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Abstract

Purpose. This project aimed to explore the self-efficacy of trainee teachers from one higher education institution in England, as well as their knowledge of autism, experience of educating autistic students, and their training needs.

Design. This study utilised a cross-sectional design by means of a mixed methods approach. A sample of 31 trainee teachers from one higher education institution in England responded to a survey, which included a measure of teacher self-efficacy (The Autism Self-Efficacy Scale for Teachers), and autism knowledge (Autism Spectrum Knowledge Scale General Population). Eleven trainee teachers engaged in a follow up interview.

Findings. Trainee teachers' knowledge of autism was comparable to that of the general population. Self-efficacy to teach autistic students varied considerably amongst trainee teachers. A thematic analysis of findings identified three main themes; (1) Gaps between theory, inclusive intent and practice, (2) Systemic barriers to true inclusion, and (3) Institutional cultures.

Originality. Findings from this preliminary exploration into the knowledge, experiences and self-efficacy of trainee teachers working with autistic students in England suggested that specialist knowledge of autism, teacher self-efficacy and opportunities for training were lacking. A more consistent approach to delivering evidence-based training is, in-part, what is needed to promote the inclusive education of autistic students.

Key words

Autism, Teacher training, Inclusive education, Autism training, Autism knowledge, Teacher self-efficacy, Developmental disability

Introduction

Autism is defined, within the Diagnostic and Statistical Manual of Mental Disorders-5, as a developmental disorder, while a diagnosis of intellectual disability (ID) refers to deficits in both intellectual (i.e. an intelligence quotient (IQ) score two standard deviations or more below population norms) and adaptive functioning (American Psychiatric Association, 2013). Autism and ID often co-occur, with estimates suggesting that approximately 30-47% of autistic individuals have ID (Baio *et al.,* 2018; Postorino *et al.,* 2016). Autistic individuals have varying degrees of strengths and challenges in relation to social communication, social interaction, and social imagination described by Wing and Gould (1979) as the triad of impairments. More recent concepts of neurodiversity and the social model of disability have challenged traditional ideas that describe autism as a 'disorder' (Dwyer, 2022). Rather, autism represents a natural variation within the spectrum of human cognition and the difficulties experienced by autistic people are understood as resulting from a non-inclusive environment that does not accommodate the needs and individual characteristics of autistic people (Pellicano and Houting, 2022). The social model of disability which emphasizes social structures in the construction of autism (Dwyer, 2022) underpins the need for further research into more systemic issues that perpetuate the exclusion of autistic students.

The prevalence of autism varies across the world, affecting about 1–3% of children (Chiarotti and Venerosi, 2020; Elsabbagh *et al.,* 2012; Jiang, Chen, Su, & Liu, 2024; Shaw, 2025). Reported figures have suggested that 33% of students in England with an Education Health Care plan (EHC plan) have Autism listed as their primary type of need, amounting to 132,200 students (Department for Education, 2025). More broadly, the number of students in schools in England with Special Educational Needs has increased from 2024 to over 1.7 million (Department of Education, 2025). Throughout an individual's educational journey, autism with/without mild ID may affect every aspect of their experience, including social interaction, communication, sensory processing, and cognitive functioning (APA, 2020; Chen *et al.,* 2009). Therefore, it is essential that teachers understand the unique characteristics of autistic students and how best to support them with learning.

Worldwide educational inclusion policy (UNESCO, 2017), as well as legislation and guidance in England (Autism Act, 2009; Children and Families Act, 2014; Equality Act, 2010; SEND Code of Practice: 0-25 years, 2015; SEND and Alternative Provision Improvement Plan, 2023) has supported the educational inclusion of autistic students in mainstream education. Despite a drive by policymakers for autistic students to be included in mainstream classrooms, there has been a lack of appropriate support for staff and students leading to challenges when teaching (Costello and Boyle, 2013; Department for Education, 2018; Humphrey and Symes, 2013; Symes and Humphrey, 2011). Consequently, autistic student are more likely to be excluded from school when compared to other groups of students (Department for Education, 2024a). Figures have suggested that exclusions of autistic students more than doubled between 2010 and 2021 from 2,282 to 5,988 (Department for Education, 2022a). As many as 43,040 (30.1%) of autistic students were persistent absentees in 2020/2021, accounting for nearly a third of all autistic students (Department for Education, 2022b). Furthermore, Ambitious About Autism (2022) highlights the prevalence of exclusions not accounted for by government statistics whereby many autistic students experience 'informal' exclusions.

