By combining these components, it was not possible to consider the impact of specific environmental variables.

Caution needs to be taken when placing an emphasis on educational-environmental variables, as a lack of resources is often used as an excuse for not allowing children who experience disability to participate or enrol in a mainstream school. For example, in research by Lalvani (2013) on parental experiences of inclusion, mothers had reportedly been told that class size and availability of therapeutic resources were obstacles in including children with DS in mainstream educational settings. The findings suggest that providing environmental support for children with DS is important for enhancing the behavioural dimension of attitudes, potentially due to the demand on environmental support factors. However, the provision needs to be approached from an understanding of what environmental support is required for inclusive education (Cologon, 2013).

Child-related variables, for example, the type of disability, were not considered in this research. Research on attitudes towards SEND suggests that differing attitudes are based largely upon the type or nature of the child's disabilities (Avramidis & Norwich, 2002, 2004; De Boer et al., 2010, 2011). Engevik et al. (2018) found the language skills of children with DS explained variation in the quality of inclusion experienced.

3.2.2 The Importance of Disseminating the Findings

Faragher (2019) from The University of Queensland in Australia, wrote a paper titled 'Research in the Field of Down Syndrome: Impact, Continuing Need, and Possible Risks from the New Eugenics'. The key message in this paper is that research in the field of DS is under threat. This is thought to be related to the perception that DS has become a

rare condition and due to the misconception that the important work on DS has already been completed. Faragher (2019) talks about the impact of the availability of prenatal screening and how this gives a new incentive for research to improve the broader understanding of DS to enable informed decisions at critical points in time. This is also considered to be a current issue in the UK. 'DON'T SCREEN US OUT' is a campaign against the UK government's proposed cfDNA screening implementation. It is predicted that 90% of pregnancies that are prenatally diagnosed with DS are terminated and the cfDNA screening is thought to result in a profound increase in the number of children with DS screened out by termination (Don't Screen Us Out, 2017). Faragher (2019) describes how there are benefits of continuing research on DS for the individual, the family and society in general.

3.2.3 Approaches for Dissemination

It is important to consider the value of disseminating the findings to parents. Positive attitudes towards the inclusion of students with DS could be considered to be beneficial in implementing inclusive educational change successfully (De Boer et al., 2011; MacFarlane & Woolfson, 2013). Legislation and statutory guidance means parents have the right to choose the type of school they wish their child to attend (All Party Parliamentary Group on Down Syndrome, 2012). Attitudes of school staff towards inclusion are considered to be one of the most important factors influencing parents' choice of placement for their child with DS (Devarakonda, 2005; Kendall, 2017). Findings from this research could be useful for parents to make a decision about selecting an educational setting, especially at primary school level. However, teachers were found to have neutral attitudes towards children with DS attending mainstream schools. This has implications for parents, in terms of teachers' attitudes towards special educational settings being a potential barrier to inclusion.

Teachers were found to be particularly positive about social inclusion. This has important implications for parents, as social inclusion is considered to be the primary aim of parents placing children with complex needs in mainstream schools (Koster, Pijl, Houten, & Nakken, 2007). Some of the benefits of social inclusion are considered to be the promotion of child development, social competence and social acceptance within a child's community (Tuersley-Dixon & Frederickson, 2016). Teachers were less positive about academic inclusion, which might have implications, particularly at times of academic pressure such as Statutory Assessment Tests (SATS).

Useful sources for dissemination include parenting groups on social media platforms. The Down's Syndrome Association also provides parents with a range of documents that can be used to make informed decisions and the findings from this research could contribute to that. During data collection, there was a lot of interest in the community of parents who have a child with DS. There is a sense of them advocating for the inclusion of their children with DS and therefore, any research in this area could be considered useful.

The research is focussed on teachers' attitudes and therefore, it would be useful to disseminate the findings back to teachers. The process of recognising ableist values and practices and seeking to disestablish ableist attitudes is thought to result in more positive attitudes (Cologon, 2013). This research can be shared with headteachers to circulate with school staff and online resource sites may also be a good place to directly target teachers. It would be particularly useful for trainee teachers on teacher training programmes.

The findings on experience of inclusion, confidence in understanding of inclusion and confidence in knowledge of inclusion have important implications for professionals on how to shift teachers' attitudes towards inclusion when they are neutral or negative. Professionals such as EPs or headteachers have a role for supporting the successful inclusion of children with SEND. Publishing the research findings in general areas of publication for EPs, such as 'Educational Psychology in Practice' could be valuable. Specific areas for DS related publications include 'Down Syndrome Education' (DSE) and the Down's Syndrome Association. The Down's Syndrome Association is the only UK charity specifically for DS. EPs have a role of delivering training and this could be a useful area for DS as well as SEND.

This research also highlights the importance of environmental factors in influencing the behavioural dimension of attitudes. The results of the research indicate the amount of environmental support teachers anticipate having for children with DS in schools is quite low. Within mainstream educational settings, most children with DS will have a Statement of SEND (Wales) or an Education, Health and Care Plan (EHC plan) in England. Fox et al. (2004) found the educational support received by 18 children in mainstream school with DS varied and that the amount of support received was not associated with the pupils' needs, but instead influenced by the common policies and practices prevalent in the school or local authority at the time. This suggests there could be a general model of support, instead of a system that considers individual children's variance in difficulty. This could have implications at a wider governmental level in terms of the consistency and extent of

support put in place for children with DS both with and without a support plan. There is also an argument that the research findings have broad implications beyond those with DS, for those with SEND (Faragher, 2019).

3.3 A critical account of the development of the research practitioner

The thesis has contributed to my development and learning as a researcher. For Part 1 of the thesis, a systematic literature review was conducted. This is not a method that I have previously used in research and required me to develop my skills in this area. The previous research I have conducted has also used qualitative research methods. Using quantitative skills was a challenge and is an area of low confidence. Using SPSS is an area of progress as I have not used this programme since my undergraduate degree in Psychology. During my previous studies I also had not conducted a multiple-linear regression. This required research into this methodology, and it is now something I feel a lot more skilled to complete.

Before starting the research, I assumed that teachers' attitudes towards the inclusion of children with DS would be negative. This was based on personal experiences of working with children with DS in educational settings as well as the findings from De Boer et al. (2011). This belief has changed in consideration of the current research findings, as teachers' attitudes towards the inclusion of children with DS were positive. This finding is consistent with other research on specific forms of SEND, for example Humphrey & Symes (2013) measured the 53 teachers across 11 secondary schools in North West England towards the inclusion of children with ASD in mainstream schools and found more positive responses than have been reported in previous studies. They concluded that attitudes towards inclusion of this particular group of learners may be changing over time.

The difference of the findings to my expectations led to reflections around the expectations of research and the temptation to predict outcomes too early. This did not have too much of an impact on the results of the research, since the data was collected via a standardised questionnaire. However, it could have impacted on the analysis of the results, particularly around attitudes towards school settings being neutral which is what was expected. An objective stance was aimed for as much as possible and to basing the analyses on the findings themselves.

Being a researcher and applied psychologist can sometimes create role conflict, although this has not been the case in this research. This is primarily because no face-to-face data was collected. Having to take on the role of researcher was challenging in terms of it seeming very sperate to the role of being an applied psychologist.

In terms of incorporating the research into practice post-qualification, there are a few areas which I believe will influence my practice. I would particularly like to work more closely with the parents of children with DS. They showed a lot of interest in the research

and I would, therefore, see it as important to provide some feedback and ongoing support. There was a real sense of the parents having to advocate for the child and I consider the findings valuable for that. This has further developed my interest in DS and inclusion and has led to wanting to write up a research paper and to contributions in conferences in this area. I feel I have a more comprehensive understanding of DS as well as teachers' attitudes and the factors that influence inclusion, which will be useful when working as an EP as inclusion is a key part of the role.

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Appendices

Appendix A- Search Strategy

PsycINFO 1806 to August Week 1 2019

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1 Down's Syndrome/ or Down* Syndrome.mp.
2 down-syndrome.mp.
3 trisomy 21.mp.
4 1 or 2 or 3
5 inclusion.mp.
6 inclusive.mp.
7 School Integration/ or integration.mp.
8 "Mainstreaming (Educational)"/ or Mainstreaming/ or mainstreaming.mp.
9 5 or 6 or 7 or 8
10 attitude*.mp.
11 attitudes.mp. or Attitudes/
12 Teacher Attitudes/
13 Parental Attitudes/
14 Student Attitudes/
15 perception*.mp. or Perception/
16 view*.mp.
17 10 or 11 or 12 or 13 or 14 or 15 or 16

Applied Social Sciences Index & Abstracts (ASSIA)

- down syndrome OR down's syndrome OR down-syndrome OR trisomy 21
- inclusion OR inclusive OR School Integration OR mainstreaming
- attitudes OR perception OR view
- noft(down syndrome OR down's syndrome OR down-syndrome OR trisomy 21) AND noft(inclusion OR inclusive OR School Integration OR mainstreaming) AND noft(attitudes OR perception OR view)

Web of Science

---

1. down syndrome OR down's syndrome OR down-syndrome OR trisomy 21

2. inclusion OR inclusive OR School Integration OR mainstreaming
3. attitudes OR perception OR view
4. (down syndrome OR down's syndrome OR down-syndrome OR trisomy 21) *AND* TOPIC: (inclusion OR inclusive OR School Integration OR mainstreaming) *AND* TOPIC: (attitudes OR perception OR view) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.

