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SCOTTISH TEACHERS' EXPERIENCES OF THE EFFECTIVENESS OF NURTURE GROUPS IN SUPPORTING AUTISTIC CHILDREN

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ABSTRACT

Nurture groups (NGs) are recognised as an effective early practice for the development of children with social, emotional and behavioural difficulties (SEBD). Early educators outline enhanced social and emotional development, academic attainment and secure attachments with peers and adults. Nevertheless, there is limited data reporting on the efficacy of this approach for children with autism spectrum disorder (ASD). This small-scale phenomenological study reports Scottish primary teachers' experiences of NGs in promoting wellbeing in autistic pupils. Data were gathered through an online questionnaire. Results were mixed in that they suggest some significant progress in academic attainment, with slight improvements in emotional and social functioning. After the inclusion of pupils in NGs, continued positive impact appeared to persist with both difficulties in emotional expression and in forming secure attachments with peers and adults. This indicates that for good NG practice for autistic pupils there is a need for structural modifications and curriculum adaptations to create an 'autism-friendly' environment.

INTRODUCTION

Autism spectrum disorder (ASD) constitutes a lifelong neurodevelopmental disorder that becomes evident during early childhood. It is characterised by difficulties in 'social communication' and 'social interaction', accompanied by 'restricted and repetitive behaviours and interests' (American Psychiatric Association, 2013). Recent research has suggested that approximately one in every 68 children is affected by ASD, with the ratio of males estimated to be about four times higher than females (Baio, 2014). There appears to be a diagnostic gender bias, meaning that girls who meet criteria for ASD are at disproportionate risk of not receiving a clinical diagnosis (Loomes, Hull, & Mandy, 2017). A wide range of comorbidities and feature severity are manifested in each individual with ASD generating a spectrum of difficulties (Matson & Nebel-Schwalm, 2007). Despite the fact that there are no specific cognitive reasons for the diverse behavioural representations of ASD (Happé, Ronald, & Plomin, 2006), there is an assumption that the social and the environmental context have a significant impact on the way these features are presented (Prizant & Fields-Meyer, 2015).

There is a widely held belief that early years mark a crucial period for young children on the spectrum by significantly affecting the course of their lives (Jones, 2006). In fact, young children with ASD who receive the suggested early intervention increase the likelihood, later in life, of living independently, developing trusting and lasting relationships and securing employment (Howlin, 1997). Notably, the Scottish Government has introduced policies that give high priority to the principles of early intervention and promote the inclusion of children with Additional Support Needs (ASN) into mainstream classrooms (The Scottish Government, 2010). Current estimates state that approximately 70 per cent of children with ASD are taught in mainstream schools across the UK (Department for Education, 2012). However, research has shown that inclusive settings can present numerous challenges for young pupils on the spectrum due to their difficulties understanding the social world and forming attachment relationships (Davidson, 2015). Markedly, it has been shown that children with ASD are approximately 20 times more possible to be socially excluded at mainstream schools compared to their peers (Humphrey, 2008).

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The powerful impact of early attachment relationships on infants' lives was first described in John Bowlby's Attachment Theory (Bowlby, 1980). Attachment theory is based on the premise that a consistent nurturing relationship with a sensitive caregiver, usually the mother, is essential for the child's subsequent psychological and interpersonal functioning (Ainsworth & Bowlby, 1991). However, the development of unsatisfactory early attachment is argued to prevent children from developing competence and exploring the surrounding environment (Bowlby, 1980). In fact, studies investigating the quality of early attachment experiences between caregivers and children have found that negative experiences, such as separation, abuse, or neglect could lead to emotional detachment and social difficulties (Pearlman & Courtois, 2005). In accordance with this, Boxall (2002) stated that students with social, emotional and behavioural difficulties (SEBD) who are unable to form secure attachments in early stages, experience difficulties in connecting with others, dealing with their own emotions and coping with the social demands of school life (as cited in Billington, 2012).

In contrast to children with SEBD, autistic children struggle to create attachment bonds due to neurodevelopmental difficulties. Historically, children with ASD were assumed to be incapable of building strong attachment relationships with caregivers, due to difficulties in communication and understanding social cues (as cited in Teague, Newman, Tonge, & Gray, 2016). The emergence of these symptoms in the first years of life coincides with the development of attachment relationships leading many researchers to perceive ASD as a disorder of social attachment since its early conceptualisations (as cited in Teague et al., 2016).