Most recently, The National Strategy for Autistic Children, Young People and Adults: 2021 to 2026 (2021) outlined government objectives to improve the support provided by schools to autistic students and outlined government aims to increase teachers' understanding of the specific needs of autistic students through the provision of autism training and professional development for staff.

Autism knowledge and training

Autism knowledge is essential to ensure teachers are trained and prepared to support the social, cognitive, emotional and behavioural needs of autistic students. However, evidence has suggested that teachers often do not possess relevant knowledge to implement student-focused evidence-based practice (Freeman *et al.,* 2014; Morrier *et al.,* 2011; Paisley *et al,* 2023; Paynter *et al.,* 2017). In a survey conducted in the UK by the National Autistic Society (2021), as many as seven in ten autistic students said school would be better if more teachers understood autism. These findings are further

supported by research seeking the views of teachers who have reported feeling ill-equipped to provide adequate support to this group of students (Busby *et al.,* 2012; Gilchrist 2012; Humphreys and Lewis 2008; Humphrey and Symes 2011; Osborne and Reid 2011; Price 2012; Reid and Batten 2007; Vincent and Ralston 2020; Wainscot *et al.,* 2008). Drawing on the perspectives of teachers, autistic young people, and their parents, the All Party Parliamentary Group on Autism (APPGA, 2017) reported that teachers often lack adequate training and understanding of autism, which negatively affects students' mental health and contributes to higher rates of school exclusion.

Leach and Duffy (2009) suggested that teaching autistic students required specific approaches that mainstream teachers may not be familiar with. Several interventions have been developed to support autistic students whilst in school (Odom *et al.,* 2021). For example, the TEACCH Programme (Treatment and Education of Autistic and Communication-handicapped Children) is a skills-based intervention which uses individualised structured teaching approaches including visual supports to support the development of communication and social skills and by doing promote independence and reduce anxiety amongst children and adults with developmental disabilities, (*Mesibov et al.,* 2005). Other approaches found to be effective in the teaching of autistic students include teachers providing structured routines and modelling learning including giving clear instructions to learners and reviewing lesson content to improve engagement in learning (Peterson-Bloom, 2022).

However, researchers have reported that as few as one in four teachers receive specific training on autism during their university training, and while eight in ten receive some training in schools it is often not sufficiently grounded in research (Bennett, 2013). Even when teachers have received autism training, fewer than fifty percent felt confident supporting autistic students (APPGA, 2017). Where autism training has been conducted, research has suggested the outcomes of training has a positive impact on relationships with autistic students (Blatchford *et al.,* 2009).

Teachers' self-efficacy

Where a lack of knowledge and understanding persists and challenges associated with teaching autistic students arise, the self-efficacy of teachers can be undermined (Anglim *et al.,* 2018; Rodden *et al.,* 2018; Ruble *et al.,* 2013). Self-efficacy represents "beliefs about one's capabilities to deliver content effectively, manage the classroom environment, and engage students successfully" (Ruble *et al.,* 2013, pg.1). A lack of self-efficacy can lead to a reduced likelihood of teachers accepting responsibility for this group of students, therefore impacting on the inclusion of autistic students in the classroom (Busby *et al.,* 2012). Researchers have found a significant correlation between self-efficacy and attitudes towards the inclusion of autistic students (Beamer and Yun, 2014; Lu *et al.,* 2020). Utilising online Likert scales, Baek, Aguilar and Warschauer (2024) measured the self-efficacy of 180 international teachers working across a diverse range of settings, including primary and secondary education. As measured by modified versions of the Autism Self-Efficacy Scale for Teachers (Ruble *et al.,* 2013) and the Willingness to Accommodate scale (Lombardi and Murray, 2011), teachers had a high willingness to provide accommodations, but limited confidence in doing so. Further, those with experience of teaching special education exhibited higher self-efficacy than those with limited experience. However, the provision of education for autistic students varies globally and the unique experiences of individuals being trained to teach in England therefore warrants further exploration. The individual experiences of trainee teachers in England, their opportunities for autism specific training and the self-efficacy of trainee teachers working with autistic students in England has not previously been explored.