Scopus

---

1. TITLE-ABS-KEY (down* AND syndrome)
2. TITLE-ABS-KEY (down-syndrome)
3. TITLE-ABS-KEY (trisomy 21)
4. ((TITLE-ABS-KEY (down* AND syndrome)) OR (TITLE-ABS-KEY (down-syndrome))) OR (TITLE-ABS-KEY (trisomy 21))
5. TITLE-ABS-KEY (inclusi*)
6. TITLE-ABS-KEY (integration)
7. TITLE-ABS-KEY (mainstreaming)
8. (TITLE-ABS-KEY (inclusi*)) OR (TITLE-ABS-KEY (integration)) OR (TITLE-ABS-KEY (mainstreaming))
9. TITLE-ABS-KEY (attitude)
10. TITLE-ABS-KEY (perception)
11. TITLE-ABS-KEY (view)
12. (TITLE-ABS-KEY (attitude)) OR (TITLE-ABS-KEY (perception)) OR (TITLE-ABS-KEY (view))
13. (((TITLE-ABS-KEY (down* AND syndrome)) OR (TITLE-ABS-KEY (down-syndrome))) OR (TITLE-ABS-KEY (trisomy 21))) AND ((TITLE-ABS-KEY (inclusi*)) OR (TITLE-ABS-KEY (integration)) OR (TITLE-ABS-KEY (mainstreaming))) AND ((TITLE-ABS-KEY (attitude)) OR (TITLE-ABS-KEY (perception)) OR (TITLE-ABS-KEY (view)))

Child Development & Adolescent Studies, British Education Index, ERIC and OpenDissertations Using EBSCO host search engine

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1. down syndrome OR down's syndrome OR down-syndrome OR trisomy 21
2. inclusion OR inclusive OR School Integration OR mainstreaming
3. attitudes OR perception OR view
4. (down syndrome OR down's syndrome OR down-syndrome OR trisomy 21) AND (inclusion OR inclusive OR School Integration OR mainstreaming) AND (attitudes OR perception OR view)

Appendix B- Methodological Analysis Using the CASP Qualitative Checklist Appraisal Tool

	Was there a clear statement of the aims of the research?	*Is a qualitative methodology appropriate?*	*Was the research design appropriate to address the aims of the research?*	*Was the recruitment strategy appropriate to the aims of the research?*	*Was the data collected in a way that addressed the research issue?*	*Has the relationship between researcher and participants been adequately considered?*	*Have ethical issues been taken into consideration?*	*Was the data analysis sufficiently rigorous?*	*Is there a clear statement of findings?*
Rietveld (1986) and Rietveld (1988)	**No** The research had a lot of different aims, so it is confusing to pinpoint the main aim	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary to measure attitudes.	**Yes** The researchers design is appropriate	**Yes** The researchers followed 8 children from an early intervention programme into different schools.	**Yes** Questionnaires and observations were used	**Yes** The researchers were based at the University	**Do not know** Ethics was not discussed	**Yes** There is an in-depth description of the analysis.	**Yes** Rietveld (1988) describes the findings more clearly
Vlachou (1993)	**Yes** The research had clear aims	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary to measure attitudes.	**Do not know** The researcher did not explain the research design	**No** There were six children who had DS in one school. The research does not explain how the school was selected.	**Do not know** Interviews were used but no detail is provided	**Do not know** This was not discussed	**Do not know** Ethics was not discussed	**Do not know** Not clear how it was analysed	**No** The conclusion does not elaborate to answer the aims of the research
Petley (1994)	**Yes** The research had clear aims	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary to measure attitudes	**Yes** The researchers design is appropriate	**No** There were ten children who had DS one school. The research does not explain how the school was selected.	**Yes** Structured interviews were used.	**Do not know** It is not clear if the researcher has a relationship with the school before the research	**Do not know** Ethics was not discussed	**Do not know** This methods for analysing the data was not discussed	**No** A clear statement of finings is not present. This is because the aim of the paper was quite broad.
Petty & Sadler (1996)	**Yes** The research had clear aims	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary	**Yes** The researchers design is appropriate	**Yes** Nine mainstream primary teachers from one LA in the North East of England	**Yes** Structured interviews were used. Some questionnaires were also used.	**Yes** The researchers were based at the University	**Do not know** Ethics was not discussed	**Do not know** It says qualitative and quantitative analysis was carried out but the	**Yes** The findings are clearly stated

		to measure attitudes						methods for analysing the data was not discussed	
Wishart & Manning (1996)	**Yes** The research had clear aims	**n/a** Quantitative data was collected in this research.	**Yes** The researchers discussed the methods used	**Yes** The research recruited a large number of trainee teachers from two colleges	**Yes** Questionnaires were used	**Yes** The researchers were separate to the participants	**Do not know** Ethics was not discussed	**Yes** The data analysis appeared detailed and rigorous	**No** No research conclusion was provided at the end
Gilmore, Campbell & Cuskelly (2003)	**Yes** The research had clear aims	**n/a** Quantitative data was collected in this research.	**Yes** The researchers discussed the methods used	**Yes** The research recruited a large number of trainee teachers and members of the community	**Yes** Questionnaires were used	**No** participants were known personally to their interviewers	**Do not know** Ethics was not discussed	**Yes** The data analysis appeared detailed and rigorous	**No** No research conclusion was drawn
Campbell et al (2003)	**Yes** The research had clear aims	**n/a** Quantitative data was collected in this research. measure attitudes.	**Yes** The researchers design is appropriate	**Yes** The researcher recruited a large number of education children	**Yes** Questionnaires were used	**Do not know** It is not clear if the researchers were part of the experiment	**Do not know** Ethics was not discussed	**Yes** The data analysis appeared detailed and rigorous	**No** No research conclusion was provided at the end
Fox et al. (2004)	**Yes** The research had clear aims	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary to measure attitudes	**Yes** The researchers design is appropriate	**Yes** 18 schools across 6 LAs selected based on having a child with DS.	**Yes** A variety of qualitative methods were used to cover the aims.	**Yes** The researchers were based at the University	**Do not know** Ethics was not discussed	**Do not know** This was not discussed	**Yes** The findings are summarised
Johnson (2006)	**No** The aims of the research were not discussed.	**Yes/ No** Qualitative methods were appropriate for the vast aims. Quantitative data was necessary to measure attitudes	**Yes** The researchers design is appropriate	**No** There were only 6 children. It is not clear if they were from the same or different schools.	**Yes** Interviews, questionnaires and surveys were used.	**No** She was directly involved in working with the children	**Yes** Ethics were taken into consideration, but ethical approval was not applied for	**Do not know** This was not discussed	**No** Clear conclusions on the current research were not drawn

Appendix C- The Original MATIES (Mahat, 2008) and the Adaptation

Item
Cognitive
I believe that an inclusive school is one that permits academic progression of all students regardless of their ability.
I believe that students with a disability should be taught in special education schools.
I believe that inclusion facilitates socially appropriate behaviour amongst all students.
I believe that any student can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs.
I believe that students with a disability should be segregated because it is too expensive to modify the physical environment of the school.
I believe that students with a disability should be in special education schools so that they do not experience rejection in the regular school.
Affective
I get frustrated when I have difficulty communicating with students with a disability.
I get upset when students with a disability cannot keep up with the day-to-day curriculum in my classroom.
I get irritated when I am unable to understand students with a disability.
I am uncomfortable including students with a disability in a regular classroom with other students without a disability.
I am disconcerted that students with a disability are included in the regular classroom, regardless of the severity of the disability.
I get frustrated when I have to adapt the curriculum to meet the individual needs of all students.
Behavioural
I am willing to encourage students with a disability to participate in all social activities in the regular classroom.
I am willing to adapt the curriculum to meet the individual needs of all students regardless of their ability.
I am willing to physically include students with a severe disability in the regular classroom with the necessary support.
I am willing to modify the physical environment to include students with a disability in the regular classroom.
I am willing to adapt my communication techniques to ensure that all students with an emotional and behavioural disorder can be successfully included in the regular classroom.
I am willing to adapt the assessment of individual students in order for inclusive education to take place.

Adapted MATIES question
1. I believe that an inclusive school is one that permits academic progression of children with Down's Syndrome regardless of their ability.
2. I believe that children with Down's Syndrome should be taught in special education schools.
3. I believe that inclusion facilitates socially appropriate behaviour amongst children with Down's Syndrome.
4. I believe that any student with Down's Syndrome can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs.
5. I believe that children with Down's Syndrome should be segregated because it is too expensive to modify the physical environment of the school.
6. I believe that children with Down's Syndrome should be in special education schools so that they do not experience rejection in the regular school.
7. I get frustrated when I have difficulty communicating with children with Down's Syndrome.
8. I get upset when children with Down's Syndrome cannot keep up with the day-to-day curriculum in my classroom.
9. I get irritated when I am unable to understand children with Down's Syndrome.
10. I am uncomfortable including children with Down's Syndrome in a regular classroom with other children without a disability.
11. I am disconcerted that children with Down's Syndrome are included in the regular classroom, regardless of the severity of the disability.
12. I get frustrated when I have to adapt the curriculum to meet the individual needs of children with Down's Syndrome.
13. I am willing to encourage children with Down's Syndrome to participate in all social activities in the regular classroom.
14. I am willing to adapt the curriculum to meet the individual needs of all children with Down's Syndrome regardless of their ability.
15. I am willing to physically include children with Down's Syndrome with a severe disability in the regular classroom with the necessary support.
16. I am willing to modify the physical environment to include children with Down's Syndrome in the regular classroom.
17. I am willing to adapt my communication techniques to ensure that all children with Down's Syndrome with an emotional and behavioural disorder can be successfully included in the regular classroom.
18. I am willing to adapt the assessment of individual children with Down's Syndrome in order for inclusive education to take place.