Based on an increasing body of research on attachment in ASD, findings indicate that difficulties in social communication and interaction influence the quality of attachment without impeding the formation of attachment relationships altogether (Grzadzinski, Luyster, Spencer, & Lord, 2014; Vivanti & Rogers, 2014). Recent studies give emphasis to the relationship between the attachment system and the early difficulties in social and emotional domains of ASD including emotion recognition, social communication, reciprocity (Cassel et al., 2007; Nuske, Vivanti, & Dissanayake, 2013) and Theory of Mind (ToM; Baron-Cohen, Leslie, & Frith, 1985). These difficulties are considered to be central to typical processes underlying attachment formation (Fonagy, Steele, Steele, Moran, & Higgitt, 1991). Notably, it is supported that the concept of the 'internal working model' challenges the capacity in children with ASD who are unable to develop or have a delayed ToM and find it difficult to see the world from another perspective (Baron-Cohen et

al., 1985). Moreover, Hobson (2005) proposed that children with ASD lack the vital capacity to experience emotions, which may reduce the likelihood of forming supportive peer relations (Kelly, Garnett, Attwood, & Peterson, 2008). From their findings, Golding and colleagues (2012) proposed that children with insecure attachments feel less in tune with other children and find it hard to form and maintain friendships. Furthermore, mental health issues have been related to a high risk of insecure attachment pattern (Berry & Drake, 2010). Indeed, high levels of anxiety and stress have been found to increase the risk for disruptions to the attachment system (Hallett et al., 2013).

Taking into consideration the increasing number of autistic children attending mainstream schools and the social and emotional challenges that they face when interacting with Typical Development (TD) peers, it is essential that effective intervention practices are identified. Interventions designed to support the emotional and social development of children with ASD are diverse, with an extensive literature devoted to the evaluation of their effectiveness (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). Recently, an emphasis has been given to NGs that are rooted in evidence-based practices and constitute a school-based early intervention for children whose social, emotional and behavioural needs are too demanding to be met in a mainstream classroom (Davies, 2011). Based on the theoretical framework of attachment theory (Bowlby, 1969) NGs focus on building a secure base between primary-aged children and an adult figure in school (as cited in Bowlby, 1988). From the initial introduction of NGs in the 1960s by Marjorie Boxall, they were defined as essential provision in supporting young children who were most in need and who displayed complex and compound behaviour (Cubeddu & MacKay, 2017). Since the 1990s, there has been a significant increase in the number of groups, while currently it is estimated that over 2,100 groups are in operation across the UK (<https://nurturegroups.org/what-we-do/faq>).

Thus far a wealth of literature has shown that NGs have a positive effect on the development of children with SEBD (Bennett, 2015; Hughes & Schlösser, 2014). Research has shown that NG provision can lead to improvements in the areas of cognitive and emotional development, behavioural management, social skills (O'Connor & Colwell, 2002; Seth-smith, Levi, Pratt, Fonagy & Jaffey, 2010) and academic attainment (Reynolds, MacKay, & Kearney, 2009). However, it is recognised that the main contribution of NGs is the promotion of strong and lasting attachment bonds between peers and caregivers through the delivery of a secure base in these children (Garner & Thomas, 2011).

Research aims

Notwithstanding the general consensus that NGs are effective in meeting the needs of children with SEBDs, there is a limited number of studies reporting the effectiveness of this approach in individuals with ASD. One such study, reported that children with ASD often make good progress in NGs (Boxall & Lucas, 2010). However, they propose that this requires further assessment. Therefore, the aim of this study is to add to the literature of the NGs through a small-scale study by examining Scottish teachers' experiences of running NGs with autistic and non-autistic children. We assume that, since NGs proved to be suitable for children with SEBD, autistic children with corresponding difficulties could also benefit from these nurturing environments. The study was conducted with the following research questions in mind:

- What do the experiences of Scottish teachers tell us about similarities and differences of running NGs for autistic and non-autistic pupils?
- What are the methods they use to support autistic children compared to non-autistic children?
- How do Scottish teachers describe the efficacy of NGs in promoting wellbeing in autistic children?

METHOD

Design

The study employed a descriptive phenomenological approach to generate sensible understandings (van Manen, 2007). A concurrent mixed-method design was chosen based on the pragmatic approach of collecting the most relevant information to exceed methodological transparency (Cameron, 2011). Both quantitative and qualitative data were gathered, analysed and mixed at the same phase of the research process providing complementary results (Bryman, 2014).

Participants

The participants were recruited from the Nurture Group Network (NGN) of Scotland. A study advert was sent out via Facebook groups to invite Scottish primary teachers and teaching assistants (TA) to participate in the research study.

The participants consisted of six primary teachers and two TAs from mainstream and additional support needs (ASN) schools across Scotland. A purposive strategy was employed, thus enabling the researcher to select participants who have direct involvement with an NG provision (Palinkas et al., 2015). All participants met the following inclusion criteria: a) being a teacher or a TA, b) currently employed within a primary school in Scotland, c) currently running NGs and d) having experience of running NGs with both autistic and non-autistic pupils.

Instrument

A self-administered online survey was constructed on the Qualtrics platform (the instrument can be made available on request to the authors), requesting responders to complete the questionnaire themselves (Meadows, 2003). The questionnaire consisted of 32 both close-ended and open-ended questions focusing on the areas of social interaction, emotional regulation, behavioural management and academic attainments. Items from the Social Skills Teacher Rating Form in TRIAD Social Skills Assessment (TSSA; Stone et al., 2010) have been used for the quantitative questions of the questionnaire to assess autistic pupils in three areas: (a) emotional competence, (b) self-control and management, and (c) social skills.