The study adopted a social constructionist theoretical framework and raises concerns about inequalities in relation to how autistic students experience their learning within mainstream secondary school settings. It sits within the academic field of critical social research, the purpose of which goes beyond interpretation aiming for equality (Cohen *et al.,* 2017). Therefore, by questioning existing structures including trainee teachers' classroom practices, the study aimed to consider how autistic students' learning experiences might be made more inclusive.

Aims

This project aimed to explore the self-efficacy of trainee teachers from one higher education institution in England as well as their knowledge of autism, experience of educating autistic students, and their training needs. The research aimed to explore the following research questions: (i) What is the knowledge of autism amongst trainee teachers at one higher education institution in England? (ii) What are the experiences of trainee teachers teaching autistic students at one higher education institution in England? (iii) To what extent do trainee teachers at one higher education institution in England have self-efficacy to teach autistic students?

Research Design and Procedure

This study utilised a cross-sectional design by means of a mixed methods approach consisting of a survey and semi-structured interviews. Participants were recruited using purposive sampling, whereby trainee teachers had enrolled on either a Postgraduate Certificate in Education (PGCE) primary course, a PGCE secondary course, the undergraduate teacher training course for primary education, or an undergraduate teacher training course for secondary education were invited via email to participate in the study. Ethical approval from the higher education institution in which the study took place was granted prior to data collection commencing. A hyperlink to the survey containing a participant information sheet and consent form were shared with potential participants. The survey was developed using Jisc and included demographic questions (age, ethnicity, job role, years of experience working with autistic people), a measure of self-efficacy (Autism Self-efficacy Scale for Teachers; Ruble *et al.,* 2013), a measure of autism knowledge (Autism Spectrum Knowledge Scale General Population; McClain *et al.,* 2019) as well as a scoping exercise to determine experience of teaching autistic students, and teacher strategies used to support autistic students.

Participants who completed the survey were invited to participate in a more in-depth semi - structured interview. The semi-structured interview schedule was developed from a review of the

literature. Interviews were facilitated using Microsoft Teams and were recorded and transcribed by the researchers.

Measures

The Autism Self-Efficacy Scale for Teachers (ASSET; Ruble *et al.,* 2013) is a 30 item self-report measure developed to assess the beliefs of special education teachers about their ability to carry out their professional tasks associated with teaching autistic students. Respondents are asked to rate their efficacy from 0 (cannot do at all) to 100 (highly certain can do) to conduct various assessment, intervention, and classroom-based practices relevant when teaching and supporting autistic students. The mean score across items is calculated, with higher scores reflecting higher self-efficacy. Reliability estimates for the ASSET items were α =.96, indicating good reliability. Analysis of the psychometric properties of dimensionality and internal consistency of the 30-item ASSET indicated that all items reflected one dominant factor and 28 of 30 items had pattern loadings considered substantial (pattern loading > .5), indicating construct validity.