Appendix D- Representation of Online Questionnaire

SECTION 1

What are teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings?

This first section focuses on teachers' attitudes towards inclusive education. It consists of 18 items. Please answer the questions on a scale of 0 (strongly disagree) to 10 (strongly agree).

	Strongly disagree										Strongly agree
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. I believe that an inclusive school is one that permits academic progression of children with Down's Syndrome regardless of their ability.	○	○	○	○	○	○	○	○	○	○	○
2. I believe that children with Down's Syndrome should be taught in special education schools.	○	○	○	○	○	○	○	○	○	○	○
3. I believe that inclusion facilitates socially appropriate behaviour amongst children with Down's Syndrome.	○	○	○	○	○	○	○	○	○	○	○
4. I believe that any student with Down's Syndrome can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs.	○	○	○	○	○	○	○	○	○	○	○
5. I believe that children with Down's Syndrome should be segregated because it is too expensive to modify the physical environment of the school.	○	○	○	○	○	○	○	○	○	○	○
6. I believe that children with Down's Syndrome should be in special education schools so that they do not experience rejection in the regular school.	○	○	○	○	○	○	○	○	○	○	○
7. I get frustrated when I have difficulty communicating with children with Down's Syndrome.	○	○	○	○	○	○	○	○	○	○	○
8. I get upset when children with Down's Syndrome cannot keep up with the day-to-day curriculum in my classroom.	○	○	○	○	○	○	○	○	○	○	○
9. I get irritated when I am unable to understand children with Down's Syndrome.	○	○	○	○	○	○	○	○	○	○	○
10. I am uncomfortable including children with Down's Syndrome in a regular classroom with other children without a disability.	○	○	○	○	○	○	○	○	○	○	○
11. I am disconcerted that children with Down's Syndrome are included in the regular classroom, regardless of the severity of the disability.	○	○	○	○	○	○	○	○	○	○	○

12. I get frustrated when I have to adapt the curriculum to meet the individual needs of children with Down's Syndrome.	○	○	○	○	○	○	○	○	○	○	○
13. I am willing to encourage children with Down's Syndrome to participate in all social activities in the regular classroom.	○	○	○	○	○	○	○	○	○	○	○
14. I am willing to adapt the curriculum to meet the individual needs of all children with Down's Syndrome regardless of their ability.	○	○	○	○	○	○	○	○	○	○	○
15. I am willing to physically include children with Down's Syndrome with a severe disability in the regular classroom with the necessary support.	○	○	○	○	○	○	○	○	○	○	○
16. I am willing to modify the physical environment to include children with Down's Syndrome in the regular classroom.	○	○	○	○	○	○	○	○	○	○	○
17. I am willing to adapt my communication techniques to ensure that all children with Down's Syndrome with an emotional and behavioural disorder can be successfully included in the regular classroom.	○	○	○	○	○	○	○	○	○	○	○
18. I am willing to adapt the assessment of individual children with Down's Syndrome in order for inclusive education to take place.	○	○	○	○	○	○	○	○	○	○	○

SECTION 2

What influences attitudes towards the inclusion of children with Down's Syndrome?

This section asks questions about factors that could contribute to teachers' attitudes.

1 How old are you?

- 18-24
- 25-39
- 40-59
- 60 years and over

2. To which gender identity do you most identify?
    - Female
    - Male
    - Transgender Female
    - Transgender Male
    - Gender Variant/ Non-conforming
    - Not listed
    - Prefer not to answer

3. How many years of general teaching experience have you had?
    - Less than 6 years

- Between 6 and 10 years
- Between 11 and 14 years
- More than 14 years

4. Do you teach in mainstream primary and/ or secondary school? Please comment on what year group(s) you teach.
   - ☐ Primary School (comment box)
   - ☐ Secondary School (comment box)
   - ☐ Other (comment box)

5. How much experience of contact do you have with children or adults with Down's Syndrome?
   - No contact
   - Some degree of prior contact
   - Frequent contact
   - Classroom experience

6. How much experience have you had of including children with Down's Syndrome in the mainstream classroom?
   - ☐ none at all
   - ☐ a little
   - ☐ a moderate amount
   - ☐ a lot
   - ☐ a great deal

7. How many children with Down's Syndrome have you worked with during your professional career?
   - ☐ none
   - ☐ 1
   - ☐ between 1 and 10
   - ☐ between 11 and 99
   - ☐ more than 100

8. How good is your knowledge about Down's Syndrome as a condition? *(for example the cause, incidence rate, associated medical problems, average life expectancy)*
   - ☐ extremely bad
   - ☐ somewhat bad
   - ☐ neither good nor bad
   - ☐ somewhat good
   - ☐ extremely good

9. What has informed your knowledge about Down's Syndrome as a condition?
   - ☐ Training on a teacher training course
   - ☐ Training since qualifying as a teacher e.g. INSET, a course
   - ☐ Professionals providing information e.g. educational psychologists, speech and language therapists
   - ☐ Parents providing information
   - ☐ Sought information yourself e.g. books, Internet, voluntary organisation
   - ☐ Other

10. How good is your understanding of inclusive practice?
    - ☐ extremely bad
    - ☐ somewhat bad
    - ☐ neither good nor bad
    - ☐ somewhat good

- ☐ extremely good

11. What has informed your understanding of inclusive practice?
    - ☐ Training on a teacher training course
    - ☐ Training since qualifying as a teacher e.g. INSET, a course
    - ☐ Professionals providing information e.g. educational psychologists, speech and language therapists
    - ☐ Parents providing information
    - ☐ Sought information yourself e.g. books, Internet, voluntary organisation
    - ☐ Other

12. How much confidence do you have in your ability to support the needs of children with Down's Syndrome?

☐ none at all
☐ a little
☐ a moderate amount
☐ a lot
☐ a great deal

MED/SOC. The meaning of disability has been understood in a variety of ways. The two prominent models of disability discourse have been the medical and social model.

The medical model sees disability as "the direct result of physical, sensory and/or neurological impairment due to damage or disease". The medical model of disability says people are disabled by their impairments or differences.

The social model sees disability as "the product of specific social and economic structures". This model says that people are disabled by barriers in society, not by their impairment or difference.

13. Do you see disability as being the direct result of physical, sensory and/or neurological impairment due to damage or disease?

o Definitely not
o Probably not
o Might or might not
o Probably yes
o Definitely yes

14. Do you see disability as the product of specific social and economic structures?

o Definitely not
o Probably not
o Might or might not
o Probably yes
o Definitely yes

15. To what extent do you think you have or could access the following forms of environmental support for children with Down's Syndrome in your school?

	0	1	2	3	4	5	6	7	8	9	10
Financial resources/ funding											
Pre-prepared teaching materials											
Information technology equipment											
Time for planning											
Time for reflective practice											
A modified and flexible timetable											
A modified physical environment											
Accessible buildings											
Suitably sized classrooms											
A class with a suitable amount of children											
Suitable staffing (including learning support assistants/ one- to-one support)											
Support from senior leaders											
Available support from external professionals											
Support from colleagues											
Opportunities for training											

Appendix E- Descriptive Statistics from the Questionnaire

Descriptive statistics of attitude scores

	Mean attitude item score from a scale of 0-10	Mean attitude dimension score	Mean overall attitude score
19) I believe that an inclusive school is one that permits academic progression of children with Down's Syndrome regardless of their ability. (cognitive)	8.61 (Std. Dev .1.90) (positive)	**Cognitive=** 8.00 (Std. Dev 1.47) (positive)	8.33 (Std. Dev 1.24) (positive)
20) I believe that children with Down's Syndrome should be taught in special education schools. (cognitive) (Reverse scored)	6.62 (Std. Dev 2.40) (neutral)		
21) I believe that inclusion facilitates socially appropriate behaviour amongst children with Down's Syndrome. (cognitive)	8.43 (Std. Dev .1.92) (positive)		
22) I believe that any student with Down's Syndrome can learn in the regular curriculum of the school if the curriculum is adapted to meet their individual needs. (cognitive)	7.56 (Std. Dev 2.46) (positive)		
23) I believe that children with Down's Syndrome should be segregated because it is too expensive to modify the physical environment of the school. (cognitive) (Reverse scored)	8.76 (Std. Dev 2.00) (positive)		
24) I believe that children with Down's Syndrome should be in special education schools so that they do not experience rejection in the regular school. (cognitive) (Reverse scored)	7.92 (Std. Dev 2.20) (positive)		
25) I get frustrated when I have difficulty communicating with children with Down's Syndrome. (affective) (Reverse scored)	7.33 (Std. Dev 2.53) (positive)	**Affective=** 8.27 (Std. Error 1.54) (positive)	
26) I get upset when children with Down's Syndrome cannot keep up with the day-to-day curriculum in my classroom. (affective) (Reverse scored)	8.08 (Std. Dev 2.50) (positive)		
27) I get irritated when I am unable to understand children with Down's Syndrome. (affective) (Reverse scored)	8.52 (Std. Dev 2.16) (positive)		
28) I am uncomfortable including children with Down's Syndrome in a regular classroom with other children without a disability. (affective) (Reverse scored)	8.95 (Std. Dev 1.66) (positive)		
29) I am disconcerted that children with Down's Syndrome are included in the regular classroom, regardless of the severity of the disability. (affective) (Reverse scored)	8.22 (Std. Dev 2.34) (positive)		
30) I get frustrated when I have to adapt the curriculum to meet the individual needs of children with Down's Syndrome. (affective) (Reverse scored)	8.54 (Std. Dev 1.74) (positive)		
31) I am willing to encourage children with Down's Syndrome to participate in all social activities in the regular classroom. (behavioural)	9.01 (Std. Dev 1.43) (positive)	**Behavioural=** 8.73 (Std. Dev 1.37) (positive)	