Data collection

Data collection was completed over a period of one month. Through the qualitative element of open questions, it was intended to gain an in-depth understanding of teachers' experiences about running NGs for autistic and non-autistic pupils. At the same time, the quantitative elements investigated the efficacy of NGs in promoting wellbeing in autistic children. The two methods were operated simultaneously, following a concurrent embedded design.

Data analysis

Qualitative elements of the questionnaire were analysed using thematic analysis. Following the Braun and Clarke's stages (2006), the analysis began by reading the documents many times enabling the selection of words that were deployed as codes. Then, by sorting and collating all data extracts, themes emerged. The themes were reviewed and assessed to check whether they produce a thematic map depicting relationships among themes and sub-themes. Once the thematic map was formed and themes' titles were defined, a more in-depth data analysis was conducted to get an insight into the exact meaning of each theme.

Respectively, a descriptive analysis was used to present the basic features of the quantitative data providing a simple description of the sample and the elements (Loeb et al., 2017). Quantitative data were analysed with the Microsoft Excel 2016 software. Notably, for each question, a coding scheme was designed that converted all data into a number. Afterwards, bar and pie charts, as well as tables were created for the current study to represent the demographic data of the participants and the changes observed in the performance of autistic children after attending NGs.

RESULTS

Demographics

The data gathered (**Table 1**) showed that the majority of participants (N=7) were female, with one male teacher (N=1) participating in the study. Moreover, the majority

Table 1: Demographic data of the participants

Participants	Gender	Status	Work experience in NGs	Pupils' age	No of ASD pupils
1	Female	Teacher	1-2 yrs	7-11 yrs	1-2 pupils
2	Female	Teacher	3-5 yrs	3-6 yrs	3-5 pupils
3	Female	TA	1-2 yrs	7-11 yrs	1-2 pupils
4	Female	Teacher	3-5 yrs	7-11 yrs	3-5 pupils
5	Female	Teacher	1-2 yrs	7-11 yrs	1-2 pupils
6	Female	TA	1-2 yrs	3-6 yrs	1-2 pupils
7	Male	Teacher	3-5 yrs	3-6 yrs	3-5 pupils
8	Male	Teacher	3-5 yrs	7-11 yrs	1-2 pupils

Table 2: Main domains, themes and subthemes for nurture teachers sharing their practice experiences

Participants	Autistic pupils' performance	Non-autistic pupils' performance	Shared experiences
Barriers faced	<ul style="list-style-type: none"> • Struggle with interpersonal relationships • Social communication difficulties • Resistance to changes • Emotional expression difficulties 	<ul style="list-style-type: none"> • Trauma and social-interaction difficulties 	<ul style="list-style-type: none"> • Identify emotions • Behaviour management • Form lasting friendships
Aggressive outbursts	<ul style="list-style-type: none"> • Unexpected actions • Sharing materials • Frustration in social interactions 	<ul style="list-style-type: none"> • Trauma increases stress • Negative impact on autistic pupils 	<ul style="list-style-type: none"> • Physical aggression
Strategies and approaches	<ul style="list-style-type: none"> • Social communication interventions • Positive behaviour interventions 	<ul style="list-style-type: none"> • Emotion-focused interventions 	<ul style="list-style-type: none"> • Positive behavioural interventions • Visual supports
Academic progress	<ul style="list-style-type: none"> • Non-targeted area • High academic performance 	<ul style="list-style-type: none"> • Variation in academic performance 	

of participants were primary teachers (N=6) with two teaching assistants (N=2). Half the participants (N=4) reported work experience in NGs for one to two years and the other half (N=4) had work experience involvement for three to five years. Primary teachers (N=3) running NGs for more than three years reported that they have worked with three to five autistic pupils, in contrast with the others (N=5) who have involved one or two autistic pupils in their groups. Finally, a number of responders (N=5) reported that they worked with children aged seven to 11, whereas the rest of the participants (N=3) worked with children between the ages of three and six.

Qualitative analysis

Nurture teachers share their practice experiences

Participants were asked to express their experiences of running NGs with autistic and non-autistic pupils. The main overarching domains to emerge from participants' experiences were autistic pupils' performance, non-autistic pupils' performance, and shared experiences. These overarching domains subsumed four main themes including the barriers faced by children

who attend NGs, the aggressive outbursts that they experience, the strategies and approaches chosen for them and the academic progress they perform (see **Table 2**).