The *Autism Spectrum Knowledge Scale General Population* (ASKSG; McClain *et al.,* 2019) was developed to measure the general population's knowledge and understanding of autism. The self-report measure is composed of 31 items requiring a response of either true or false. Using Item Response Theory Analysis and Rasch modelling, authors ordered items from easy to difficult. The percentage of correct responses is calculated and converted to a standardised score to account for the varying difficulty of items. A higher standardised score is indicative of better knowledge and understanding of autism. Previous research has indicated acceptable reliability and validity, whereby Cronbach's alpha on the 31 items indicated acceptable internal consistency (α = .75).

Participants

Survey. A total of 31 trainee teachers from one higher education institution in the UK enrolled primary (n=27) or secondary courses (n=4) participants completed the online survey (19.4%

male, 71% female, and 9.7% non-binary). Participants were aged 19-42 years (Mean = 25.13, SD = 5.80, n = 30). Most participants (74.2%) identified as White-UK/Irish. The number of days experience prior to teacher training ranged from 0 to 14 years (Mean = 634.88 days, SD = 1412.97). Most participants had some lived experience of autism outside of their role of a teacher (80.6%, n = 27), including being autistic themselves (see Table I).

[Insert Table I]

Interviews. A total of 11 female participants aged between 21-54 years (Mean=27.3, SD=9.80, n=10) agreed to engage in interviews, five of whom had some lived experience of autism. Participant were White British (n=8), Bangladeshi (n=2), and Bengali (n=1).

Analysis

Descriptive statistics were used to summarise the quantitative data collected from the survey. A combination of an inductive and deductive approach to analysing the data gathered from the interviews was applied. Adopting Braun and Clarke's (2006) six step process involved familiarisation with the data from which codes were derived and themes developed. After analysis of eight interviews, no new information or categories in the data emerged in the subsequent three interviews, suggesting saturation had been achieved.

Results

Knowledge of autism amongst trainee teachers

Estimated and standardised autism knowledge scores, as measured by the ASKSG, ranged from -1.26 to 2.59 (Mean = 0.80, SD = 0.74, n = 31). The number of items answered correctly ranged from 8 to 28 (Mean = 20.32, SD = 4.02, n = 31), which is in line with previous research conducted with the general population (McClain *et al.,* 2019). The easiest item on the ASKSG, *Many individuals with autism spectrum disorder have difficulties expressing themselves* (item 13), was answered correctly by 93.3% of respondents (n = 28). A moderately difficult question, *Up to 70% of individuals*

with autism spectrum disorder have difficulties living and working independently in adulthood (item 29), was answered correctly by 100% of respondents (n = 30). The most difficult item, *A diagnosis of autism spectrum disorder can only be diagnosed by a medical doctor* (item 21), was answered correctly by 25.8% of the sample (n = 8).

Autism Training

Of the 31 trainee teachers, under half (41.9%) had received any autism training (see Table. II). Most participants felt that 1-2 days of training on autism was enough to meet their needs (n =13), although 29% felt a week of more worth of training was needed (n = 9) and 6.5% of respondents did not think any training was needed (n = 2). The majority of respondents felt autism training should be delivered by experts in schools (64.5%) and universities (67.7%).

[Insert Table II]

Self-efficacy of trainee teachers working with autistic students

Mean scores on the ASSET were used to measure self-efficacy and ranged from 27.17 to 82.50 (Mean = 58.57, SD = 12.38, n = 31), which suggested low self-efficacy scores for some trainee teachers.

Thematic analysis of interviews

Findings from the interviews are summarised under three main themes; (1) Gaps between theory, inclusive intent and practice, (2) Systemic barriers to true inclusion, and (3) Institutional cultures (see Fig. 1).

[Insert Fig I]

Gaps between theory, inclusive intent and practice

Trainee teachers acknowledged gaps in their understanding of autism and how best to support autistic students. Despite their reported motivation to be inclusive, their experiences of teaching autistic students suggested this was challenging to achieve in practice. The main theme and sub-theme (*Training as performative* and *Segregation as a hidden consequence)* represent the challenges trainees experienced in bridging the gap between theory and practice.