32) I am willing to adapt the curriculum to meet the individual needs of all children with Down's Syndrome regardless of their ability. (behavioural)	8.47 (Std. Dev 1.92) (positive)		
33) I am willing to physically include children with Down's Syndrome with a severe disability in the regular classroom with the necessary support. (behavioural)	8.32 (Std. Dev 2.08) (positive)		
34) I am willing to modify the physical environment to include children with Down's Syndrome in the regular classroom. (behavioural)	8.76 (Std. Dev 1.66) (positive)		
35) I am willing to adapt my communication techniques to ensure that all children with Down's Syndrome with an emotional and behavioural disorder can be successfully included in the regular classroom. (behavioural)	8.88 (Std. Dev 1.51) (positive)		
36) I am willing to adapt the assessment of individual children with Down's Syndrome in order for inclusive education to take place. (behavioural)	8.95 (Std. Dev 1.52) (positive)		

***** Positive scores (≥7), neutral scores (<7 and ≥5), negative scores (<5)

*****Standard deviation (Std. Dev) is the dispersion of a dataset relative to its mean (2 decimal places)

Demographic variable findings from the questionnaire

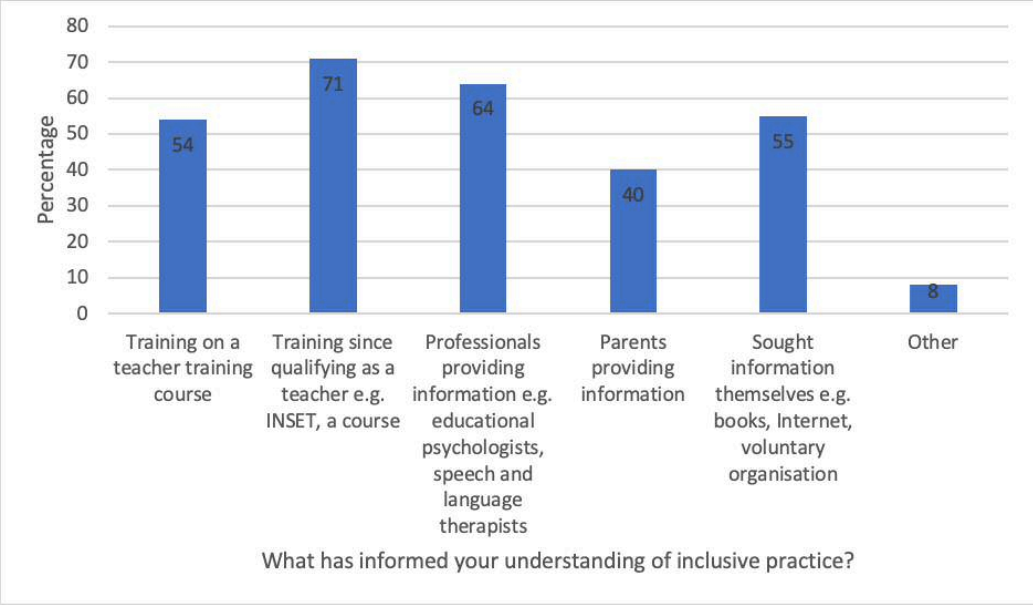
Variable	Category	Percentage
Age	18 to 24 years	4
	25 to 39 years	59
	40 to 59 years	30
	60 years and over	3
The teachers' gender	Female	88
	Male	8
	Missing	4
Years of teaching experience	Fewer than 6 years	27
	Between 6 and 10 years	30
	Between 11 and 14 years	10
	More than 14 years	29

Variable findings from the questionnaire

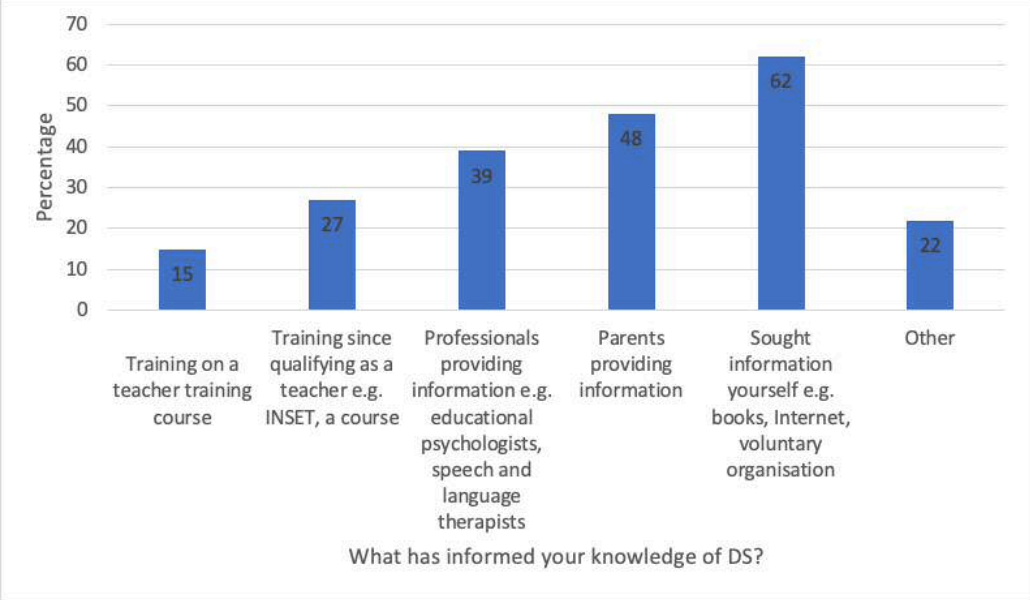
Variable	Category	Percentage
Educational stage taught	Primary school	69
	Secondary school	18
	Other	9
Experience of contact with children or adults with DS	None at all	6
	A little	35
	A moderate amount	29
	A lot	14

	A great deal	12
Experience of inclusion of DS	None at all	29
	A little	27
	A moderate amount	23
	A lot	12
	A great deal	5
Number of children with DS worked with	None	26
	1	19
	Between 1 and 10	43
	11 or more	6
Knowledge about DS as a condition	Extremely bad	6
	Somewhat bad	15
	Neither good nor bad	29
	Somewhat good	30
	Extremely good	8
Understanding of inclusive practice	Extremely bad	0
	Somewhat bad	2
	Neither good nor bad	7
	Somewhat good	52
	Extremely good	33
Confidence in ability to support the needs of children with DS	None at all	15
	A little	14
	A moderate amount	26
	A lot	31
	A great deal	9

Methods informing teachers' understanding of inclusive practice



Methods of informing teachers' knowledge of DS as a condition



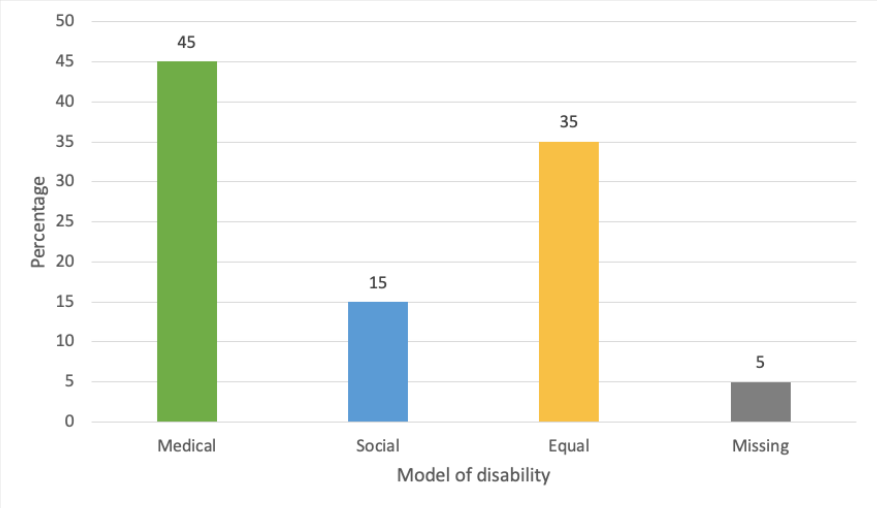
The extent to which teachers have access to forms of environmental support

To what extent do you think you have or could access the following forms of environmental support for students with Down's Syndrome in your school?	Mean score from 0-10
Financial resources/ funding	4.23
Pre-prepared teaching materials	4.47
Information technology equipment	4.87
Time for planning	3.60
Time for reflective practice	3.66
A modified and flexible timetable	4.78
A modified physical environment	4.80
Accessible buildings	5.36
Suitably sized classroom	5.09
A class with a suitable number of children	4.23
Suitable staffing (including learning support assistants/ one- to-one support)	5.35
Support from senior leaders	5.95
Available support from external professionals	5.55
Support from colleagues	6.60
Opportunities for training	4.60

The extent to which teachers are engaged with the social and medical model of disability

