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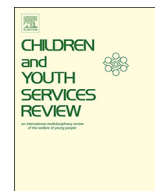
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The effectiveness of Nurture Groups in improving outcomes for young children with social, emotional and behavioural difficulties in primary schools: An evaluation of Nurture Group provision in Northern Ireland

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ABSTRACT

Concerns have grown regarding the increased prevalence of social, emotional and behavioural difficulties observed in young children in primary school settings. Contributory factors are multiple and varied but one consistent emphasis has been on the negative effects of children's poor attachments with significant others which, due to contextual factors, may not have developed sufficiently. Some groups of children are more at risk of not developing strong attachments, particularly children in care whose 'pre-care' and 'in care' experiences make it more likely that their attachments will have been adversely impacted. Reflecting this increasing concern, there has been a growth of school-based interventions that aim to strengthen attachments in order that children can develop social and emotional skills; thus enabling them to be better placed to access learning opportunities and reach levels of educational achievement and attainment similar to their peers. One such intervention is Nurture Groups, modelled on attachment theory. Nurture Group provision is a short-term, schools-based intervention targeted at individual children beginning school who are already displaying social, emotional and/or behavioural difficulties. This article reports the findings of one of the first larger-scale evaluations of the effectiveness of Nurture Group provision in improving outcomes of children, and the first to explore the differential effects of Nurture Groups in relation to school-, pupil- and programme-level characteristics. The evaluation used a non-random control group design, involving a total sample of 384 children, aged 5–6 years, from 30 Nurture Group schools and a further 14 matched schools with no Nurture Group provision in Northern Ireland. The trial found effect sizes ranging in magnitude from $g = 0.528$ to 1.352 for a range of social, emotional and behavioural outcomes, using the Boxall Profile and the Strengths and Difficulties Questionnaire. However, no evidence of effects was found for academic outcomes. The article discusses the implications for policy and practice of the findings.

1. Introduction

Definitions of social, emotional and behavioural difficulties vary. In a UK context, they are commonly referred to as 'behaviours or emotions that deviate so much from the norm that they interfere with the child's own growth and development and/or the lives of others' (Cooper, 2017, p. 13). International definitions emphasize similar themes, namely: responses from children that are very different from normative age-appropriate responses and that result in impairments socially, educationally and developmentally (Linsell et al., 2019; Poulou, 2015; Wichstrøm et al., 2011). Broadly speaking, emotional difficulties (also referred to as 'internalising problems') include phobias, anxiety,

emotional regulation and depression, whilst behavioural difficulties (also referred to as 'externalising problems') refer to aggression, agitation, defiant, oppositional and confrontational behaviour (Poulou, 2015). Reflecting changes in the dominant policy discourse, the constellation of issues is now more likely to be subsumed under the broader category of 'social, emotional and mental health' (SEMH) rather than social, emotional and behavioural difficulties (SEBD) (Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008). Notwithstanding challenges in operationalising concepts, existing evidence suggests that: social, emotional, behavioural and/or mental health difficulties experienced by young children are on the increase; difficulties are noticeable in pre-school settings; they continue into primary school settings; and they can

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have adverse impacts into adulthood (Doyle, Hegarty, & Owens, 2018; Linsell et al., 2019; Poulou, 2015).

In terms of contributory factors, there is some evidence to indicate a connection between social, emotional and behavioural difficulties and the intrapersonal characteristics of children; including their genetics, disposition and temperament (Wichstrøm et al., 2011). However, there is also research illustrating that children's social, emotional and behavioural difficulties may well be an understandable response by young children to poor emotional bonds with their main carers formed in a context of familial and social structural adversities including exposure to: familial neglect, abuse and violence; inconsistent parenting; familial separation/deaths; racism; poverty; and social exclusion/marginalisation (Doyle et al., 2018). It is known that these challenging social circumstances can impact on attachments between primary carers and their children and that attachments are not always secure (Linsell et al., 2019). Furthermore, research has identified that some groups of young children are more prone to social, emotional and behavioural difficulties than others and these include young children in care (Sempik, Ward, & Darker, 2008). For this particular group, these difficulties are exacerbated by experiences of poor attachments in the pre-care home environment and also by the difficulties forming strong, positive attachments when in care, with the result that attachments are not always secure.

1.1. Attachment theory

Attachment theory, first proposed by Bowlby (1969, 1988), builds upon this concern regarding the importance of emotional bonds and focuses on how individuals respond when in need of comfort and/or under threat. It is suggested that children, from birth, seek out the proximity of an adult with the expectation and anticipation that they will receive the comfort, safety and support they need. In situations where, over time, the caregiver is attuned – that is alert, responsive, consistent and sensitive – the developing attachment is more likely to be secure. Furthermore, Bowlby (1969, 1988) contends that where children cannot rely on their carers for regular, consistent, sensitive responses, children have to learn ways of managing in those relationships since they cannot exit them. Ainsworth and Bell (1970), building on Bowlby's work, proposed that in such contexts, three types of attachment style could be identified: secure; insecure avoidant; and insecure ambivalent. The latter is characterised by a child feeling anxious when separated from their caregiver but not reassured by their return; since their presence cannot be relied on as an indication that needs will be met. By contrast, in relation to avoidant attachment, the child avoids their carer.

It is suggested that secure attachments provide the 'secure base' from which children can develop their social and emotional skills. For example, from a secure base, Bowlby (2008) contended that a child is more likely to be able to: confidently explore their environment; acquire skills such as emotional regulation (managing stress, empathy, controlling impulses such as anger, rage); and to acquire social skills (establishing rapport, turn taking, listening and sharing). There is evidence to suggest that where a child has not had the opportunity to form secure attachments, their ability to soothe themselves, regulate their emotions and form relationships has been adversely impacted (Linsell et al., 2019). Furthermore, their self-esteem and self-confidence can be low; not believing themselves to be worthy of attention, love and care and not believing others to be trustworthy, safe and dependable (NICE, 2015). These difficulties can become amplified within school settings where certain emotional and social skills within group settings are required to progress and where access to learning opportunities can be hindered as the social, emotional and behavioural difficulties act as barriers to learning (Boxall, 2002; Steinsbekk & Wichstrøm, 2018).

Within this context, and as noted by Boxall (2002), issues regarding children's attachments are associated with wider disadvantage and their prevalence more likely to be associated with particular subgroups,

most notably children and young people in care. Furnivall and Grant (2014), for example, highlight the challenging circumstances faced by this group of children in particular, that lead them to come into care, including abuse, neglect and witnessing domestic violence that are all then compounded by loss and trauma experienced through being removed from their familial home and placed in care. Ford and Courtois (2013) and Francis et al., (2017) note that such experiences of abuse can affect physical health and cause hyperarousal, poor attention span and attachment problems. To address attachment issues, a range of interventions has been designed that seek to strengthen attachments between children in care and their carers (Dickes, Kemmis-Riggs, & McAloon, 2018; Kerr & Cossar, 2014). While the role played by schools in developing secure attachments has been the subject of debate (Parker & Levinson, 2018), it is now widely acknowledged that attachment theory is of relevance to schools; reflecting an acceptance that children tend to have multiple attachments at any one time (Parker & Levinson, 2018) and that these may change over time. Moreover, the opportunity to develop a secure attachment can help mitigate against attachments that are not secure and that schools can play a pivotal role given the amount of time children spend in school each day (Cameron & Maginn, 2011; Geddes, 2006). With this in mind, the development of schools-based interventions that focus on children's attachments as a means of enabling them to better access learning opportunities are an important development, especially for young children in care whose attachment relationships – because of abuse, neglect and challenging social circumstances – are more likely to have been impaired. Nurture group provision is among these programmes.

1.2. Nurture Group provision

Established by Marjorie Boxall, who worked as an educational psychologist in Hackney (London) in the 1960's, Nurture Groups were originally established in certain primary schools in socially and economically deprived areas in London, in response to high levels of early childhood psychosocial disorders and the attendant emotional and behavioural problems that was evident in some children on entry to primary school (Boxall, 2002). In identifying the source of these difficulties Boxall (2002) argued that the main parent/carer-child attachment relationship had been compromised because of the impact of challenging social circumstances in the family home; the source of which could be traced back to a range of structural factors including poverty, racism and social marginalisation. She suggested that the resulting emotional, behavioural and social difficulties experienced by children impacted on their ability to adjust to the demands of the classroom setting and to access learning opportunities.