Trainee teachers expressed a commitment to inclusion through their identification of several strategies they used in the classroom to engage autistic students and support their learning. Techniques included “scaffolding”, “differentiated worksheets”, providing students with “additional time to complete tasks”, providing “advanced warnings” to changes in routine, “incentivising learning” and providing students with person-centred support with learning. Despite these intentions, the lack of concrete examples for how teachers supported autistic students suggested a gap between their theoretical knowledge and practice.

Trainee teachers emphasised that although they had engaged in some autism training, they felt unable to implement what they had learnt. One trainee teacher recalled:

> We had a woman coming in from an outside agency and I can't remember where she was from, but she was so passionate and she had all these different things like fidget toys and examples of classes, timetables and emotion charts, and all the teachers were just in agreement. But then nothing's been put in place. And it's like, what's the point?

Training appears performative

Trainee teachers consistently highlighted the individuality of autism, stressing the need to observe and interact with every autistic student. They perceived autism as highly individualised, requiring nuanced understanding rather than prescriptive strategies. Whilst 51.6% of survey respondents reported using a person-centred approach and 48.4% a strengths-based approach,

qualitative data revealed limited evidence of these approaches in practice. This suggests that while teachers may have endorsed inclusive philosophies, they struggled to implement them effectively.

A recurring theme was the need for more comprehensive and practical training. One trainee noted, "I think considerably more training is a really, really big factor and maybe even going into a setting where you are interacting with children with autism." This indicates limited confidence and insufficient preparation for adapting strategies in classroom contexts. Trainees valued training that focused on individual cases, as illustrated by the comment:

> What I found really useful about that, we would look at specific children. And so we did, we do a lot of whole school CPD […] where as a group of teachers we would look at specific children as illustrations of how those, how autism might present itself in different children.

In contrast, most trainee teachers reported that training introduced strategies without practical demonstration, creating a gap between theory and practice. As one trainee explained:

> They don't go into as much detail as you would expect them to, and it's kind of like, oh, you could do all of these different things. And it's like you're not showing us how to actually do it […] Umm, because it's all well and good and knowing about strategies, but then either seeing them being put in place or doing them yourself is completely different.

This suggests their training focused on theoretical frameworks over experiential learning. Although autism trainers may provide resources and ideas, training may not lead to actionable change. Consequently, training appears performative, with schools and universities demonstrating compliance with inclusion agendas without embedding strategies into practice. This reflects a broader disconnect between policy and classroom practice, where inclusion remains aspirational rather than enacted.

Segregation as a hidden consequence

Lack of knowledge and understanding of autism, as well as systemic barriers to inclusivity may have led to a reliance on whole classroom approaches to behavioural management. For example, one participant described how the behaviour of all students was managed in a practical lesson:

> It's a learning consequence, so if they done certain aspects, certain things or not done certain things, they'll be issued with a C1, which is their kind of first strike. First strike really to kind of say just don't talk when I'm talking, you know, kind of really work or I've asked you to do this or I've asked you not to do this or I've asked you not to get tools when you're told not to and things like that. And if then they don't adjust their behaviour and they continue to do things in that way they get a second strike. At that point somebody comes to the classroom to pick them up. And that's not just autistic students. This is everybody.

However, this universality masks the disproportionate impact on autistic students, who may struggle more with compliance due to sensory or communication differences. The punitive framing ("strikes") suggests a deficit-based approach rather than a strengths-based one, despite survey data indicating some adoption of strengths-based practices. In contrast, frequent breaks and sensory accommodations (ear defenders, quiet rooms) are framed as supportive strategies, whereby trainee teachers appeared to be more understanding to the needs of the learners. While intended as supportive, these practices may inadvertently lead to social isolation and reinforce segregation.

One trainee teacher described the experience of alternative provision for one student at the mainstream school in which they were placed:

> Some of them never left. I remember there was one girl in there who was technically in year nine, but mentally I would say she was six years old and she really needs to be in a specialist school, but they're really struggling to find her place. And so she's never left hub. She has her breaks in hub. She gets her food brought to her, all that stuff, you know, she doesn't leave.