Autistic pupils' performance: The first theme to emerge from teachers'/TAs' experiences was barriers faced by autistic pupils. Notably, the majority (N=6) reported that autistic pupils struggle with interpersonal relationships, with half of them (N=3) stating issues of social isolation such as "play by themselves" and "isolation during lunchtime". One participant attributed this behaviour to their inability to read the social cues. The second sub-theme that emerged was difficulties in social communication. Participants (N=3) reported that pupils either struggle to follow verbal commands or display non-compliant behaviours as stated by one participant "they deny following the rules when things don't go their way". Additionally, a number of participants (N=2) recognised that autistic pupils have difficulties dealing with changes while another focused on emotional expression explaining "they find it hard to express how they feel and sometimes feel hard done by".

The second central theme was related to the aggressive outbursts of autistic pupils. The first sub-theme was the pupils' frustration due to unexpected actions. Mainly, one participant expressed that "sometimes they become angry when people enter their personal space or when other children try to bend the rules of games". The second sub-theme sharing materials mentioned by a couple of participants (N=2) explaining that "they become upset when attempting to share resources as they are unable to see why they need to". Additionally, a number of participants (N=4) observed that autistic pupils experience tantrums and aggressive behaviours during social interaction reporting that "often become easily annoyed or frustrated with others who are playing or interacting with them". Moreover, another participant expressed that autistic pupils affected by their peers, as shown here "outbursts from other children have been difficult at times for the ASD...their behaviour is due to that". Although most participants (N=6) reported aggressive behaviours from autistic pupils, two participants reported that aggressive outbursts had not been observed among them.

The third main theme that emerged was referred to the strategies and approaches used by teachers/TAs for autistic pupils in NGs. Social communication interventions were mentioned by several participants (N=3) emphasizing visually supportive strategies, as expressed by one participant here "when communicating with ASC [autism spectrum condition] pupils I use lots of visuals to support communication". Additionally, a couple of participants (N=2) reported the use of positive behaviour interventions such as "social stories".

Academic achievement was the final main theme that emerged from the analysis. Participants (N=3) reported that autistic pupils presented high academic performance. However, other participants (N=3) declared that academic achievement is a non-targeted area for them with expressions such as "I do not aim for academic achievements, in particular with those with severe symptoms" and another "I don't measure academic achievement specifically for the nurture group children". Contrary to this, one participant reported that academic achievement is measured, however, "not a lot is expected of them in terms of academia".

Non-autistic pupils' performance: Concerning the barriers faced by non-autistic pupils, only one sub-theme emerged from the collected data. Significantly, one participant explained that pupils who had previously experienced trauma confront difficulties with social interaction. From the second main theme of behavioural outbursts, the first sub-theme focused on those pupils that experience trauma. Notably, one participant reported: "ongoing trauma or difficulties can heighten their stress which leads to random

outbursts of aggression". With the second sub-theme participants referred to the negative impact that non-autistic pupils' outbursts have on autistic pupils. Particularly, one participant stated that "outbursts from other children have been difficult at times for the ASD child". As for the third main theme strategies and approaches, only one participant was different from the others and reported that for non-autistic pupils he uses emotion-focused interventions, such as "I use techniques that will enhance emotional wellbeing such as books for anxiety". Finally, participants (N=2) reported a variation in the academic performance of pupils. One of them explained that variations in academic achievements are related to children's mood, as shown here "Non-ASC pupils may go from a refusal to participate in anything, to being able to engage and complete work".

Shared experiences: A couple of participants (N=2) observed similarities in the barriers faced by autistic and non-autistic pupils during their attendance in NGs. The first subtheme that emerged was difficulty identifying emotions, as shown here by one participant "both autistic and non-autistic pupils have challenges in identifying emotions". For the second sub-theme form lasting friendships, one participant explained that "you could easily group together a child with autism and one without who may struggle to make friends and maintain friendships". The last sub-theme that emerged was behavioural management. Particularly, one participant reported that children struggle with challenges stating that: "both the autistic and non-autistic pupils struggle to maintain their behaviour when situations change, or they do not get their own way or they are not chosen to go first". Concerning the aggressive outbursts, only one participant stated that both autistic and non-autistic pupils have a tendency towards physical aggression explaining that they "can throw and hit things and hurt staff and the other children". For the final main theme strategies and approaches, half of the participants (N=4) reported that they use the same strategies for both autistic and non-autistic pupils. Notably one of them reported the use of positive behavioural interventions such as "social stories" and "positive reinforcements", while a couple of them (N=2) expressed their preference in visual supports such as "visual timetables, sand timers, visual clues, photographs".

Need and rationale of nurture groups for ASD

The data gathered from the participants revealed an interesting theme concerning the need and rationale of NGs for ASD. The main overarching theme to emerge from participants' perceptions was that NGs promote academic achievement and wellbeing in pupils who are in need. This overarching theme subsumed four main themes, the achievement of emotional regulation, forming interpersonal relationships, providing a physical

Table 3: Main themes and subthemes for the need and rationale of NGs for ASD

Promoting academic achievement and wellbeing	
Emotional regulation	Relieve anxiety Increase emotional expression Consistent environment
Interpersonal relationships	A two-way process
Physical environment	Non-threatening place Thriving learning environment Visually supportive environment
Academic attainment	Accessibility in mainstream classes New instrument to capture change Autism training for teachers

environment and promoting academic attainment (see **Table 3**). These main themes and subthemes are expanded with illustrations from participants.