In response, Boxall designed Nurture Groups to take a small group of children (10–12 maximum) out of the mainstream classroom for a certain period each day and for a limited length of time over the course of one school year and, within a small group setting, to model out positive attachment relationships and provide opportunities for social learning and the development of emotional literacy, whilst simultaneously enabling children to access educational learning opportunities. Underpinned by Bowlby's attachment theory, the role of the key adult in the school setting was regarded as critical in terms of establishing routines and relationships in a safe, predictable and nurturing environment. Accompanying this, the Nurture Group model placed a strong emphasis on the physical environment, as Colley (2009: 291-2) outlines:

The nurture room sets out to provide a safe, welcoming and caring environment for learning and will replicate the home environment with a comfortable seating area, a kitchen facility for preparing food and a working area to address formal curriculum demands. A range of activities are undertaken which aim to help the young people to develop trust, communication skills and the growth of confidence and self-esteem. This might involve the sharing of news, emotional

literacy sessions, turn-taking games, group activities, formal curriculum tasks or the nurture 'breakfast'.

The proposed theory of change underpinning Nurture Groups is that if children's attachment relationships can be enhanced then their emotional and social wellbeing will improve and this, in turn, will lead to improved behaviour that will better place children to access learning opportunities with the end result that their academic scores should increase. Whilst there is some variation in Nurture Group provision between the 'classic model' (outlined above) and 'variants' (Cooper, Arnold, & Boyd, 2001), they are all underpinned by the same long-term aim to improve children's educational outcomes. To plot these improvements, Boxall developed a bespoke measure, known as the Boxall Measure (Bennathan, 1998) which has a diagnostic and developmental strand, to plot children's baseline scores and progress over time. This, combined with the use of the Strengths and Difficulties Questionnaire, have tended to be the key measures used to plot change in children participating in Nurture Group provision to date.

Across the UK as a whole, there are currently over 2,000 Nurture Groups UK (Nurtureuk Policy Briefing, 2019) and, in Northern Ireland, there were, in 2016, 32 groups (<https://www.theyworkforyou.com/ni/?id=2016-11-15.1.70> – accessed 28/10/19). As indicated above, different variants of Nurture Group have been identified. 'Variant 1' Nurture Groups (the 'classic' model) are classes of about 10–12 children looked after by a teacher and teaching/classroom assistant (Boxall, 2002; Cooper & Whitebread, 2007). Children spend most of the school week in this Group, receiving highly structured and supported learning experiences and, where possible, re-joining their mainstream class for registration, assembly, break, lunch and home time. Typically, children attend the Group for between two and four terms, after which the ultimate aim is that they can reintegrate into their mainstream class on a full-time basis. 'Variant 2' Nurture Groups adhere to the principles of the classic model but differ in terms of structure and organisation (Cooper & Whitebread, 2007). They may run on a part-time basis, possibly involving a group of children aged 5–6 in the Nurture Group in the morning sessions and involving an older group (aged 7–11 years) in Nurture Group in the afternoons. Such models are often seen as a more feasible option for schools as more pupils can be supported while, at the same time, children spend more time accessing the mainstream curriculum with their peers. Both Variant 1 and 2 Nurture Groups are recognised by the Nurture Group Network (NGN) as meeting the quality standard of nurture provision. 'Variant 3' Groups have been described as groups radically departing from the principles and practice of Nurture Provision based on, for example, lunch-time or after-school groups that tend to focus on social and emotional issues but have no focus on teaching the curriculum in the way that Variant 1 and 2 Groups would do. Cooper and Whitebread (2007) define 'Variant 4' groups as those that bear the name but that do not adhere to the nurture group principles in practice and therefore essentially should not be labelled as Nurture Groups. The Nurture Groups in Northern Ireland are based on Variants 1 and 2.

2. Current evidence regarding the effectiveness of Nurture Group provision

There now exists a wide-ranging literature related to Nurture Groups. Using a thematic framework, the current literature that spans from the mid-1970s onwards can be organised into three main categories. First are the descriptive accounts of Nurture Groups that explore issues such as the background, theoretical underpinnings, component parts, composition, processes, practices and intended outcomes of Nurture Group provision (Bennathan, 1997; Bennathan & Boxall, 2000; Bishop, 2008; Boxall, 1976; Boxall & Lucas, 2010; Cooper & Tiknaz, 2007). Second, there are studies that detail the perspectives, experiences and views of parents and children (Cefai & Pizzuto, 2017; Kirk, 2018; Kirkbride, 2014; Morris, 2019). Third are the studies that

consider the effectiveness, impact and outcomes of Nurture Group provision. It is this latter category of research study that provides the main focus for this present article and is appraised in further detail below. As noted in the reviews conducted by Hughes and Schlösser (2014) and Bennett (2015), these studies typically (although not exclusively) focus on children in primary schools and involve pre- and post-tests using a range of measures including the Boxall profile (Bennathan, 1998), the Strengths and Difficulties Questionnaire (Goodman, 1997) and the Behavioural Indicators of Self-esteem (BIOS).

With regards to the measures that have tended to be used, the Boxall profile (Bennathan, 1998) comprises a developmental and a diagnostic strand. The diagnostic strand contains 34 items describing behaviours that act as barriers to the child's full and satisfactory participation in school. Items are organised under three clusters: self-limiting features; undeveloped behaviour; and unsupported development. The developmental strand consists of 34 items describing aspects of the developmental process in the early years that lays the foundation for being able to function socially, emotionally, behaviourally and academically in school. Items are organised under two clusters: organisation of experience; and internalisation of controls. The measure aids in the identification of priority areas for intervention for each child, such as areas of social skills development, which can then be targeted depending on the needs of each pupil. The Strengths and Difficulties Questionnaire (Goodman, 1997) consists of 20 statements describing negative behaviours, which can be summed to give a 'total difficulties' score and also broken down into the following subscales (which each contain 5 items): conduct problems (e.g. 'often has temper tantrums'); emotional symptoms (e.g. 'often unhappy'); hyperactivity (e.g. 'constantly fidgeting'); and peer problems (e.g. 'rather solitary, tends to play alone'). The Behavioural Indicators of Self-esteem (BIOS) is used by teachers to measure the frequency of behaviours that are associated with positive self-esteem. It comprises 13 items which are rated from 'never' to 'always'. Scores are associated to these ratings and the average of these scores provides the measure of self-esteem.

Regarding the studies currently available, some consider impact on outcomes by tracking the progress of various cohorts of children but where there is no control group (Binnie & Allen, 2008; O'Connor & Colwell, 2002). Binnie and Allen (2008), for example, reported the findings from a study involving 36 children (28 male and 8 female, mean age 7 years and 2 months) attending Nurture Group provision in six schools in one Local Authority between 2006 and 2007. The design involved repeated measures (Boxall profile, SDQ and BIOS) with eight months between pre and post-tests and questionnaires with staff and parents. In the findings, the children showed statistically significant improvements, regarding scores obtained in the developmental strand of the Boxall profile, with a pre-intervention mean of 79 increasing to a post intervention mean of 114 (standard deviations were not reported by the authors). Improvements were also noted in the diagnostic strand of the Boxall profile, with a reported pre-intervention mean 63 compared with a post-intervention mean of 35. On the BIOS, children in all schools demonstrated a positive change in children's self-esteem, with a pre-intervention mean 33 and a post-intervention mean of 42. Although there was some attrition, the teacher and parent completed SDQ showed that parents and staff reported similar positive impacts of Nurture Group attendance on the children concerned.

Other studies track the progress of cohorts using various types of control groups (Cooper et al., 2001; Cooper & Whitebread, 2007; Iszatt & Wasilewska, 1997; Reynolds, MacKay, & Kearney, 2009; Saunders, 2007). An early study, often referred to, is that by Iszatt and Wasilewska (1997). The study concerned 308 children who had been placed in Nurture Groups between 1984 and 1988. They noted that the vast majority (87%) were returned to their mainstream class within one academic year. This compared very favourably with a small group of 20 non-matched pupils who were deemed suitable for Nurture Group provision but no place was available and where higher levels of chronic difficulties were found with 35% placed in special schools and only

55% coping well in mainstream schools. Nurture Groups appeared to impact positively on children's social and emotional skills and their levels of self-confidence.