The example of the student permanently in the "hub" highlights how alternative provision can become a form of exclusion. One trainee teacher defined the autistic students in the school by the means of segregation away from their peers, describing how they had "taught bridge kids before they went into the bridge, and they're nice kids. They just got, you know, attitude or defiance or some sort of reason why they just don't like school. But they're nice to you". The term "bridge kids" and descriptions of alternative spaces suggest that segregation is embedded in school practices. Furthermore, offering frequent breaks to students or time-out was the most frequent strategy used by 83.9% of survey respondents. Although beneficial on occasions, taken together these findings may suggest that some autistic students were segregated and isolated away from others for prolonged periods of time, and their exclusion was rationalized through behavioural explanations.

Systemic barriers to true inclusion

The main theme, *Systemic barriers to true inclusion*, includes the sub-theme *Autism constructed through deficit and disruption* and describes how trainee teachers were conflicted between their desire to be person-centred in their approach and systemic constraints beyond their control.

Teachers valued building relationships and autonomy for autistic students. For example, one trainee teacher stated:

> The best thing with autistic children is to create a relationship with them, and yes, it may take time […]. You need to understand them as a person and at the end of the day it might be even, you know when the class is over going oh can I talk to you for five minutes.

However, these ideals conflicted with rigid behavioural management systems which include, for example, the use of "strikes", which prioritise compliance over individual needs. This duality reflects systemic pressures that teachers may feel compelled to enforce uniform discipline even when it undermines inclusion. Further, one student remained in the 'hub' indefinitely due to placement challenges. This reflects systemic inadequacies as mainstream schools' lack resources or flexibility to accommodate complex needs, and specialist placements are scarce. The narrative exposes a structural failure rather than an individual teacher's lack of knowledge and skill. Rather, teachers recognize the emotional investment required to build trust with autistic students ("it may take time").

Systemic barriers to inclusivity, such as lack of time, large class sizes, and funding shortages, were framed as practical constraints. For example, "You know, you do need to know your students, and I know it's difficult with thousands and thousands of kids. And that does take time". Similarly, a second trainee teacher stated:

> I understand you have some teachers who just don't have the time and they don't put the effort in understanding these children." In addition, "funding is a big, big concern at the moment with schools not having enough funding to implement these sort of things.

These constraints normalize structural exclusion by framing it as inevitable rather than contestable.

Trainee teachers' experiences of autism training were also inconsistent, whereby the quality and quantity of training varied by placement. This variability serves to construct structural inequity whereby trainees' competence is dependent on chance factors like school allocation. This suggests

systemic fragmentation in teacher preparation, where institutional responsibility for SEND training is diffuse and uneven. Trainees also acknowledged the need to be inquisitive and self-directed, which reflects a shift of responsibility from institutions to individuals, potentially normalizing under-provision by framing gaps as opportunities for self-development. Professional competence therefore becomes an individual burden rather than a systemic guarantee.

Autism constructed through deficit and disruption

Trainees described autistic students as "lower ability," "disruptive," and "emotional." These descriptors reveal a deficit-based framing, where autism is understood primarily through what is lacking or problematic rather than through strengths or diversity. Some trainees appeared surprised by "the extremes" of autism presentation which indicates a narrow, stereotypical perception of autism prior to practicing in school. Moreover, it suggests that training failed to convey autism's heterogeneity, reinforcing the gap between theoretical preparation and autistic learners' complex and individualised learning needs whilst in the classroom.

Institutional cultures

The main theme, *Institutional Cultures*, inclusive of the sub-theme *Professional Identity and Responsibility*, highlights how normalized practices and school cultures hinder the inclusion of autistic students. Inclusion is undermined not only by trainee teachers' gaps in knowledge and self-efficacy but also by cultural practices embedded in schools' operational priorities, which focus on improving academic performance.