The first theme to emerge from participants' experiences was the contribution of NGs in promoting emotional regulation to children who are in need. Significantly, some participants (N=2) reported that NGs increase the emotional expression of children while others (N=2) expressed that the nature of groups contributes to relieve anxiety and stress levels. Moreover, half of the participants (N=4) associated autistic children's emotional wellbeing with the consistency of the environment stated that: "including ASD children could increase their emotional wellbeing, a small group which is structured, consistent and predictable, with constant adults".

The second theme that emerged from the majority of participants (N=6) was the ability of children forming interpersonal relationships in NGs. Notably, participants reported that a two-way process is taking place with some (N=2) mentioning that teachers nurture a trusting environment and others (N=4) that such an environment enables young children to form relational attachments with peers and staff.

The third central theme that emerged related to the structure and design of the physical environment. More than half the participants (N=5) stated that NGs offer a non-threatening place that "makes children feel safe". Moreover, one participant added that NGs are considered as a supportive learning environment where children can "thrive, develop and learn". However, concerning the impact of the physical environment on autistic pupils, two participants reported the necessity for adaptations to meet the specific needs of these pupils. Indeed, one of them proposed the creation of a visually supportive environment, as shown here: "Nurture groups are not specifically designed to create an appropriate space for children with ASD, other strategies need to be in place as well – environmental factors, visual supports and communication supports must be in place to support ASC."

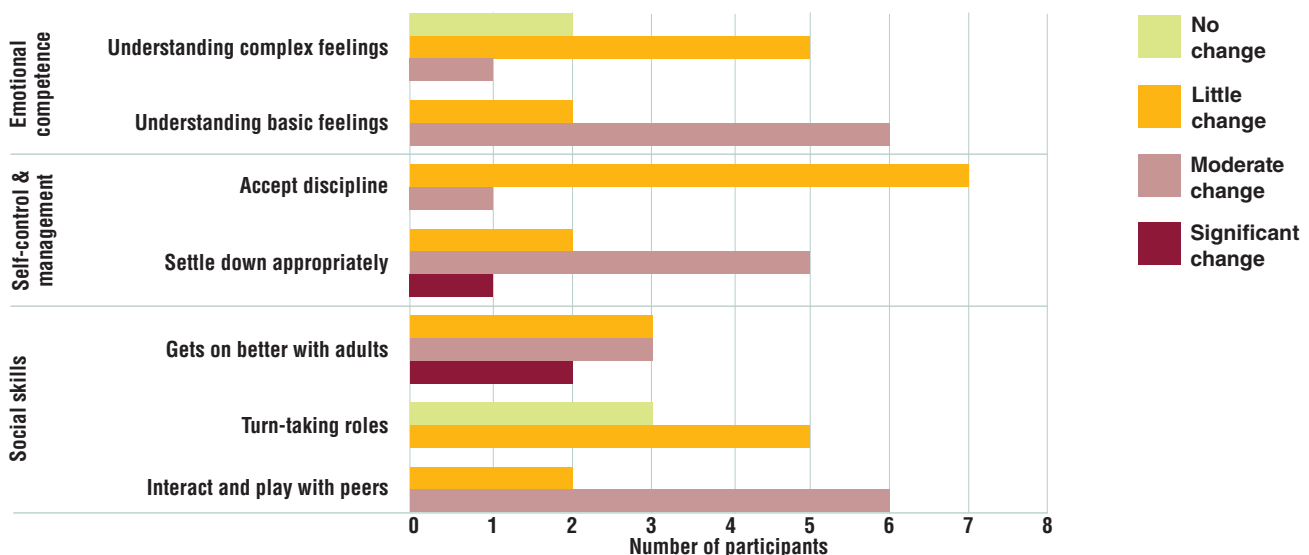
Finally, the last theme that emerged was the provision of academic attainment. Most participants (N=5) expressed that NGs offer accessibility to mainstream classes by "supporting transitions" and "accessing the curriculum in a modified setting". Nevertheless, despite that, almost all participants (N=7) reported that they use the Boxall Profile instrument for assessing performance, a significant number of them (N=5) claimed that the current instrument was not sensitive enough and stated that: "there are elements included which ASC pupils will never be able to achieve or improve upon since they are highly affected by their condition", while others (N=2) underlined the need for additional autism training stating that this would enable nurture teachers "to respond to autistic pupils' special interests."

Descriptive analysis

Participants' perception about the efficacy of nurture groups in autistic pupils

Participants were asked to evaluate the progress of autistic pupils' performance after attending NGs. The bar chart (see **Figure 1**) provides information about the level of change in the areas of emotional competence,

Figure 1: Changes in autistic pupils' performance



self-control and management and social skills (see also **Appendix 1**).