A later study by Cooper et al. (2001) reported preliminary findings of a then ongoing longitudinal study involving 342 children (aged between 4 and 10 years) in 25 schools (23 primary and 2 secondary schools), in eight local education authorities (LEAs). Of the 342 children, 216 children were in Nurture Groups and their outcomes were compared with two control groups. Control Group 1 comprised 64 'matched' children with social, emotional and behavioural difficulties' but who remained in their mainstream class within the school that was delivering Nurture Group provision. Control Group 2 comprised 62 children without social, emotional and behavioural difficulties in mainstream classes. Teachers completed the Strengths and Difficulties Questionnaire and the Boxall profile. In the snapshot findings, Cooper et al. (2001) reported that children in Nurture Groups made gains compared with children with difficulties in mainstream classes and the non-social, emotional and behavioural controls. On the SDQ, and at entry to Nurture Group, 92% children were scored as abnormal/borderline, compared with 84% of the children in Control Group 1. By the third term (i.e. within the year), this had changed to 63% for Nurture Group pupils compared with 75% in Control Group 1 and was noted as statistically significant. On the Boxall Profile, the mean improvements from the first test (term one) to the second test (term three) were noted as statistically significant. Furthermore, on the qualitative data gathered from parents and teachers regarding their perceptions of the children's progress, Nurture Groups were positively received and believed to be making a positive impact (Cooper et al., 2001, p. 164).

More recently, research by Reynolds et al. (2009), using a quasi-experimental research design, notwithstanding its design limitations, has been cited as the most robust study available (EIF, 2019). A total of 221 children (142 males and 79 females, ages 5–7 years) were involved in the study. They attended one of 32 schools, 16 of these had Nurture Group provision (117 children in the study attending these) and 16 were matched schools without Nurture Group provision (104 children attended these). The children's outcomes were assessed via a pre-test and post-test (with tests being 6 months apart) and using the Boxall profile, the Strengths and Difficulties Questionnaire and the Behavioural Indicators of Self Esteem (BIOS). Findings indicated that: 'on the Boxall Profile, significant benefits were found for the nurture groups in comparison with the controls on all five strands, with significance levels ranging from $p = 0.003$ to $p < 0.001$ ' (Reynolds et al., 2009, p. 208). Regarding the SDQ, the findings indicated that there was improvement but that this was not statistically significant. With regards to the Behavioural Indicators of Self Esteem (BIOS), significant effects were noted for children attending the nurture group compared with those in the control groups ($p = 0.001$). This study also used a Baseline Assessment for Early Literacy which was completed by teachers and assessed basic literacy skills and 'early reading readiness' (Reynolds et al., 2009, p. 207). The measure has four sub sections and includes concepts of print, phonological awareness, early reading skills and developmental tasks. The findings indicated that children attending the Nurture Groups had made statistically significant gains as measured by their final scores following their baseline assessment. Further analysis using multiple regression to detect which variable was the best predictor of educational attainment indicated that 'unsupported development (on the Boxall measure) was the best predictor accounting for 'almost a quarter of the variance' (Reynolds et al., 2009, p. 208) and that together with organisation of experience and internalisation of controls these accounted for half of the variance in baseline improvements in this area.

As noted by Hughes and Schlösser (2014) and Bennett (2015) in their reviews of research regarding Nurture Group provision, the overall message emerging from quasi experimental studies (see Table 1) and other studies, appears to suggest that: Nurture Group provision has positive impacts on children's social, emotional and behavioural

difficulties; that improvements made are generally quite well-sustained over time; and that because children are better able to access the curriculum, they make related gains in achievement and attainment.

However, there are notable limitations to the current evidence base, including the fact that there are currently no randomised controlled trials of the effectiveness of Nurture Group provision. Furthermore, of the evidence that does exist, studies that include control groups are still limited in number. Even then, of those with control groups, most are small scale studies with only a handful of studies having a sample size of over 200 children. Moreover, and for these studies, there is little reported evidence of sub group analyses. The study reported in this article seeks to address some of these limitations by reporting the findings of a larger-scale non-randomised control group trial involving 384 children from 44 primary schools in Northern Ireland where the control group comprised matched schools and where sub analyses was undertaken. Although not reported here (due to word restrictions), the study also included a secondary data analysis, a process evaluation and a cost effectiveness analysis (Anon, 2016), therefore making this one of the most detailed studies available on the implementation, experience and impact of Nurture Group provision.

3. The present study

In Northern Ireland there are a number of established Nurture Groups that have been operating for many years, with some schools self-funding or accessing funds through the former Department for Social Development (now known as the Department for Communities (Northern Ireland)) and the Neighbourhood Renewal Investment Fund. In 2012, the Office of the First Minister and Deputy First Minister announced funding for 20 new Nurture Groups, through the government's Delivering Social Change (DSC) Signature Projects. Furthermore, the Department of Education Northern Ireland (DENI) also invested funds for the continued provision of 10 established Nurture Groups in schools where funding was coming to an end. To ensure a consistent approach to the set up and delivery of nurture provision, Nurture Guidelines developed collaboratively were published and, as part of the Signature Project, each region of the Education Authority received funding through DENI for a Nurture Support Officer/Nurture Advisor and Educational Psychologist hours to provide support and advice to the Signature Project schools.

3.1. The research design and ethical approval

This present article reports the findings of a non-randomised controlled group trial evaluation of Nurture Group provision in Northern Ireland, funded by DENI. The trial formed part of a larger study that also included: secondary analysis of existing data on the progress of children that had previously participated in Nurture Groups; a cost-effectiveness analysis; and a qualitative process evaluation involving interviews with key professionals, parents and children as well as observations of the Nurture Groups in practice. The aims and objectives of the research were to: assess the effectiveness of nurture provision in improving child social, emotional and behavioural development, and ability to learn, both within the Nurture Group and following re-integration with the mainstream class; and to assess the cost-effectiveness of nurture provision in achieving its objectives. The research, which took place in 2015–2016 and was approved by the research team's institutional research ethics committee.

The trial component of the study, that provides the focus for this present article, tracked 384 pupils attending nurture groups in 30 schools during one school year (2014/2015) and compared those with a control group of pupils who had a similar level of need from 14 matched schools without nurture provision. These schools were identified from the list of schools that satisfied the original criteria for allocation of Signature Project funding (i.e. schools with above average proportion of pupils eligible for free school meals, below average attendance,

Table 1A summary of the findings of evaluations of Nurture Groups employing quasi experimental designs.^a

Study (year)	Location	Design	Sample	Developmental Pre-post scores	Effect size	Diagnostic Pre-post scores	Effect size
The Present Study	Northern Ireland	Single-group pre-post-test; average time between assessments = 3 terms	N = 507 pupils in 27 schools	Pre: 77.28 Post: 108.96	+1.49	Pre: 53.17 Post: 26.13	-0.97
Shaver and McClatchey (2013)	Northern Scotland	Single-group pre-post-test; 8 weeks to 1 year between assessments	N = 32 pupils in 2 schools Age not reported	Pre: 89.21 Post: 112.10	+0.88	Pre: 33.18 Post: 22.77	-0.31
Reynolds et al. (2009)	Glasgow	Pre-post-test with matched control group; 6 months between assessments	N = 97 pupils in 16 schools ^b Age 5–7 years	Pre: 81.25 Post: 102.10	*	Pre: 41.11 Post: 28.20	*
Binnie and Allen (2008)	West Lothian	Single-group pre-post-test; 8 months between assessments	N = 36 pupils in 6 schools Age 5–10 years	Pre: 79 Post: 114	*	Pre: 63 Post: 35	*
Cooper and Whitebread (2007)	Various sites, England	Pre-post-test with matched control group; time between assessments ranges from 2 to 4 terms	N = 359 pupils in 23 schools ^b Age 4–14 years	After 2 terms (n = 253): Pre: 77.92 Post: 96.19 After 4 terms (n = 86): Pre: 73.37 Post: 105.53	+0.75 +1.07	After 2 terms (n = 253): Pre: 51.58 Post: 41.34 After 4 terms (n = 86): Pre: 51.24 Post: 33.72	-0.34 -0.68
O'Connor and Colwell (2002)	London	Single-group pre-post-test; average of 3 terms between assessments	N = 68 pupils in 5 schools Mean age = 5.25 years	Pre: 71.22 Post: 110.16	+1.66	Pre: 49.15 Post: 23.43	-0.63
Cooper et al. (2001)	Various sites, England/Wales	Pre-post-test with matched control group; average time between assessments = 2 terms	N = 216 pupils in 25 schools Age 4–10 years	Pre: 77.14 Post: 95.21	+0.73	Pre: 50.83 Post: 39.98	-0.38

^a Published UK research by Sanders (2007); Seth-Smith et al. (2010) and Scott and Lee (2009) are not included as raw mean scores were not reported.