When discussing barriers to training being implemented, one trainee teacher remarked, "If the mainstream schools don't wanna put it into practice, then it's just not gonna happen, there's going to be no steps forward in it." This suggests that leadership resistance to implementing training reflects school priorities where students' academic performance is a priority, which may mean that less time is given to individualising students' learning needs.

Institutional cultures influence school policy and shape environmental factors that conflict with the sensory and emotional needs of autistic learners. Examples include open-door policies, where senior leadership enters classrooms to observe practice, and corridor noise that disrupts autistic students' learning.

Trainee teachers expressed frustration at the absence of visible expertise, noting they did not see "best practice." An absence of expert colleagues in teaching autistic students might perpetuate uncertainty amongst the trainee teachers. Additionally, trainees acknowledged the persistence of **"**stigma**"** surrounding autism within schools. Such stigma operates at multiple levels: it marginalises autistic identity as undesirable and influences teacher attitudes and expectations, ultimately shaping classroom practices.

Professional identity and responsibility

Some trainees viewed autism expertise as "beyond their job role", perceiving SEND as specialised, beyond their expertise and the responsibility of the SENCO. One trainee teacher described how "Trainee teachers again have that mindset of ahh well, it's just the SENCO's job", therefore suggesting some personal resilience amongst trainee teachers to further their understanding and better their practice. In contract, another participant placed the responsibility on the subject teachers stating, "Everything that can be done, you just need to have a teacher who was willing to do it and is ready to do it" highlighting the impact of teachers' individual values on practice.

Nevertheless, the role of the SENCO was consistently perceived as essential for change, whereby the inclusion of students with SEND is reliant on a single overstretched role, as recognised by one trainee teacher who stated, "the role of the SENCO is huge. Often you are a class teacher as well as being the SENCO, so your workload is almost doubled because you've got to teach full time and then be a SENCO and having that time to sit down and think about all the strategies that could be put in place is just not there."

Discussion

Summary of main findings

Preliminary findings on the knowledge, experiences, and self-efficacy of trainee teachers working with autistic students in England indicate that, despite the publication of The National Strategy for Autistic Children, Young People and Adults (2021) aimed at increasing autism awareness and promoting inclusion in mainstream education, trainee teachers at one higher education institution possess knowledge of autism comparable to that of the general population. These findings are perhaps unsurprising given that under half of the respondents reported having received any autism training. Findings also showed that self-efficacy to teach autistic students varied considerably amongst trainee teachers. Findings from the survey were supported by more-in-depth interviews with a small sample of trainee teachers who expressed a lack of understanding for evidence-based practices to support autistic students. Classroom strategies identified in the interviews supported the survey results, which suggested an over reliance on behavioural management techniques. These included giving students "differentiated" worksheets to complete – a strategy which appeared to put the teacher in control of managing student behaviour overlooking the value of collaborative and co-operative learning. This teaching approach arguably conflicts with more recent best practice guidance for teaching professionals which seeks 'to understand students' differences, including their different levels of prior knowledge and potential barriers to learning, is which an essential part of teaching' (Department for Education, 2019, p.20), and raises questions around the interviewees values when teaching autistic students.

Trainee teachers also identified barriers to providing support to their autistic students in the classroom, which included a lack of time and funding. Supporting these findings, evidence from the literature has suggested that *Early Career Teachers* and experienced teachers indicate that their greatest concern regarding inclusive education is inadequate resources and lack of staff (Busby *et al.,* 2012; Forlin and Chambers, 2011; Round *et al.,* 2016; Ruel *et al.,* 2015). However, findings from

the current study suggested that teachers' placed responsibility of having knowledge and expertise of SEND students' learning needs with the SENCO. Furthermore, trainee teachers' perceptions that specialist knowledge of autism and the provision of individualised support is beyond the scope of their job role may suggest there are additional barriers to providing support.