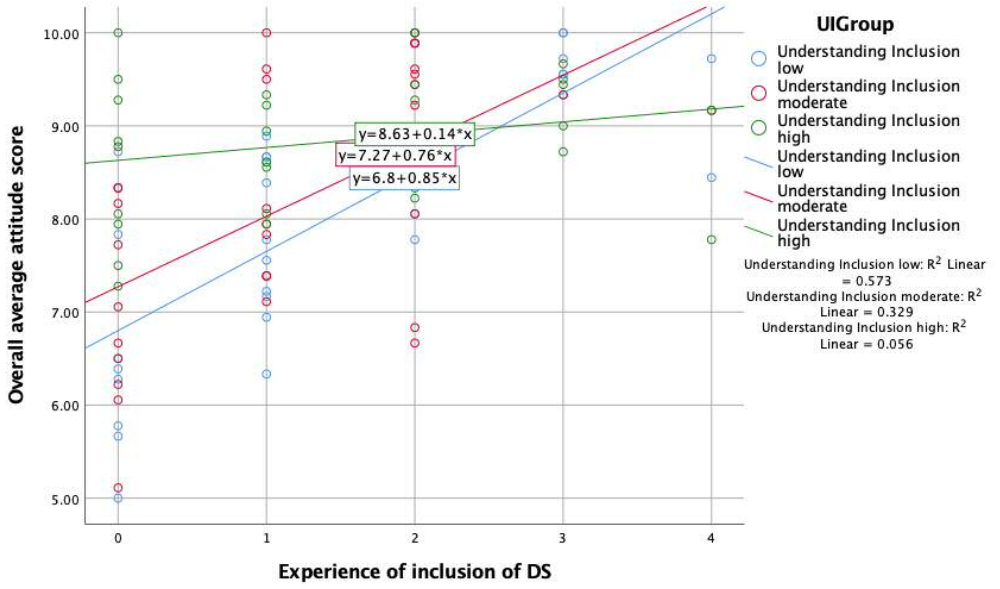
	Percent engaged with the medical model of disability	Percent engaged with the social model of disability
Definitely not	11	16
Probably not	8	23
Might or might not	32	35
Probably yes	39	20
Definitely yes	5	1
Missing	5	5

Percentage of Teachers Engaged More with the Social or Medical Model of Disability



Appendix F- Scatter Plots to Describe the Nature of Interaction Effects

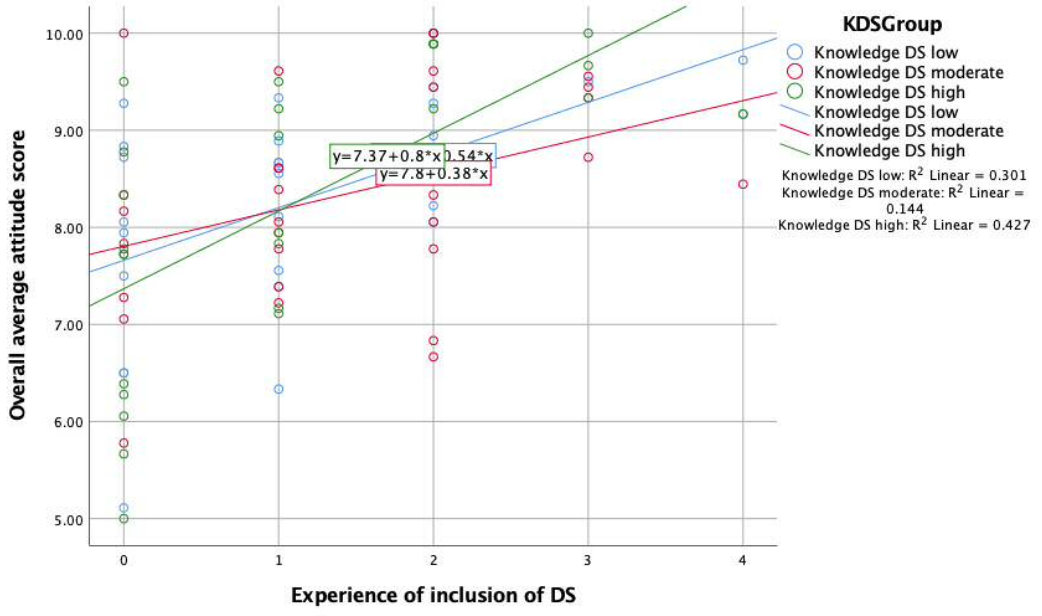
Scatter plot to explore the nature of the effect of the interaction between experience of inclusion and understanding of inclusion on overall attitudes



Square root of R^2 for correlation

Understanding inclusion low r= 0.76
Understanding of inclusion moderate r= 0.57
Understanding of inclusion high r= 0.24

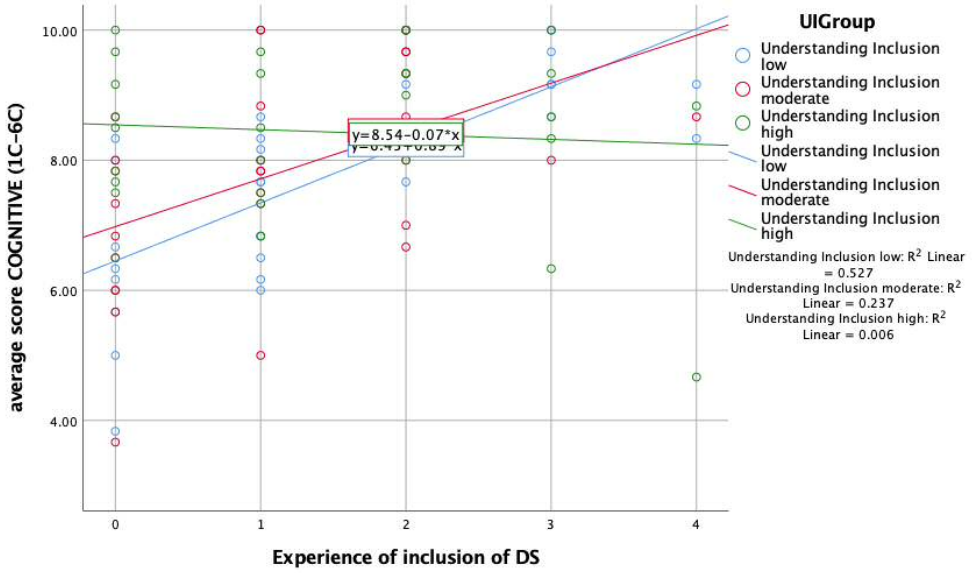
Scatter plot to explore the nature of the effect of the interaction between experience of inclusion and knowledge of DS as a condition on overall attitudes



Square root of R^2 for correlation

Knowledge of DS low r= 0.55
Knowledge of DS moderate r= 0.38
Knowledge of DS high r= 0.65

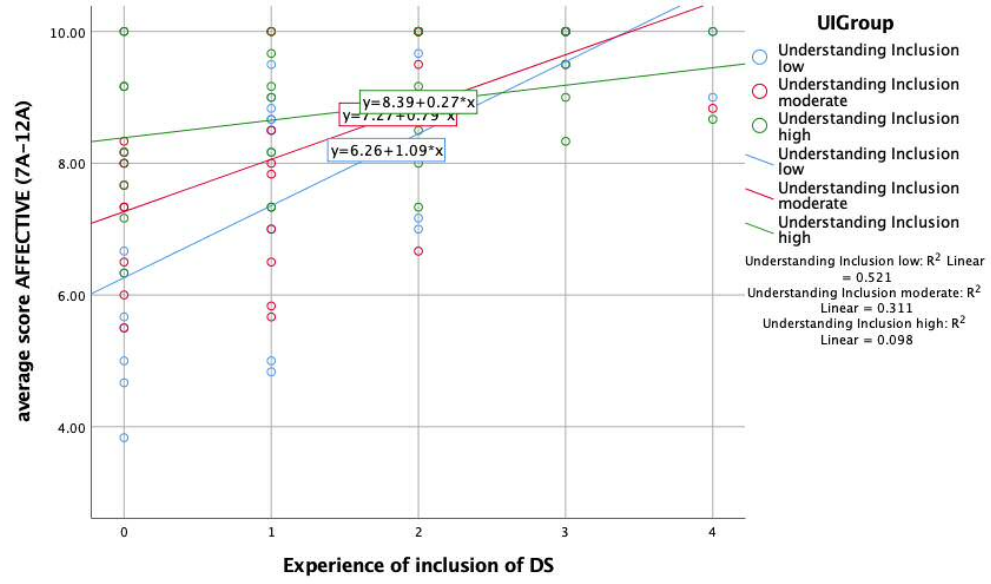
Scatter plot to explore the nature of the effect of the interaction between experience of inclusion and understanding of inclusion on the cognitive dimension of attitudes



Square root of R^2 for correlation

Understanding inclusion low r= 0.73
Understanding of inclusion moderate r= 0.49
Understanding of inclusion high r= 0.08