Emotional competence: According to participant responses, autistic children experience only “little change” in their emotional competence. Notably, the overwhelming majority (N=6) reported that autistic children experienced “moderate change” in understanding the basic emotions such as sad, happy and angry, while a couple of participants (N=2) noticed only “little change”. The statement understands complex feelings received ambivalent responses with many participants (N=5) answered that pupils had “little change”, others (N=2) reported “no change” in pupils’ performance, whereas only one participant declared that autistic children experienced “moderate change” in understanding complex feelings.

Self-control and management: The results illustrated that there have been “moderate changes” in pupils’ behavioural management. Markedly, the chart shows that more than half of participants (N=5) responded that autistic children have changed “moderately” when they are asked to settle down quietly and appropriately in nurture classrooms. In contrast, the statement accepts discipline had the lowest score with almost all participants (N=7) declared only “little change” contrary to one participant who stated that children had “moderate change” in their behaviour.

Social skills: The participant responses demonstrate that autistic children experience on average “little change” concerning their social skills. Particularly, significant improvements have been observed in the way that autistic children interact and play with their peers. The vast majority of participants (N=6) answered that the interactions among children have changed “moderately”, while only a few of them (N=2) stated “little change”. The most striking improvement in autistic pupils’ performance is their relationship with caregivers/adults. It is evident that opinions are split with some participants (N=2) mentioning “significant changes”, others (N=3) reported “moderate change”, and the rest (N=3) noticed only “little change”. Meanwhile, the social skill of turn-taking roles during playtime received the lowest score with more than the half (N=5) reported “little change” while the rest of the participants (N=3) observed “no change” in their autistic pupils.

DISCUSSION

In this study we have reported on Scottish teachers’ experiences of running NGs with both autistic and non-autistic children. Specifically, we reported perceptions of NGs’ effectiveness in enhancing autistic pupils’ wellbeing. To date, research on pupils with SEBD purports that NGs strengthen the ability of pupils in recognising, understanding and expressing their emotions (Cooper & Cefai, 2013). Therefore, we assumed that autistic

pupils would be able to enhance their emotional wellbeing in NGs, since they are designed to provide emotional development. In contrast to this, our findings indicate that autistic pupils continue to face difficulties expressing and identifying complex emotions. However, moderate changes have been reported in relation to understanding basic emotions supporting the results of Baron-Cohen, Spitz and Cross’s study (1993) who found improvements in recognising basic emotional expressions. Additionally, difficulties in forming and maintaining lasting friendships were also reported by participants for autistic pupils, which could be linked to their challenges in emotional expression. In fact, earlier studies confirmed the above assumption stating that difficulties expressing feelings of affection may reduce the likelihood of forming supportive peer relations thereby leading to a more impersonal perception of friendship (Hobson, 1986; Kelly et al., 2008). To further verify this view, participants reported that autistic pupils struggle with interpersonal relationships stating issues of social isolation due to their inability reading others’ mental states and thoughts. At the same time, studies have verified that NGs strengthen the socio-emotional skills of children who have experienced early traumatic situations by offering a secure base for building relationships (Seth-Smith et al., 2010). Henceforth, questions arise as to whether a nurturing environment, whose ultimate purpose is to create lasting relationships and bonds, could eventually benefit children with neurodevelopmental difficulties.

Additionally, participants reported that moderate improvements have been observed in the behavioural skills of autistic children following their inclusion in NGs. Of particular interest, positive changes in calming behaviours have been observed when children are asked to settle down after entering the nurturing classroom. However, we found that NGs had disappointing outcomes as they did not achieve positive changes in autistic pupils towards accepting discipline, while little changes have been reported in the way that autistic children interact with peers during play time. The only slight improvement in such behaviour could be explained by the difficulty of ASD pupils in interpreting social cues. Indeed, individuals with ASD are often unaware of the consequences of their actions and the impact of their behaviour since they struggle to understand the intentions of other people (Jones, Webb, Estes, & Dawson, 2013). In contrast to this, studies indicated that several interventions, including positive reinforcements, precise requests and clear behaviour rules, have reduced markedly the behavioural difficulties of children with SEBD (Fletcher-Campbell & Wilkin, 2003; Landrum, Tankersley, & Kauffman, 2003). In the view of these, questions arise about the suitability of standard NGs to address the behavioural difficulties of ASD pupils.