Strength, limitations and future research

The current study offers a preliminary exploration into the knowledge, experiences and self-efficacy of trainee teachers working with autistic students in England. Being recently trained education professionals, it was expected that trainee teachers would be equipped with the skills needed to support the national strategy for inclusive education. Despite challenges regarding recruitment, a mixed methods study design that included valid and reliable measures of autism knowledge and teacher self-efficacy, yielded evidence to suggest trainee teachers might be entering the teaching profession with an inadequate level of knowledge and skills needed to suitably support autistic students to achieve their full potential in mainstream education. In addition, given the low response rate, the sample of trainee teachers who participated in this research was likely to be biased towards those who were more motivated and interested in the topic area. This was particularly evident from high proportion of respondents having lived experience of autism.
The findings from the current study should be interpreted as preliminary as the generalisability and representativeness of findings is limited. A larger sample would allow for more complex analysis of the interactions between factors such as duration of autism training, self-efficacy and autism knowledge. The limited number of completed surveys raises the question as to whether the trainee teachers were adequately represented in their responses. Future research would seek to obtain the views of other stakeholders including qualified teachers, autistic students, parents of autistic students, and other education professionals including SENCOs, senior leadership teams in schools, and training providers (e.g., University or external agencies).

Impact on policy and practice

The National Strategy (2021) to improve inclusive education for autistic young people pledged training for teachers to better support the needs of autistic students in mainstream education. Despite government expectations that teachers will adapt their classroom practices to support autistic students (Department for Education, 2019), findings from the current study suggested specialist knowledge of autism and opportunities for training were lacking. A more consistent approach to delivering evidence-based training is, in-part, what is needed. Training offered to trainee teachers should, however, consider the demands of the university programme and therefore provisions for continued professional development post qualification are also needed. Perhaps a joint approach to training between the university, the school and specialist advisors such as Ambitious About Autism would be most beneficial.

In addition, despite changes to policy and legislation that go some way to supporting the inclusion of autistic young people in mainstream education, SEND does not feature heavily within the Initial Teacher Training and Early Career Framework (Department for Education, 2024b) that guides the structure and content of programmes delivered to trainee teachers across higher education in England. It does, however, highlight the importance for individual teacher training providers to ensure trainees are adequately prepared to support Special Educational Needs children learn as set out within the Special Educational Needs and Disability 6 code of practice (Department for Education, 2015). Autistic children who find themselves learning in state mainstream school settings have the same privilege to an inclusive education as their non-SEND counterparts and yet the data gathered for this study shows that autistic children often find themselves experiencing behaviour management techniques which negatively impact learning or are excluded from lessons. Whilst the number of school exclusions because of children disrupting lessons, continues to increase (Department for Education, 2024a), research has suggested that behaviours that challenge presented by autistic students is due to a number of complex factors including cognitive and sensory overload with some children masking their difficulties whilst feeling stigmatised. As Critchley (2019)

points out, the long-term effects of autistic children being left feeling upset, confused and extremely distressed can lead to them experiencing feelings of suicide. Autistic students having a lower rate of school attendance impacts their academic attainment thereby putting them under additional pressure learning whilst attending school. It is therefore paramount that training providers feel supported to deliver appropriate training which takes account of the intricacies of the autistic child's learning needs. This is more likely to be achieved when universities work closely with schools and those with specialist knowledge of autism to promote the delivery of an inclusive education.

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Table I: Participants' Lived Experience of Autism

Type of Lived Experience	Frequency (%)
None	6 (19.4)
Autistic	3 (9.7)
Parent of an autistic child	4 (12.9)
Autistic family member (other than child)	7 (22.6)
Autistic friend/colleague	7 (22.6)

Table II. Autism training

Survey question	Participant response
Autism training received	Yes (n=13)
	No (n=18)
Training facilitators	Higher education institution (n=6)
	School (n=7)
	Distance learning course (n=2)
Length of training	One hour (n=3)
	Two hours (n=2)
	Half day (n=1)
	1 day (n=2)
	2 days (n=1)
	3 days over the year (n=2)

Fig 1. Thematic Map