^b Only intervention group data reported.

* Standard deviations not reported in original publication therefore effect size could not be calculated.

below average attainment at ages 5–6 and 10–11 years, when tests are undertaken, and above average numbers of children with a statement of special educational needs). The recruitment of participants and their flow through the trial is illustrated by Fig. 1.

Table 2 compares the intervention and control groups in relation to key demographic characteristics. As can be seen, there were some (statistically significant) differences between the two groups, with the intervention group tending to have a higher proportion of children that were: eligible for free school meals; looked after; known to social services; and/or on the child protection register. In contrast, a higher proportion of pupils in the control group were from minority ethnic backgrounds and had English as an additional language. As described further below, these differences were controlled for in the analysis by including dummy variables for each of these characteristics listed in Table 1 as covariates in the multilevel regression models fitted.

3.2. Outcome measures

For comparability, the outcome measures selected were: the Boxall measure (using both its developmental and diagnostic components); the Strengths and Difficulties Questionnaire (SDQ); data held by the schools regarding tracking assessment scores; and a bespoke measure for children to indicate school enjoyment. Whilst widely used for previous studies of Nurture Groups, there is currently no reliable psychometric data reported on the Boxall measure (EEF, 2019). However, there is some evidence to suggest that it has strong concurrent validity when compared to the SDQ (Couture, Cooper, & Royer, 2019). Using the baseline data collected for this present study, the five sub-scales were found to be reliable (alpha ranging from 0.632 to 0.906) and the two main components were highly reliable (alpha = 0.931 and 0.919 respectively).

In contrast, the SDQ is a widely-used outcome measure with strong and consistent psychometric properties (EEF, 2019; Husky et al., 2018). The SDQ has five sub-scales and four of these focus on negative behaviour (conduct problems, emotional symptoms, peer problems and

hyperactivity) and combine to create a 'total difficulties score'. The fifth sub-scale, provides a stand-alone measure of 'prosocial behaviour'. Analysis of the baseline data for this present study indicated that the main total difficulties score and prosocial behaviour scores were reliable (alpha = 0.798 and 0.818 respectively) as were the four sub-domains (alpha ranging from 0.654 to 0.843). For the target age range of this present study, the SDQ has versions for teachers and parents to complete. The teacher version was used to minimise missing data.

Enjoyment of School was measured by children completing a bespoke self-report on the following 11 aspects of school: reading; writing; spelling; numeracy; using the computer/iPad; working by yourself; outdoor play with your class; break/lunchtime in the playground; lunch time in the dinner hall; golden time; and coming to school. Children were invited to rate each aspect on a 5-point scale by point to or putting a circle around one of a set of five 'smiley faces' and labelled from 'don't like it at all' (scored '1') to 'like it very much' (scored '5'), meaning that total scores could range from 11 to 55. Inspection of the baseline data indicates that the scale as a whole has good reliability (alpha = 0.799).

Finally, the data derived from schools comprised results of assessment tests carried out with children at Key Stages 1 and 2 on communication, using mathematics and using ICT.

With regards to the analysis, baseline differences between pupils in the intervention and control group (in terms of both core characteristics and baseline scores on measures of social, emotional and behavioural functioning, enjoyment of school, attendance and academic attainment in literacy and numeracy) were explored. Raw changes in these outcome measures from pre-test to post-test in both the intervention group and control group were then examined and compared. For the main analysis, data were analysed in a series of multi-level statistical models for each outcome to account for the clustered nature of the data (children clustered within schools). These models compared post-test mean scores for those in Nurture Groups with those in the control group, accounting for any differences at baseline in terms of pre-test scores and other key pupil characteristics (i.e. gender, year group, free

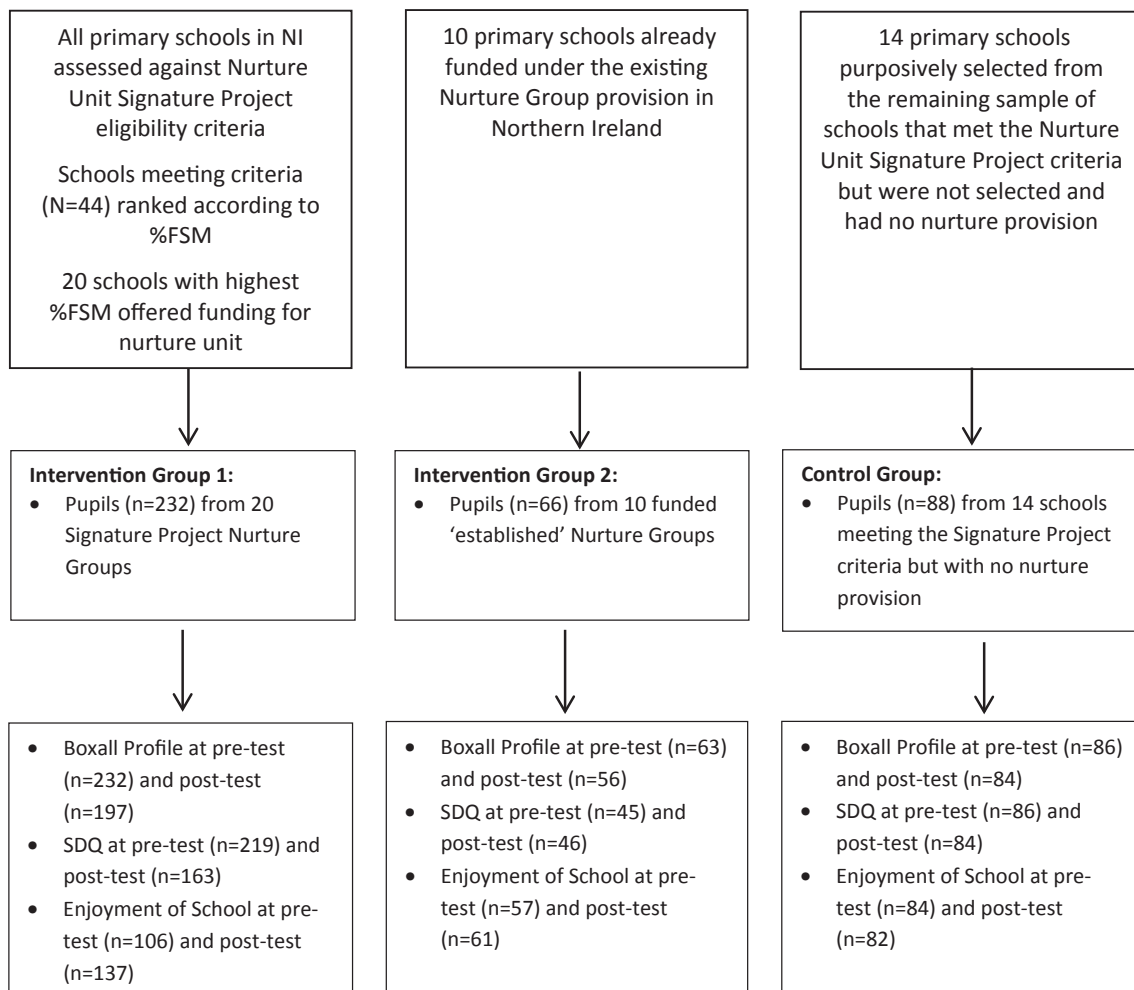


Fig. 1. Flow diagram of recruitment and data collection.

Table 2
Comparison of the characteristics of the intervention group and control group (%).