Dodge, Dishion and Lansford (2006) proposed that aggressive pupils tend to associate with aggressive peers, increasing the risk of subsequent disruptive behaviour and violence. In accordance with this, our findings indicate increased levels of aggressive behaviour for both autistic and non-autistic pupils. However, we found that autistic children are affected by the aggressive behaviours by non-autistic classmates. This, in turn, leads them to manifest outbursts, tantrums, aggression and subsequent meltdowns, raising concerns about the coexistence of autistic and non-autistic pupils in NGs. Moreover, our findings indicate that the act of sharing personal belongings appears to trigger autistic pupils' outbursts. Our findings lend support to explanation given by Sandison (2016) that autistic pupils have difficulty in sharing materials and personal belongings because it interrupts their repetitive patterns and routines. Further to this, our findings revealed that autistic children, under the age of six, were reported to display the greatest challenge with the process of sharing and show high rates of aggressive behaviours compared to older ones (above seven years old). We speculate that this may be due to the fact that older children are likely to attend NGs for a longer period than younger children, with behavioural improvements being more apparent. This, however, requires further investigation.

Several studies have found that academic achievements have been significantly improved after an NG intervention (Hosie, 2013; MacKay, Reynolds, & Kearney, 2010; Seth-Smith et al., 2010). In the current study, this is not so clear-cut with reports that non-autistic peers exhibit variations in their academic performance. At the same time, our findings indicate high academic performance in autistic children during their participation within the NG. However, of some concern we found a shared expressed view of low academic expectations for autistic pupils, thereby supporting Nason's claim of running the risk of letting the difficulty become a liability for the child (Nason, 2014). As such, we propose that the autism diagnosis itself may place a barrier to academic achievement.

Of particular interest, our findings indicate factors that may be attributed to the reduced effectiveness of NGs in autistic children. Specifically, we found that the majority of participants viewed the Boxall Profile as not adequate for measuring progress in ASD pupils with one of them stating that the Boxall Profile contains elements that ASD pupils are not able to achieve because of their condition. However, this is not isolated to autistic pupils, since children with a range of difficulties may not be offered appropriate assessments tools to measure their progress (Cumming & Rodriguez, 2013). Indeed, the exclusion of these pupils from the traditional measures of achievement constitutes a common issue across the mainstream school settings (Thurlow, Lazarus, Thompson, & Morse, 2005). As a

result, the status of academic attainment for pupils with ASD and other difficulties is frequently unknown.

In addition, our findings reveal that the NG curriculum does not take into consideration the scattered ASD profile of skills, strengths and weaknesses. Therefore, an adapted curriculum and assessment tools are required to enable teachers to measure the performance of autistic children and allow for accurate assessment of the efficacy of NGs. Specifically, there is a high need for a unique 'autism curriculum', which will capture not only children's learning needs but will also address the social, emotional and communication needs of children and young people with autism to nurture their independence and wellbeing.

Along the same lines, our findings indicate that there are concerns that many nurture teachers are not appropriately qualified for ASD pupils. This raises a number of concerns as to autistic pupils' vulnerability when placed in NGs with non-autistic SEBD pupils supported by non-ASD trained teachers. Indeed, there is a high probability for autistic children to be included in nurturing classes where teachers have not received the appropriate training to support them effectively. Under these circumstances, continuous reviews should be conducted concerning the ongoing training of nurture teachers. It may be necessary to develop a set of the ASD qualifications required by teachers who support autistic pupils within NGs. Moreover, specific policy guidance and legislation should be put in place to make this a requirement of all NG teachers to deliver proper provision and efficient interventions. We propose that NGs that include autistic pupils should be made accessible and autism friendly. Therefore, nurture teachers should have an awareness of interventions such as the Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH; Mesibov, Shea, & Schopler, 2005) and specific strategies including visual supports in order to scaffold social communication and aid executive planning skills. Additionally, theory of mind, social rules and perspective taking should be supported with individualised social stories (Gray & Garand, 1993). These approaches play to the visual strengths while offering support for relational needs that are the main focus of NGs.

Equally important is the necessity for structural adaptations to meet the unique needs of ASD pupils. Research has shown that the predictability and consistency of a nurturing environment enables pupils to enhance their emotional wellbeing and alleviate the levels of anxiety (van Steensel, Bögels, & Perrin, 2011). However, the range of comorbidities that characterise pupils with ASD underlines the need for adjustments in the physical environment. Adaptations and modifications of the classroom organisation have been

proposed to increase autistic pupils' skill acquisition and lower their level of stress and anxiety. In fact, visual clarity is a key priority in setting up an accessible and supportive learning environment for pupils with ASD. Creating a well-designed nurturing classroom that has clearly defined workstations and visual cues may lead to increased independence and great social outcomes for pupils on the autism spectrum. Under these circumstances, more effort and work need to be done to establish an 'autism friendly' social environment within nurturing classrooms (Gregor & Campbell, 2001; Hinton, Sofronoff, & Sheffield, 2008).

Research limitations

The findings of the current study should be interpreted with caution in view of a number of limitations, particularly the small sample size. In addition, the response rate was initially low, thus preventing generalisation from results. Another methodological limitation of the study is that it is based on the subjective experiences of teachers and as such these are open to bias. Moreover, the use of a second instrument, such as interviews, could have contributed to cross-validate the results and strengthen their credibility. Finally, a further limitation of the research lies in the fact that the demographic characteristics of autistic children such as cognitive development, comorbidities and gender, fall outside the scope of this research thus limiting a more in-depth investigation that could bring to the forefront more significant results.