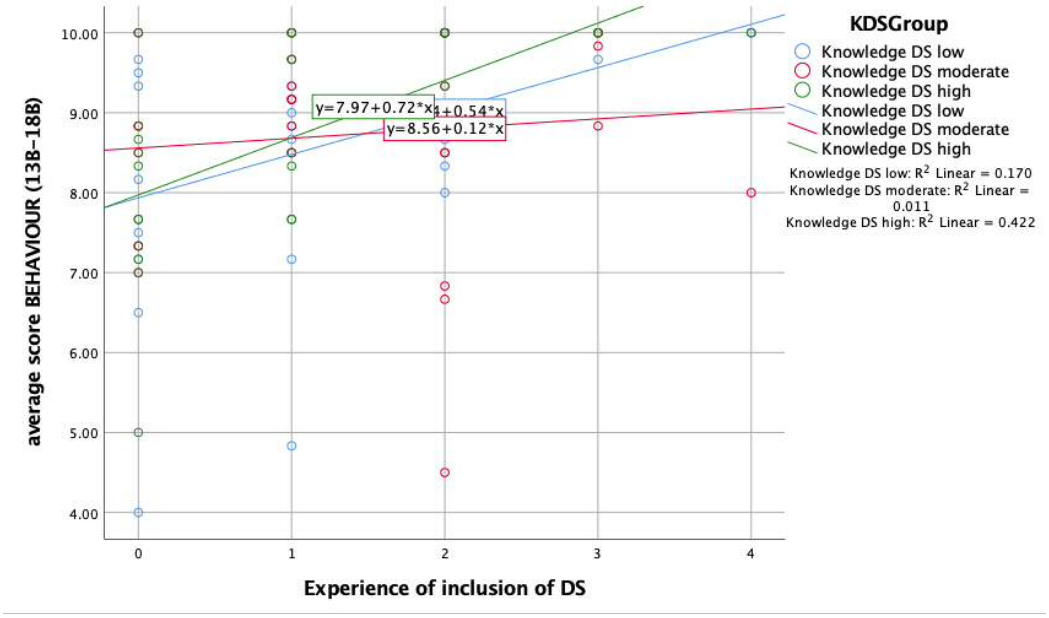
Scatter plot to explore the nature of the effect of the interaction between experience of inclusion and understanding of inclusion on the affective dimension of attitudes



Square root of R^2 for correlation

Understanding inclusion low r= 0.72
Understanding of inclusion moderate r= 0.56
Understanding of inclusion high r= 0.31

Scatter plot to explore the nature of the effect of the interaction between experience of inclusion and knowledge of DS as a condition on the behavioural dimension of attitudes



Square root of R^2 for correlation

Knowledge of DS low r= 0.41
Knowledge of DS moderate r= 0.10
Knowledge of DS high r= 0.65

Appendix G- Assumptions Tests for the Multiple-Linear Regression for Overall Attitudes

Conducting multiple-linear regressions requires the consideration of influential cases in the data by testing for outliers. Conducting multiple-linear regressions also requires a number of assumptions regarding the data to be met. These are a linearity and homoscedasticity, multivariate normality, independent errors and multicollinearity (Field, 2009).

Residuals and influential cases

Casewise diagnosis was used to identify the residual statistics in each of the multiple-linear regression. None were found in the multiple-linear regression for overall attitudes. It is expected that 95% of cases will have standardised residuals within +/- 2, so with a sample of 100 it could be expected that 5 cases (5%) would have standardised residuals outside of these limits. All three of the dimensions have less than 5 cases. It is also expected that 99% of cases should lie between +/-2.5, so with a sample of 100 we would expect 1 case (1%) to have residuals outside of these limits. All three dimensions have 1 case.

The 5 cases identified through the casewise diagnosis were tested using included Cook's distance, leverage and Manhalanobis distances. None of the cases have Cook's distance greater than 1 and so none of the cases is having an undue influence on the model. The average leverage was calculated as .14 and none of the values are considered to be more than twice as large. For the Mahalanobis Distance and exact cut-off point at which to worry is hard to establish, but it is generally considered that scores below 15 are fine (Field, 2009). The evidence suggests that there are no influential cases in the data.

Casewise Diagnostics cognitive

Case Number	Std. Residual	average score COGNITIVE (1C-6C)	Predicted Value	Residual
84	2.091	8.67	6.2823	2.38439
91	-2.852	5.00	8.2517	-3.25172
98	-2.404	3.67	6.4077	-2.74105

Casewise Diagnostics affective

Case Number	Std. Residual	average score AFFECTIVE (7A-12A)	Predicted Value	Residual
25	-3.086	4.83	8.2549	-3.42162

Casewise Diagnostics behavioural

Case Number	Std. Residual	average score BEHAVIOUR (13B-18B)	Predicted Value	Residual
6	-2.342	5.00	7.3786	-2.37858
98	-2.887	4.00	6.9318	-2.93184

Case summaries

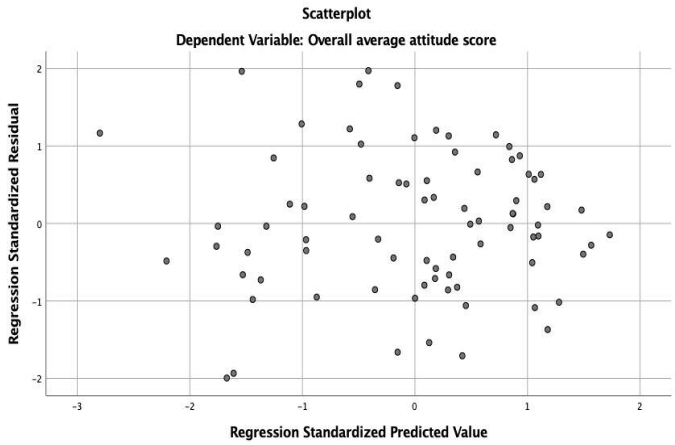
Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
6	13.54494	.06995	.17365
25	6.27301	.01674	.08042
84	8.56724	.03837	.10984
91	5.69842	.01869	.07306
98	8.96533	.03917	.11494

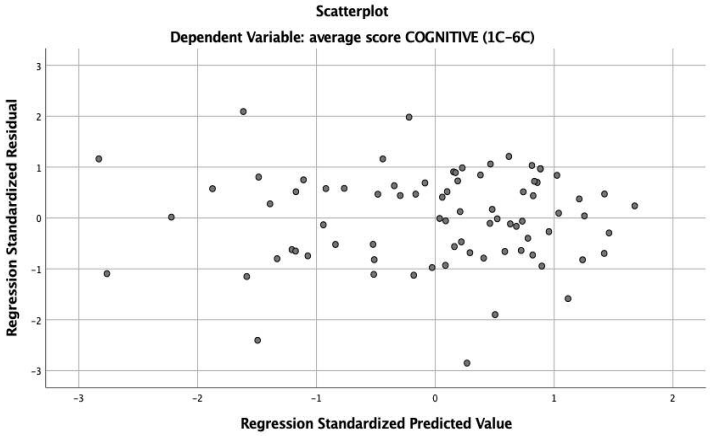
Homoscedasticity

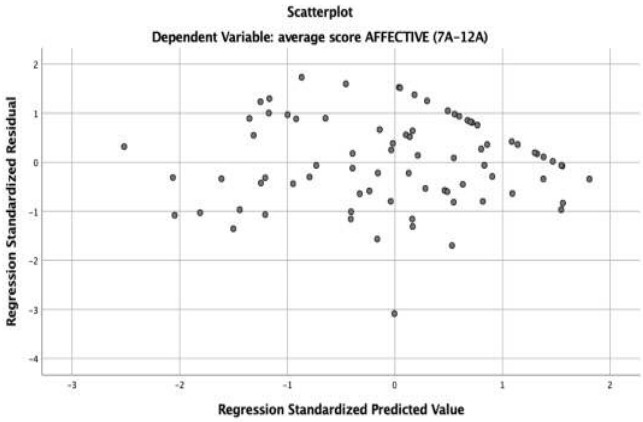
Homoscedasticity was tested by looking at the variances along the line of best fit on the scatterplots. No obvious outliers were identified, and the cloud of dots were evenly spaced out around the line. The four models appeared, in most senses, to be accurate for the sample and generalisable to the population.

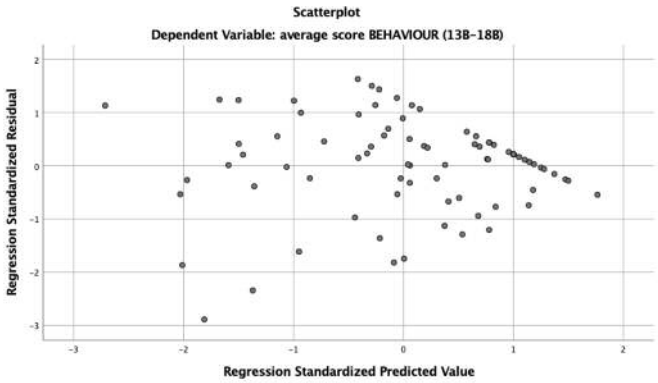
Linearity and heteroscedasticity

The points are randomly and evenly disbursed throughout the plots which is indicative of a situation in which the assumptions of linearity and heteroscedasticity have been met. Linearity tests if the mean values of the outcome variable for each increment of the predictors is along a straight line and homoscedasticity tests if at each level of the predictor variables, the variance of the residual are constant.