Pupils	Intervention Group	Control Group	Sig. ^a
Male	64	70	0.359
Eligible for FSM	87	66	< 0.001
EAL	3	15	< 0.001
Non-white	5	22	< 0.001
Looked after	8	3	0.185
Known to social services	36	16	< 0.001
On Child Protection Register	9	2	0.043
Special Educational Needs	3	29	< 0.001
Not on SEN register			
Stage 1	12	19	
Stage 2	54	17	
Stage 3	26	24	
Stage 4-5	4	5	

^a Based on chi-squared tests.

school meal eligibility, neighbourhood deprivation, looked-after status, if pupil's family was known to social services). Effect sizes (Hedges' g) were calculated as the standardised mean difference in outcomes between the intervention and control groups. Hedges' g was used in preference to Cohen's d as it is a more reliable measure of standardised mean effects for smaller sample sizes. These post-test mean scores were estimated from the regression models and thus were adjusted for any differences at pre-test. In addition, each model was extended by

including additional interaction terms to assess whether there was evidence of differential effects of Nurture Groups in relation to a set of school-level and child-level characteristics. These are explained further in the next section.

For the purposes of the main analysis, the two intervention group (Fig. 1) were combined to ensure improved statistical power for comparisons between those receiving Nurture Group provision (whether via the existing Nurture Groups or the new Groups funded through the Signature Project) and the control group. However, potential differences between the two intervention groups were explored as part of the further sub-group analysis and no evidence was found that the effects associated with both intervention groups differed (see Table 7 reported later).

4. Results

Table 3 provides a summary of simple descriptive statistics from the trial of the mean scores (with standard deviations) for the intervention and control groups for each of the outcome variables at pre-test and post-test. In comparing the pre-test mean scores of both groups, it can be seen that the core developmental, social and educational outcomes for those in the intervention group tended to be slightly lower than those in the control group. Again, these differences were effectively controlled for in the main analysis as described above by including the children's pre-test scores as covariates in each model.

In considering the gains made by children during the period of the trial, a visual inspection of the progress made by both groups from pre-

Table 3
Comparison of mean pre-test and post-test scores for the intervention and control groups for each outcome.

Outcome	Intervention Mean (sd)		Effect size (d) [sig]	Control Mean (sd)			Effect size (d) [Sig]
	Pre	Post		Pre	Post	Post	
Boxall Profile							
Developmental Strand	74.11 (19.78)	110.05 (18.41)	+1.817 [p < .001]	84.29 (24.35)	85.04 (23.35)	-0.031 [p = .686]	
Diagnostic Profile	54.13 (25.36)	25.53 (21.91)	-1.128 [p < .001]	47.43 (29.44)	46.76 (27.44)	-0.023 [p = .746]	
Organisation of experience	37.65 (12.10)	58.10 (11.02)	+1.690 [p < .001]	45.27 (13.26)	44.72 (12.73)	-0.041 [p = .625]	
Internalisation of controls	36.50 (10.41)	52.00 (10.16)	+1.489 [p < .001]	39.01 (13.14)	40.31 (12.05)	+0.099 [p = .157]	
Self-limiting features	12.31 (5.15)	5.87 (4.60)	-1.250 [p < .001]	9.20 (5.07)	9.68 (5.66)	+0.094 [p = .292]	
Undeveloped behaviours	13.30 (8.15)	6.18 (6.43)	-0.873 [p < .001]	11.06 (8.31)	10.95 (7.58)	-0.013 [p = .874]	
Unsupported development	28.17 (17.01)	13.48 (13.42)	-0.884 [p < .001]	27.17 (16.60)	26.13 (17.70)	-0.054 [p = .418]	
Strengths and Difficulties Questionnaire							
Total Difficulties	19.64 (5.75)	10.30 (6.08)	-1.622 [p < .001]	17.54 (6.79)	17.65 (5.64)	+0.018 [p = .815]	
Conduct problems	3.42 (2.59)	1.67 (2.14)	-0.681 [p < .001]	3.26 (2.63)	3.33 (2.65)	+0.027 [p = .627]	
Emotional symptoms	4.64 (3.00)	2.20 (2.16)	-0.813 [p < .001]	3.92 (3.53)	4.25 (2.97)	+0.094 [p = .236]	
Peer problems	3.95 (2.26)	2.20 (2.10)	-0.852 [p < .001]	2.90 (2.11)	3.24 (2.12)	0.158 [p = .126]	
Hyperactivity	7.62 (2.56)	4.41 (2.88)	-1.256 [p < .001]	7.45 (2.69)	6.83 (2.25)	-0.230 [p = .003]	
Prosocial behaviour	4.28 (2.74)	7.03 (2.53)	+1.008 [p < .001]	5.01 (2.69)	5.11 (2.78)	+0.035 [p = .675]	
Academic outcomes							
Enjoyment of school	42.26 (9.41)	45.45 (7.83)	+0.338 [p < .001]	44.61 (7.51)	43.29 (7.89)	-0.211 [p = .103]	
Attendance	90.39 (8.91)	93.08 (5.69)	+0.303 [p < .001]	89.06 (13.43)	90.85 (8.79)	+0.134 [p = .122]	
Literacy	80.19 (9.96)	82.85 (9.34)	+0.267 [p = .054]	82.00 (7.78)	78.50 (9.15)	-0.450 [p = .001]	
Numeracy	82.74 (12.34)	87.00 (11.05)	+0.345 (p = .077)	78.57 (9.89)	79.00 (10.80)	0.043 [p = .890]	

test to post-test would appear to indicate notable (and statistically significant) positive improvements for the children in the intervention group across all of the social, emotional and behavioural outcomes; with reductions in negative behaviours and increases in prosocial behaviour. This compared to limited evidence of change for those in the control group. Interestingly, there only appeared to be smaller (and non-significant) changes in academic outcomes; namely their enjoyment of school (measured using the total score) and their literacy and numeracy outcomes (using school-assessed key stage results).

As noted above, the data were more formally analysed using multilevel regression models and the findings from these are summarised in Table 4 that presents the adjusted mean post-test scores for the intervention and control groups, estimated using the multilevel models.

As can be seen from Table 4, there is clear and consistent evidence of improvements in social, emotional and behavioural outcomes for children attending Nurture Groups compared to those in the control group, using both the Boxall Profile and the Strengths and Difficulties Questionnaire (SDQ). Typically, effect sizes of around 0.2 are considered to be 'small', those around 0.5 to be 'medium' and those above 0.8 to be 'large' (Cohen, 1977). It can be seen from Table 4 that the effects associated with attending Nurture Groups were found to be large for the developmental strand ($g = 1.352$) and the diagnostic profile ($g = -0.904$) of Boxall and the total difficulties score ($g = -1.303$) and prosocial scores ($g = 0.926$) of the SDQ. Interestingly, there is no evidence of an effect for Nurture Groups on the children's academic outcomes in literacy or numeracy.

In addition, exploratory analyses were undertaken to explore whether Nurture Groups had differential impacts for: boys and girls; children with English as an additional language; from areas with differing levels of deprivation; children known to social services, 'looked after' by social services; and at different stages of the Codes of Practice. The exploratory analysis also examined whether the Nurture Group provision had differential effects in relation to schools with differing proportions of children eligible for free school meals; children with special education needs; differing levels of deprivation; and differing sizes. Analyses also took account of differential effects regarding full/part time Nurture Group provision; size of Nurture Group and how long it had been established; and type.

In relation to school level variables, the evidence of possible subgroup differences are summarised in Table 5, by simply reporting the statistical significance of the interaction term from each of the multilevel regression models in turn. Given the multiple statistical tests undertaken, and thus the increased risk of Type I errors, these findings are presented simply to provide an overall sense of the potential existence of subgroup differences. It would be potentially misleading to use the current analysis to generate more specific summary statistics for any of the potential interaction effects found, especially given that many of these rely on smaller sub-samples.

It can be seen that there was some potential evidence that the size of the school may be a mediating variable. Further analysis of the fitted models suggested that there was an inverse relationship between school size and amount of progress, in that pupils in larger schools made less

Table 4

The adjusted post-test mean scores (and standard deviations) for the intervention and control groups and their associated effect sizes for each outcome.