Future recommendations

The study raises a number of opportunities for future research, both in terms of theory development and concept validation. To begin with, more research will be necessary to refine and further elaborate the novel findings. Notably, quantitative and qualitative studies should be conducted to carry out a more in-depth research on the subject and to cross-validate the current results. Furthermore, given the limitations of this research, it would be valuable to explore on a larger scale the views of teachers and TAs in relation to their experiences of running NGs with autistic children. Third, since the investigation of the present study was limited to the Scottish context, future investigations would be valuable to explore the efficacy of NGs in autistic pupils across different local contexts. Furthermore, significant variables such as the cognitive development of autistic children, the comorbidities they might experience and their gender, should be examined thoroughly to determine effects on their performance. To conclude, although the current research has examined to some extent the ASD training of staff running NGs, this remains an area for further research. The findings of this study suggest that the qualifications of nurture teachers vary a great deal and there is potential for further development. Thus, future research would be valuable to examine nurture teachers' and TAs' training towards ASD and effective practices.

CONCLUSION

To the best of our knowledge, this is the first attempt to explore the effectiveness of NGs for autistic pupils from the teachers' perspectives. A key finding demonstrates slight improvements in the areas of social and emotional development, which is of particular importance for autistic pupils. Importantly, mixed ASD and SEBD NGs groups indicate that aggressive behaviours in autistic pupils are intensified as a direct consequence of observing outbursts of their peers. Therefore, the study raises questions in the educational community about the use of interventions, such as NGs, that have not been adapted to meet the autism profile and as a consequence may not be adequately designed to support children with ASD. In fact, the use of interventions that have proven their effectiveness is significantly crucial for the ASD community, which has long been plagued by the implementation of unsupported and often controversial interventions (Simpson, 2005). Notably, as part of legislation under the No Child Left Behind Act (2002), the field of education requires the use of evidence-based practices to support learning and emotional-social development of children (as cited in Lindgren & Doobay, 2011). Thus, the present investigation raises concerns about the participation of autistic children in non-adapted NGs and proposes that legislative modifications and adaptations of the nurturing environment might need to take place. However, it is possible that suggested adaptations and modifications to NGs may or may not be effective in providing an effective intervention for young autistic pupils. Further thorough research is necessary in this area.

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APPENDIX 1: Raw quantitative data

IMPROVEMENTS	No change	Little change	Quite a bit of change	Significant change	Average
Emotional competence					
Understands complex feelings	2	5	1	0	
Understands basic feelings	0	2	6	0	
Average of emotional competence					2.125
Self-control and management					
Accepts discipline	0	7	1	0	
Settles down appropriately	0	2	5	1	
Average self-control and management					2.51
Social skills					
Gets on better with adults	0	3	3	2	
Turn-taking roles	3	5	0	0	
Interacts and play with peers	0	2	6	0	
Average of social skills					2.325

EMOTIONAL COMPETENCE	Average	Total average
Eye contact	2.25	2.125
Understands facial expressions	2.125	2.125
Understands body language	2	2.125
Uses facial expressions	1.875	2.125
Identifies own feelings	2.25	2.125
Understands basic feelings	2.75	2.125
Understands complex feelings	1.875	2.125
Considers others' feelings	1.875	2.125
	2.125	

SOCIAL SKILLS	Average	Total average
Gets on better with adults	2.875	2.325
Interacts and play with peers	2.75	2.325
Accommodate others in activities	2.5	2.325
Work with others	2.5	2.325
Ask and wait for answer	2.5	2.325
Self-reliant in hygiene and basic needs	2.5	2.325
Shares equipment	2.375	2.325
Maintains reciprocal friendships	2.375	2.325
Makes and accepts physical contact	2.375	2.325
Collaborative play	2.25	2.325
Asks permission to use objects	2.25	2.325
Shows empathy and comforts playmates	2.125	2.325
Uses verbal/non-verbal language	2	2.325
Copes with many people	1.875	2.325
Turn-taking roles	1.625	2.325
	2.325	

SELF-CONTROL AND MANAGEMENT	Average	Total average
Accept discipline	2.125	2.509
Settle down appropriately	2.875	2.509
Stay on task more than 5m	2.625	2.509
Work on task until the end	2.625	2.509
Ask for permission	2.625	2.509
Accept changes	2.625	2.509
Not seek confrontation	2.625	2.509
Socially accepted behaviour	2.5	2.509
Maintain appropriate behaviour	2.5	2.509
Abide by rules	2.625	2.509
Stays in designated areas	2.5	2.509
Resolves problems with peers	2.25	2.509
Takes time to calm down	2.375	2.509
Control emotions when issues arise	2.25	2.509
	2.509	