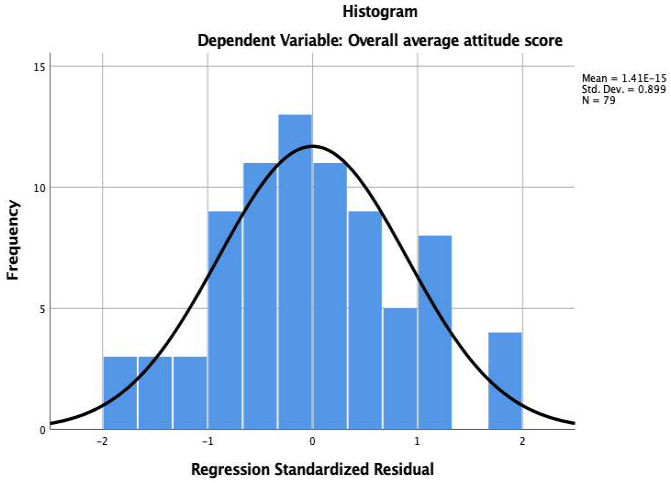


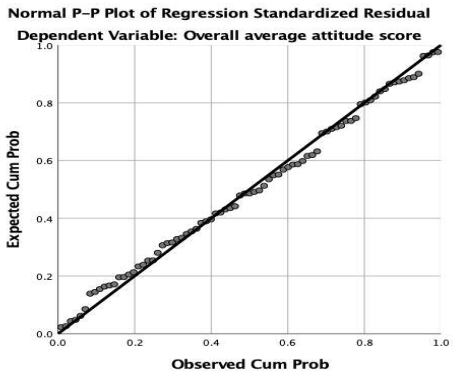


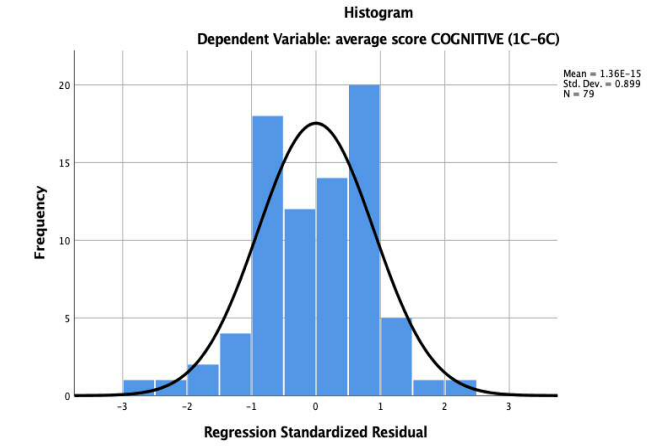


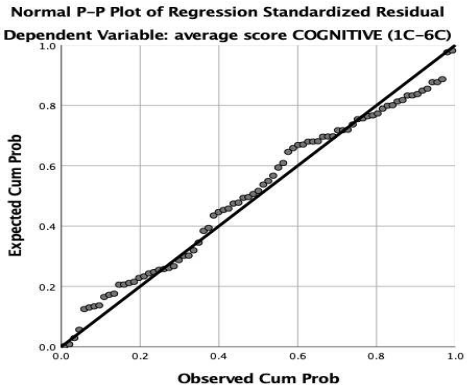
Multivariate normality

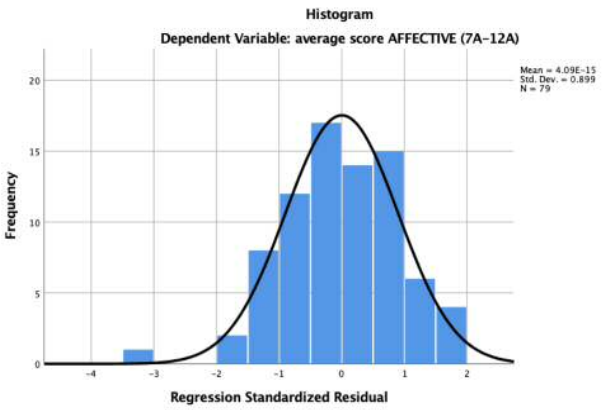
It is assumed that the residuals of the model are random, normally distributed variables with a mean of 0. Histograms and normal probability plots were used. All of the histograms were considered to be normally distributed. All four probability plots have straight lines which represents normal distribution and most of the points are on the line which suggests it is a normally distributed data set.

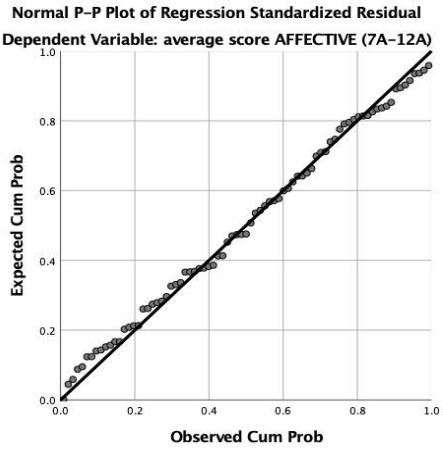


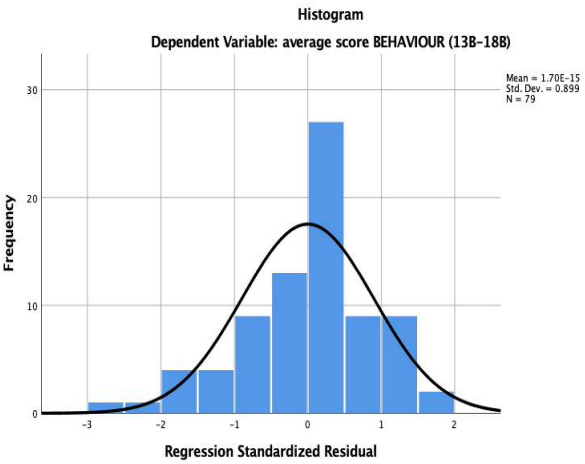


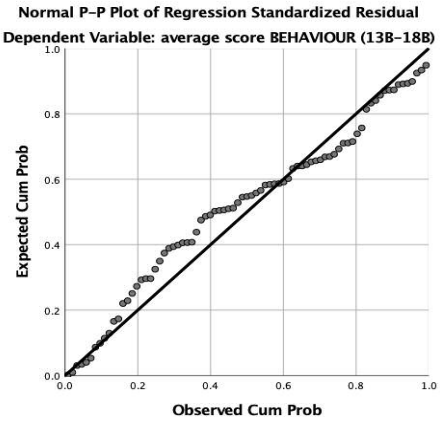

Histogram
Dependent Variable: average score COGNITIVE (1C–6C)
Mean = 1.36E-15
Std. Dev. = 0.899
N = 79
Frequency
Regression Standardized Residual


Normal P–P Plot of Regression Standardized Residual
Dependent Variable: average score COGNITIVE (1C–6C)
Expected Cum Prob
Observed Cum Prob


Histogram
Dependent Variable: average score AFFECTIVE (7A–12A)
Mean = 4.09E-15
Std. Dev. = 0.899
N = 79
Frequency
Regression Standardized Residual


Normal P–P Plot of Regression Standardized Residual
Dependent Variable: average score AFFECTIVE (7A–12A)
Expected Cum Prob
Observed Cum Prob


Histogram
Dependent Variable: average score BEHAVIOUR (13B–18B)
Mean = 1.70E-15
Std. Dev. = 0.899
N = 79
Frequency
Regression Standardized Residual


Normal P–P Plot of Regression Standardized Residual
Dependent Variable: average score BEHAVIOUR (13B–18B)
Expected Cum Prob
Observed Cum Prob

Independent errors

The Durbin-Watson test can be used to check for independent errors (Field, 2009). The Durbin-Watson scores for each multiple-linear regression were as follows: overall attitudes (1.980), cognitive dimension (1.626), affective dimension (2.040) and behavioural dimension (1.929). A score of 2 is uncorrelated and it can be loosely considered that scores below 1 and more than 3 are a cause for concern. This suggests that none of the multiple-linear regressions are likely to have problems with independent errors.

Multicollinearity

In the Statistical Package for the Social Sciences (SPSS) the Variance Inflation Factor (VIF) is used as the indicator. For overall attitudes, the average VIF in this multiple-linear regression was greater than 1, which means multicollinearity might be biasing the regression model. However, the scores are all below 3, which is argued to be the threshold for probably having multicollinearity (Bowerman & O'Connell, 1990, cited in Field, 2009). The tolerance statistic was also considered, with the rule that values below 0.2 are considered to be worthy of concern (Menard 1995, cited in Field, 2009). It was found that none of the scores are below or close to this.

Appendix H- Gatekeeper Letter

School of Psychology

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

Dear

I am an Educational Psychology Doctoral student in the School of Psychology, Cardiff University. As part of my degree, I am carrying out a study on '***Measuring teachers' attitudes to the inclusion of children with Down's Syndrome; Considering the factors that contribute'***

I am writing to ask for your permission to conduct this research in your school. You have been sent a confidential 'Gatekeeper Consent Form' and a 'Gatekeeper Information Sheet'. If you agree to take part, this consent form will need to be signed and returned to the researcher. You will be asked to circulate an online questionnaire to all qualified teachers. The questionnaires should take no longer than 15 minutes and can be done at their convenience over the next 6 months.

Many thanks in advance for your consideration of this project. Please let me know if you require further information.

Regards,
Natasha Krause

Natasha Krause
Trainee Educational Psychologist
School of Psychology
Cardiff University
70 Park Place
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CF10 3AT
krausens@cardiff.ac.uk

Ian Smillie
Supervisor
School of Psychology
Cardiff University
70 Park Place
Cardiff
CF10 3AT
smillie@cardiff.ac.uk

Appendix I- Gatekeeper Information Sheet

Gatekeeper Information Sheet

Research Title: *Teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables*

Invitation

This is a request to conduct this research with members of staff in your school. Before deciding whether teachers in your school should take part please take time to read the following information, ask any questions you may have and discuss any aspects of the research you may be unsure of. Thank you for reading this information sheet.

What is the project's purpose?

This research aims to evaluate teachers' attitudes towards the inclusion of children with Down's Syndrome.