Outcome	Adjusted post-test means (standard deviation)		Sig.	Effect size (Hedges' g) [95% CI]
	Intervention	Control		
Boxall Profile				
Developmental Strand	110.70 (18.46)	84.04 (23.35)	< 0.001	+ 1.352 [+ 0.098, + 1.728]
Diagnostic Profile	25.94 (21.97)	47.13 (27.67)	< 0.001	- 0.904 [- 1.251, - 0.557]
Organisation of experience	58.70 (11.03)	43.74 (12.73)	< 0.001	+ 1.306 [+ 0.913, + 1.708]
Internalisation of controls	52.03 (9.19)	40.40 (12.05)	< 0.001	+ 1.170 [+ 0.843, + 1.497]
Self-limiting features	5.79 (4.61)	10.09 (5.66)	< 0.001	- 0.882 [- 1.312, - 0.452]
Undeveloped behaviours	6.24 (6.46)	10.86 (7.58)	< 0.001	- 0.685 [- 1.002, - 0.369]
Unsupported development	13.88 (13.44)	25.84 (17.70)	< 0.001	- 0.821 [- 1.133, - 0.511]
Strength and Difficulties Questionnaire				
Total difficulties	10.07 (6.05)	17.80 (5.64)	< 0.001	- 1.303 [- 1.696, - 0.909]
Conduct Problems	1.68 (2.00)	3.09 (2.65)	< 0.001	- 0.638 [- 0.926, - 0.350]
Emotional Symptoms	2.24 (2.15)	4.33 (2.97)	< 0.001	- 0.865 [- 1.242, - 0.489]
Peer Problems	1.95 (2.10)	3.35 (2.12)	< 0.001	- 0.663 [- 1.045, - 0.281]
Hyperactivity	4.15 (2.88)	7.12 (2.25)	< 0.001	- 1.093 [- 1.445, - 0.740]
Prosocial Behaviour	7.33 (2.53)	4.92 (2.78)	< 0.001	+ 0.926 [+ 0.571, + 0.1281]
Academic outcomes				
Enjoyment of School	46.54 (7.44)	42.62 (7.42)	0.002	+ 0.528 [+ 0.199, + 0.857]
Attendance rate	93.02 (5.72)	91.18 (6.52)	0.101	+ 0.308 [- 0.060, + 0.675]
Literacy	87.54 (11.39)	80.74 (17.41)	0.230	+ 0.559 [- 0.354, 1.472]
Numeracy	85.43 (12.15)	86.94 (13.70)	0.822	- 0.119 [- 1.154, 0.915]

Table 5

A summary of the evidence of possible differential effects of Nurture Groups in relation to school-level mediating variables.

Outcome	Mediating Variables Explored ^a			
	School % FSM	School % SEN	School deprivation	School size
Boxall Profile				
Developmental	0.682	0.141	0.266	0.005
Diagnostic	0.897	0.182	0.775	0.023
Strengths and Difficulties Questionnaire				
Total difficulties	0.911	0.048	0.499	0.049
Conduct Problems	0.873	0.202	0.650	0.388
Emotional Symptoms	0.580	0.051	0.495	0.181
Peer Problems	0.298	0.585	0.181	< 0.001
Hyperactivity	0.765	0.057	0.476	0.046
Prosocial Behaviour	0.664	0.864	0.627	0.990
Education-Related				
Enjoyment of School	0.529	0.572	0.878	0.959
Attendance	0.302	0.187	0.208	0.317

^a Statistical significance of interaction terms.

progress compared to those in smaller schools. In terms of the Peer problems subscale of the SDQ, Nurture Group pupils in larger schools tended to have more peer problems at post-test compared to the control group, whereas Nurture Group pupils in smaller or medium schools

tended to have fewer peer problems compared to the control group. In contrast, and as can also be seen, there was no evidence found of any mediating effects for: the proportion of children at school eligible for free school meals; the proportion of pupils with special educational needs; or the average level of deprivation for pupils at the school.

With regards to pupil level variables, the findings are presented in a similar format in Table 6. In this case, evidence was explored as to whether there was any evidence to suggest that the effects of Nurture Groups varied in relation to: a child's gender; their age; their first language; their levels of familial deprivation; whether they were 'looked after' or known to social services; their special educational needs stage; and their behaviour when entering the Nurture Group (measured by their baseline score). Findings revealed that Nurture Groups had similar positive effects for pupils, on average, regardless of their individual characteristics. One exception to this was while pupils were likely to make positive progress regardless of their baseline score, the evidence would appear to suggest that, for most outcomes, pupils with lower scores at baseline made more progress compared to those with higher scores. In addition, there is perhaps some evidence to suggest that Nurture Groups were having some differential effects for boys and girls with a larger effect in terms of the reduction of total difficulties for girls compared to boys. Within this, the difference appears to be explained largely in terms of gender differences in emotional symptoms and peer problems.

Lastly, Nurture Group effects were explored (see Table 7). Findings indicate that pupils made similar progress across outcomes independent

Table 6

A summary of evidence of possible differential effects of Nurture Groups in relation to pupil-level mediating variables.

Outcome	Mediating Variables Explored ^a							
	Boys vs Girls	Year group	EAL	Deprivation	LAC	Known to SS	SEN Stage	Baseline score
Boxall Profile								
Developmental Strand	0.528	0.087	0.606	0.294	0.391	0.352	0.948	< 0.001
Diagnostic Profile	0.198	0.977	0.663	0.953	0.449	0.287	0.727	0.006
Strengths and Difficulties Questionnaire								
Total Difficulties	0.013	0.528	0.990	0.928	0.360	0.979	0.929	0.118
Conduct problems	0.513	0.673	0.956	0.213	0.499	0.057	0.151	< 0.001
Emotional symptoms	< 0.001	0.617	0.605	0.061	0.429	0.603	0.484	< 0.001
Peer problems	0.008	0.184	0.278	0.940	0.129	0.887	0.640	0.049
Hyperactivity	0.346	0.796	0.537	0.702	0.822	0.575	0.988	0.236
Prosocial behaviour	0.149	0.110	0.769	0.174	0.802	0.996	0.656	0.002
Education-Related								
Enjoyment of School	0.563	0.834	0.508	0.811	0.354	0.259	0.096	0.146
Attendance	0.936	0.538	0.647	0.114	0.710	0.445	0.825	0.024

^a Statistical significance of interaction terms.**Table 7**

A summary of evidence of possible differential effects of Nurture Groups in relation to programme characteristics variables.

Outcome	Nurture group (NG) characteristics explored ^a			
	Full-time	Years NG running	NG size	Signature Project NG
Boxall Profile				
Developmental Strand	0.605	0.859	0.275	0.874
Diagnostic Profile	0.770	0.932	0.807	0.604
Strengths and Difficulties Questionnaire				
Total Difficulties	0.613	0.166	0.450	0.983
Conduct problems	0.250	0.278	0.100	0.774
Emotional symptoms	0.098	0.436	0.847	0.498
Peer problems	0.682	0.792	0.066	0.329
Hyperactivity	0.914	0.103	0.107	0.753
Prosocial behaviour	0.946	0.354	0.162	0.931
Education-Related				
Enjoyment of School	0.214	0.890	0.331	0.633
Attendance	0.500	0.588	0.644	0.349

^a Statistical significance of interaction terms.

of whether they attended full-time or part-time or in relation to the length of time the Nurture Group had been running or whether it was part of the Signature Project or an existing Group.

5. Limitations of the study and discussion

This paper has presented the findings of a non-randomised, control group trial evaluation of the effects of Nurture Group provision on outcomes for primary school aged children in Northern Ireland. The study makes a significant contribution to the national and international literature in the area, representing one of only a handful of larger-scale non-randomised control of Nurture Group provision which, combined with a secondary data analyses, a cost effectiveness analysis and a process evaluation (reported elsewhere) provides one of the most detailed analyses available adding to existing knowledge. Notwithstanding the limitations to the methodology employed for this present study, most notably the fact that the study was not a randomised controlled trial and that measures employed rely on teacher ratings, the findings would appear to be encouraging and contributing as they do to a body of related evidence that indicates positive effects. Moreover, the size of the effects found from this present study are relatively large; typically suggesting improvements of around one standard deviation across a range of developmental outcomes. Furthermore,

and unique to this present study, there is significant potential for NG provision to benefit looked-after children in particular, given that they tend to have the lowest developmental outcomes currently and that our evidence suggested that NGs achieve the highest effects for those with the lowest baseline scores.