Why have I been chosen?

You have been contacted because you are a head-teacher in a school and therefore the gatekeeper.

Do I have to take part?

Participation is voluntary, and you can decide whether you want your school to take part.

What do I have to do?

Circulate an online questionnaire which will have a deadline of November 2019. It will consist of questions ascertaining information regarding attitudes on the inclusion of children with Down's Syndrome. It should take around 15 minutes to complete.

What are the possible risks of taking part?

There are no identified risks involved in taking part in this research.

What are the benefits of taking part?

Whilst there are no immediate benefits in taking part, it is hoped the research will contribute to a further understanding of issues around the inclusion of children with Down's Syndrome.

What happens if something goes wrong?

If you have any questions or complaints about the research, please contact a member of the research team (contact details below)

Will contributions be confidential?

Participants are not asked to give their name or any personal information whilst participating in this research. Thee questionnaires will be kept securely and anonymously, and it will not be possible to trace data back to individual participants.

Can data be withdrawn?

Completed questionnaire are anonymised, therefore data cannot be withdrawn since data will not be identifiable. Choosing not to participate will not result in any negative consequences.

What happens to the results of the project?

The results of the project will be analysed and a written report produced which will be submitted as a part of my doctorate in educational psychology at Cardiff University. The data will be stored for a period of 5 years, in an anonymous form, before being destroyed. If you would like further information about the outcomes of the project, please feel free to contact a member of the research team. It is possible that the results of the research will be used in a publication, but all information used then will be anonymous.

Who is organising the research?

The research is organised by a doctoral student from Cardiff University, as part of her doctoral thesis.

Who has ethically reviewed the project?

This project has been reviewed and approved by the Psychology Department Ethics Review Board at Cardiff University.

Contacts for further information.
Natasha Krause (*krausens@cardiff.ac.uk*)
Ian Smillie (Supervisor) (*smillie@cardiff.ac.uk*)
Cardiff University Psychology Ethics Committee – psychethics@cardiff.ac.uk

The data controller is Cardiff University and the Data Protection Officer is Matt Cooper (CooperM1@cardiff.ac.uk). The lawful basis for the processing of the data you provide is consent.

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Natasha Krause.

The information on the consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Natasha Krause and Ian Smillie will have access to this information. After 4 weeks the data will be anonymised, and this anonymous information may be kept indefinitely or published.

Appendix J- Gatekeeper Consent Form

Gatekeeper Consent Form
School of Psychology, Cardiff University

Research Title: ***Teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables***

I understand that my participation in this project will involve circulating an online questionnaire to all school staff.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with the researcher, Natasha Krause or the supervisor, Ian Smillie.

I understand that the research data being collected may include sensitive information about the school. I specifically consent to this information being processed for the purposes of research. Please tick: ☐

I understand that the personal data will be processed in accordance with GDPR regulations (see privacy statement below).

I understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

I, _____(NAME) consent to participate in the study conducted by Natasha Krause, School of Psychology, Cardiff University with the supervision of Ian Smillie.
Signed: _____
Date: _____

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by [*name of researcher].*

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Natasha Krause. The information on the consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years.

The research information you provide will be used for the purposes of research only and will be stored securely. Only Natasha Krause and Ian Smillie will have access to this information. After 4 weeks the data will be anonymised, and this anonymous information may be kept indefinitely or published.

Appendix K- Teacher Information Sheet

Teacher Information Sheet- Questionnaire

Research Title: *Teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables*

Invitation

You are invited to participate in this research project. Before deciding whether to take part please take time to read the following information, ask any questions you may have and discuss any aspects of the research you may be unsure of. Thank you for reading this information sheet.

What is the project's purpose?

This research aims to evaluate teachers' attitudes towards the inclusion of children with DS.

Why have I been chosen?

You have been chosen to take part in the research because you currently work in a school.

Do I have to take part?

Participation is voluntary, and you can decide whether you want to take part and whether to withdraw at any point. As part of the online questionnaire, you will need to give consent to take part. Choosing not to participate or choosing to withdraw will not result in any negative consequences.

What do I have to do?

Complete an online questionnaire which will have a deadline of November 2019. It will consist of questions ascertaining information regarding your attitudes towards the inclusion of children with DS. There is a mixture of closed and opened questions. It should take around 15 minutes to complete. There will be a debrief form at the end of the online questionnaire. No payments or incentives will be offered as part of this research.

What are the possible risks of taking part?

There are no identified risks involved in taking part in this research.

What are the benefits of taking part?

Whilst there are no immediate benefits in taking part, it is hoped the research will contribute to research on the successful inclusion of children with Down's Syndrome.

What happens if something goes wrong?

If you have any questions or complaints about the research, please contact a member of the research team (contact details below)

Will my contributions be confidential?

The questionnaires will be kept securely and anonymously and it will not be possible to trace data back to individual participants.

Can I withdraw my data?

Once anonymised, data cannot be withdrawn since data will not be identifiable. Choosing not to participate will not result in any negative consequences.

What happens to the results of the project?

The results of the project will be analysed and a written report produced which will be submitted to the Education Psychology Department at Cardiff University. The data will be stored for a period of 5 years before being destroyed. If you would like further information about the outcomes of the project, please feel free to contact a member of the research team. It is possible that the results of the research will be used in a publication, but all information used then will be anonymous.

Who is organising the research?

The research is organised by a doctoral student from Cardiff University, as part of her doctoral thesis.

Who has ethically reviewed the project?

This project has been reviewed and approved by the Psychology Department Ethics Review Board at Cardiff University.

Contacts for further information.
Natasha Krause (*krausens@cardiff.ac.uk*)
Ian Smillie (Supervisor) (*smillie@cardiff.ac.uk*)
Cardiff University Psychology Ethics Committee – psychethics@cardiff.ac.uk

The data controller is Cardiff University and the Data Protection Officer is Matt Cooper (CooperM1@cardiff.ac.uk). The lawful basis for the processing of the data you provide is consent.

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Natasha Krause.

The information on the consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Natasha Krause and Ian Smillie will have access to this information. After 4 weeks the data will be anonymised, and this anonymous information may be kept indefinitely or published.

Appendix L- Teacher Consent Form

Teacher Consent Form
School of Psychology, Cardiff University

Teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables

I understand that my participation in this project will involve filling out an online questionnaire using Qualtrics. The questionnaires will take a maximum of 15minutes. The answers will be stored anonymously.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with the researcher, *Natasha Krause or the supervisor, Ian Smillie.*

Contacts:
Natasha Krause (Trainee Educational psychologist/ researcher) (*krausens@cardiff.ac.uk*)
Ian Smillie (Supervisor) (*smillie@cardiff.ac.uk*)
Cardiff University Psychology Ethics Committee – psychethics@cardiff.ac.uk

I understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

I understand that the research information provided by me will be held totally anonymously so that it is impossible to trace this information back to me individually. I understand that this information may be retained indefinitely or published.

Please click on the link below and read the 'Teacher Information Sheet- Questionnaire' for more information.

Privacy Notice:

The information provided on the consent form will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). This information is being collected by Natasha Krause This information will be held securely and separately from the research information you provide. Only the researcher will have access to this form and it will be destroyed after 7 years. The lawful basis for processing this information is public interest.

☐ I consent to participate in the study conducted by Natasha Krause, School of Psychology, Cardiff University with the supervision of Ian Smillie.

Appendix M- Teacher Debriefing Form

Thank you for taking part in the following project: *Teachers' attitudes to the inclusion of children with Down's Syndrome within mainstream educational settings and the influencing variables*. We hope you enjoyed taking part.

The aim of this project was to evaluate teachers' attitudes towards the inclusion of children with Down's Syndrome.

All information will be stored anonymously and therefore is no longer possible to withdraw your data once submitted.

If you think of any questions, please do not hesitate to get in touch.

Yours sincerely,
Natasha Krause
Trainee Educational Psychologist

Natasha Krause
Trainee Educational Psychologist
School of Psychology
Cardiff University
70 Park Place
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CF10 3AT
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Ian Smillie
Supervisor
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70 Park Place
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CF10 3AT
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Details of further contact for complaints:
Secretary of the Ethics Committee
School of Psychology
Cardiff University
Tower Building
Park Place
Cardiff
CF10 3AT
Tel: 029 2087 0360
Email: psychethics@cardiff.ac.uk
The data controller is Cardiff University and the Data Protection Officer is Matt Cooper CooperM1@cardiff.ac.uk. The lawful basis for the processing of the data you provide is consent.

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Natasha Krause.

The information on the consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years.

The research information you provide will be used for the purposes of research only and will be stored securely. Only Natasha Krause and Ian Smillie will have access to this information. After 4 weeks the data will be anonymised, and this anonymous information may be kept indefinitely or publish

Appendix N- R^2 and Adjusted R^2 Values

Overall attitudes R^2 and adjusted R^2 values

Overall attitudes	R Square	Adjusted R Square
Model A	.611	.561
Model B	.617	.554
Model C	.669	.590

Cognitive dimension R^2 and adjusted R^2 values

Cognitive dimension	R Square	Adjusted R Square
Model A	.421	.346
Model B	.447	.357
Model C	.510	.394

Affective dimension R^2 and adjusted R^2 values

	R Square	Adjusted R Square
Model A	.523	.461
Model B	.527	.449
Model C	.580	.480

Behavioural dimension R^2 and adjusted R^2 values

	R Square	Adjusted R Square
Model A	.491	.425
Model B	.500	.418
Model C	.552	.445