In relation to these positive findings, four points are worthy of further consideration. First, although our own study reports positive effects, there remains further work required to help ascertain exactly why and how these positive effects have occurred. All the literature on Nurture Group provision stresses the significance of positive attachments for children in a classroom setting. Within this context, the study serves as an important reminder that attachment theory has evolved away from an emphasis solely on the main child-carer attachment to a consideration of children's attachments in their wider context where it is possible for children to experience multiple attachments with people in different positions and relationships around them including teachers (Bombèr, 2007; Geddes, 2006; Kennedy & Kennedy, 2004). If it is indeed positive attachments that make the difference, further theorisation and exploration of these in a school context is needed. Making a notable contribution to this is the English-based Attachment Aware Schools programme that combined a whole-school training programme regarding attachment, attunement and trauma informed practice (and associated strategies, in particular the use of Emotion Coaching) with the testing of the effectiveness of attachment based interventions to young children (not just those in care) including Nurture Groups and Theraplay. Findings from the independent evaluations (Dingwall & Sebba, 2018; 2018a; Fancourt & Sebba, 2018) and researchers involved in the programme (Rose, McGuire-Snieckus, Gilbert, & McInnes, 2019) indicate positive findings worthy of further research.

Second, if positive attachments can be formed in schools, the question remains as to how specifically do they relate to improvements in academic performance and achievements? In this present study there was no evidence that Nurture Groups were having an effect on attendance or academic outcomes compared to those attending control schools. However, Nurture Group children did report significantly greater enjoyment of school compared to pupils in the control group. It is therefore plausible that improvements in academic attainment could be more medium to longer-term outcomes of Nurture Group provision that follow once engagement with learning and school in general is achieved. As such, further research is required to track educational attainment and achievement outcomes over longer periods of time.

Third, and arising from our study and related studies, is the broader context regarding the development of secure attachments. Schools do not operate in isolation and rather than Nurture Groups operating on a deficit model (e.g. teachers making up for poor attachments at home), efforts are put into practical approaches so that schools and parents can

together build positive and strong attachments with children. One of the relatively unexplored elements of Nurture Group provision, as noted in the Nurture Group process evaluation that accompanied our own study, was the importance of the relationship between the Nurture Group teacher and teaching assistant and the parents/main carers. Rather than keep parents at arm's length, the Nurture Groups in our study, proactively sought to build and nurture their relationships with parents/main carers, spending time with them, inviting them in to breakfast sessions and other events, to support them and to equip them with the strategies and techniques being employed in the classroom setting that could also be used in the family home.

The role of parent/main carer/significant other is an important and yet relatively unexplored area. It is all the more important in the context of particular groups of young children, most notably those in care. The English NICE guidelines *Children's Attachment* (NG26, NICE, 2015) make specific recommendations regarding how best to support children in care with attachment difficulties in schools. These include making training on attachment available for all staff who come into contact with children in care; and ensuring that all staff work together regarding the management of and interventions regarding the attachment difficulties. At present, it is not clear that social workers, care givers, educational and indeed other professionals working with children in care have had the opportunity to: a) be made fully aware of the importance of attachment theory; b) receive adequate training in the core principles of attachment theory; c) develop a working knowledge of school based interventions that might assist the children they are responsible for; and to d) develop a meaningful relationship with a particular school to support the delivery of an intervention. This is an area that requires attention and it seems imperative that interdisciplinary training (and indeed refresher training) on attachment relationships should form part of the 'bread and butter' of carers and/or professionals' training profiles; that there should be renewed efforts to strengthen the daily, lived out relationships between educational, health, social work professionals and carers and that findings from practice developments should be made available in shared interdisciplinary fora. This may help prevent missed opportunities for children in care to benefit from developments in educational practice and will build on the work that highlights the importance of this issue and the calls for further evidence (Fernandez, 2019).

Fourth and regarding evidence, it is the case that there are no randomised controlled trials regarding Nurture Groups. It is noted by Reynolds et al. (2009) that it is challenging to undertake a full trial given the number of Nurture Groups that have been established and the difficulties then caused in the random allocation of children to control and intervention groups. This was certainly the case in Northern Ireland where decisions had already been taken in relation to the provision of existing Nurture Groups and a second round of additional Groups under the Signature Project. The selection of such schools was already made before the current research team were commissioned, and hence the impossibility of applying a randomised controlled trial (RCT) design in this present case. This, combined with the pre-determined teacher rated measures, are limitations to the study. It is worth stressing that this inability to use an RCT design is a significant limitation and yet it is avoidable if commissioners and deliverers of services engage with researchers at an earlier stage. In most cases, including this present one, it would have been possible to establish a robust RCT design for the evaluation of Nurture Groups in Northern Ireland whilst still ensuring that the level of provision made was maintained and was still targeted at those schools in most need. This is a critical point that has implications far beyond this present evaluation regarding the urgent need for much better coordination and joined-up approaches between governments and service providers and independent research teams if we are to build a strong and robust evidence-based for social and educational interventions.

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CRedit authorship contribution statement

Seaneen Sloan: Conceptualization, Methodology, Funding acquisition, Investigation, Formal analysis, Writing - original draft. **Karen Winter:** Conceptualization, Methodology, Investigation, Writing - original draft, Writing - review & editing. **Paul Connolly:** Conceptualization, Methodology, Funding acquisition, Formal analysis, Writing - review & editing. **Aideen Gildea:** Conceptualization, Methodology, Investigation, Writing - review & editing.

Declaration of Competing Interest

The authors have no competing interests.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childyouth.2019.104619>.

References

- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development*, 41, 49–67.
- Anon (2016). *The Impact and Cost Effectiveness of Nurture Groups in Primary Schools in Northern Ireland*. Centre for Evidence and Social Innovation/Queen's. Belfast; Northern Ireland: University Belfast/Department of Education.
- Bayer, J. K., Hiscock, H., Ukoumunne, O. C., Price, A., & Wake, M. (2008). Early childhood aetiology of mental health problems: A longitudinal population-based study. *Journal of Child Psychology and Psychiatry*, 49(11), 1166–1174. <https://doi.org/10.1111/j.1469-7610.2008.01943.x>.
- Bennathan, M. (1997). Effective intervention in primary schools: What nurture groups achieve. *Emotional and Behavioural Difficulties*, 2(3), 23–29.
- Bennathan, M. (1998). *The boxall profile: Handbook for teachers*. Maidstone, UK: AWCEBD.
- Bennathan, M., & Boxall, M. (2000). *Nurture groups: Effective intervention in primary schools*. London: David Fulton.
- Bennett, H. (2015). Results of the systematic review on nurture groups' effectiveness. *The International Journal of Nurture in Education*, 1(1), 3–7. https://www.nurtureuk.org/sites/default/files/the_international_journal-vol1.pdf#page=5.
- Binnie, L. M., & Allen, K. (2008). Whole school support for vulnerable children: The evaluation of a part-time nurture group. *Emotional and Behavioural Difficulties*, 13(3), 201–216. <https://doi.org/10.1080/13632750802253202>.
- Bishop, S. (2008). *Running a nurture group*. Sage.
- Bombèr, L. M. (2007). *Inside I'm hurting: Practical strategies for supporting children with attachment difficulties in schools*. Worth.
- Bowlby, J. (1969). Attachment and loss: Volume I: Attachment. *Attachment and loss: Volume I: Attachment* (pp. 1–401). London: The Hogarth Press and the Institute of Psycho-Analysis.
- Bowlby, J. (1988). Developmental psychiatry comes of age. *The American Journal of Psychiatry*.
- Bowlby, J. (2008). *A secure base: Parent-child attachment and healthy human development*. Basic books.
- Boxall, M. (1976). *The Nurture Group in the Primary School*. Inner London Education Authority.
- Boxall, M. (2002). *Nurture groups in school: Principles & practice*. Sage.
- Boxall and Lucas (2010).
- Cameron, S., & Maginn, C. (2011). Living psychology: The 'emotional warmth' dimension of professional childcare. *Educational and Child Psychology*, 28(3), 44.
- Cefai, C., & Pizzuto, S. A. S. (2017). Listening to the voices of young children in a nurture class. *Emotional and Behavioural Difficulties*, 22(3), 248–260. <https://doi.org/10.1080/13632752.2017.1331987>.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. London: Routledge.
- Colley, D. (2009). Nurture groups in secondary schools. *Emotional and Behavioural Difficulties*, 14(4), 291–300. <https://doi.org/10.1080/13632750903303120>.
- Cooper, P. (2017). Evidence based approaches to mental health issues in schools. In C. Cefai, & P. Cooper (Eds.), *Mental Health Promotion in Schools. Cross Cultural Narratives and Perspectives* (pp. 11–25). Rotterdam: SensePublishers.
- Cooper, P., Arnold, R., & Boyd, E. (2001). The effectiveness of Nurture Groups: Preliminary research findings. *British Journal of Special Education*, 28(4), 160–166. <https://doi.org/10.1111/1467-8527.t01-1-00219>.
- Cooper, P., & Tiknaz, Y. (2007). *Nurture Groups in school and at home: Connecting with children with social, emotional and behavioural difficulties, Vol. 1*. Jessica Kingsley Publishers.

- Cooper, P., & Whitebread, D. (2007). The effectiveness of nurture groups on student progress: Evidence from a national research study. *Emotional and Behavioural Difficulties*, 12(3), 171–190. <https://doi.org/10.1080/13632750701489915>.
- Couture, C., Cooper, P., & Royer, E. (2019). A study of the concurrent validity between the Boxall Profile and the Strengths and Difficulties Questionnaire. *The International Journal of Emotional Education*, 3(1), 20–29.
- Dickes, A., Kemmis-Riggs, J., & McAloon, J. (2018). Methodological challenges to the evaluation of interventions for foster/kinship carers and children: A systematic review. *Clinical Child and Family Psychology Review*, 21(2), 109–145. <https://doi.org/10.1007/s10567-017-0248-z>.
- Dingwall, N., & Sebba, J. (2018). Evaluation of the attachment aware schools programme final report. Rees Centre, University of Oxford, England.
- Doyle, O., Hegarty, M., & Owens, C. (2018). Population-based system of parenting support to reduce the prevalence of child social, emotional, and behavioural problems: Difference-in-differences study. *Prevention Science*, 19(6), 772–781. <https://doi.org/10.1007/s11211-018-0907-4>.
- Early Intervention Foundation. (2019). Guidebook. Nurture Groups. <https://guidebook.eif.org.uk/programme/nurture-groups> (accessed 08.12.19).
- EEF (Education Endowment Foundation) (2019) Early Years Measures Database. Education Endowment Foundation. <https://educationendowmentfoundation.org.uk/projects-and-evaluation/evaluating-projects/early-years-measure-database/early-years-measures-database/>. Data accessed: 25/10/19.
- Fancourt, N., & Sebba, J. (2018). The Leicestershire Virtual School's Attachment Aware Schools Programme: Evaluation Report. <http://www.education.ox.ac.uk/wp-content/uploads/2019/05/Leicestershire-Attachment-Aware-Schools-Programme-Evaluation-Report.pdf>.
- Fernandez, E. (2019). Working towards better education for children in care: Longitudinal analysis of the educational outcomes of a cohort of children in care in Australia. *Oxford Review of Education*, 45(4), 481–501. <https://doi.org/10.1080/03054985.2019.1612345>.
- Ford, J. D., & Courtois, C. A. (Eds.). (2013). *Treating complex traumatic stress disorders in children and adolescents: Scientific foundations and therapeutic models*. Guilford Press.
- Furnivall, J., & Grant, E. (2014). Trauma sensitive practice with children in care. *Iris Insight*, 27.
- Geddes, H. (2006). *Attachment in the classroom: The links between children's early experience, emotional well-being and performance in school*. Worth Pub.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38(5), 581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>.
- Hughes, N. K., & Schlösser, A. (2014). The effectiveness of nurture groups: A systematic review. *Emotional and Behavioural Difficulties*, 19(4), 386–409. <https://doi.org/10.1080/13632752.2014.883729>.
- Husky, M. M., Otten, R., Boyd, A., Pez, O., Bitfoi, A., Carta, M. G., ... Kovess-Masfety, V. (2018). Psychometric properties of the Strengths and Difficulties Questionnaire in children aged 5–12 years across seven European countries. *European Journal of Psychological Assessment*. <https://doi.org/10.1027/1015-5759/a000489>.
- Izatt, J., & Wasilewska, T. (1997). Nurture groups: An early intervention model enabling vulnerable children with emotional and behavioural difficulties to integrate successfully into school. *Educational and Child Psychology*, 14, 63–70.
- Kennedy, J. H., & Kennedy, C. E. (2004). Attachment theory: Implications for school psychology. *Psychology in the Schools*, 41(2), 247–259. <https://doi.org/10.1002/pits.10153>.
- Kerr, L., & Cossar, J. (2014). Attachment interventions with foster and adoptive parents: A systematic review. *Child Abuse Review*, 23(6), 426–439. <https://doi.org/10.1002/car.2313>.
- Kirk, J. (2018). An exploratory study of the curriculum in primary school nurture groups: from a pupil, parent and practitioner perspective (Doctoral dissertation, The Open University). <http://oro.open.ac.uk/55037/>.
- Kirkbride, R. (2014). 'They were a little family': An exploratory study of parental involvement in nurture groups—from a practitioner and parent perspective. *British Journal of Special Education*, 41(1), 82–104. <https://doi.org/10.1111/1467-8578.12047>.
- Linsell, L., Johnson, S., Wolke, D., Morris, J., Kurinczuk, J. J., & Marlow, N. (2019). Trajectories of behavior, attention, social and emotional problems from childhood to early adulthood following extremely preterm birth: A prospective cohort study. *European Child & Adolescent Psychiatry*, 28(4), 531–542. <https://doi.org/10.1007/s00787-018-1219-8>.
- Morris, J. M. (2019). Children's Constructions Of Their Experiences In A Primary School Nurture Group (Doctoral dissertation, School of Education). <https://ira.le.ac.uk/handle/2381/43326>.
- National Institute for Clinical Excellence (2015). Children's attachment: attachment in children and young people who are adopted from care, in care or at high risk of going into care. NICE Guideline [NG26]: November. <https://www.ncbi.nlm.nih.gov/pubmed/26741018>.
- O'Connor, T., & Colwell, J. (2002). Research Section: The effectiveness and rationale of the 'nurture group' approach to helping children with emotional and behavioural difficulties remain within mainstream education. *British Journal of Special Education*, 29(2), 96–100. <https://doi.org/10.1111/1467-8527.00247>.
- Parker, R., & Levinson, M. P. (2018). Student behaviour, motivation and the potential of attachment-aware schools to redefine the landscape. *British Educational Research Journal*, 44(5), 875–896. <https://doi.org/10.1002/berj.3473>.
- Poulou, M. S. (2015). Emotional and behavioural difficulties in preschool. *Journal of Child and Family Studies*, 24(2), 225–236. <https://doi.org/10.1007/s10826-013-9828-9>.
- Reynolds, S., MacKay, T., & Kearney, M. (2009). RESEARCH SECTION: Nurture groups: A large-scale, controlled study of effects on development and academic attainment. *British Journal of Special Education*, 36(4), 204–212. <https://doi.org/10.1111/j.1467-8578.2009.00445.x>.
- Rose, J., McGuire-Snieckus, R., Gilbert, L., & McInnes, K. (2019). Attachment Aware Schools: The impact of a targeted and collaborative intervention. *Pastoral Care in Education*, 1–23. <https://doi.org/10.1080/02643944.2019.1625429>.
- Sanders, T. (2007). Helping Children Thrive at School: The Effectiveness of Nurture Groups. *Educational Psychology in Practice*, 23(1), 45–61. <https://doi.org/10.1080/02667360601154600>.
- Scott, K., & Lee, A. (2009). Beyond the 'classic' nurture group model: An evaluation of part-time and cross-age nurture groups in a Scottish local authority. *Support for Learning*, 24(1), 5–10. <https://doi.org/10.1111/j.1467-9604.2009.01391.x>.
- Sempik, J., Ward, H., & Darker, I. (2008). Emotional and Behavioural Difficulties of Children and Young People at Entry into Care. *Clinical Child Psychology and Psychiatry*, 13(2), 221–233. <https://doi.org/10.1177/1359104507088344>.
- Shaver, I., & McClatchey, K. (2013). Assessing effectiveness of nurture groups in Northern Scotland. *Support for Learning*, 28(3), 97–102.
- Steinsbekk, S., & Wichstrøm, L. (2018). Cohort Profile: The Trondheim Early Secure Study (TESS)—A study of mental health, psychosocial development and health behaviour from preschool to adolescence. 1401-1401i *International Journal of Epidemiology*, 47(5), <https://doi.org/10.1093/ije/dyy190>.
- Wichstrøm, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry*, 53(6), 695–705.