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# Promoting social competence and social inclusion in the preschool: a peer-based relational intervention

Peter Kutnick <sup>a</sup> and Jen Colwell<sup>b</sup>

<sup>a</sup>School of Education, Communication & Society, King's College London, London, UK; <sup>b</sup>Education Consultant, School of Education, University of Brighton, Brighton, UK

## ABSTRACT

Reviews concerning the enhancement of preschool children's social competencies reveal areas within which teacher approach, definitions of social competence and methods of study can be enhanced. In response, teachers and researchers co-developed and introduced a peer-based relational intervention to support children's communication, empathic response and non-homophilic choice of friendship/work mates. Within this design-based approach, a three-phase comparison was made in 14 English preschool classrooms. Results identified changes attributed to the intervention regarding: teacher behaviour (movement from giving directions to observation and support); child behaviour (enhanced reciprocal communication, empathic response to others and engagement in cognitively challenging activities) and an expansion of socially inclusive play/work mates. Not all teachers/classes responded to the relational approach in the same manner: those that engaged actively in the approach encouraged more social competence enhancements amongst children; those with lower engagement identified support/implementation problems and children showed less social competence advances.

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Social competencies; social inclusion; preschool; relational approach; design-based

## 1. Introduction

With preschool access for most 4-year-olds in western countries, there has been an expectation that young children's future academic performance and social competencies will be enhanced via this experience (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Farmer, McAuliffe Lines, & Hamm, 2011; McCabe & Altamura, 2011). Explanations of academic performance see the child as actively engaged with teachers and peers in this development (Doctoroff, Greer, & Arnold, 2006; Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2010). On the other hand, the development of social competencies remains an area that draws mainly on behavioural and social skills where the child's role is relatively passive and teacher-directed (Booren, Downer, & Vitiello, 2012; Kington, Gates, & Sammons, 2013). Social competencies are particularly important for children's introduction into and maintenance of social groupings, interpersonal interaction, communication and empathic skills that underlie academic performance (Blewitt et al., 2021) and set bases for future social relationships and classroom social inclusion (Kutnick, Brighi, & Colwell, 2016; Martin, Fabes, Hanish, & Hollenstein, 2005).

**CONTACT** Peter Kutnick  peter.kutnick@kcl.ac.uk  School of Education, Communication & Society, King's College London, Franklin-Wilkins Building, Waterloo Road, London SE1 9NH, UK

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The development of children's social competencies will depend on their relational engagement with teachers and peers. Most approaches to enhance social competencies, though, have had only limited success (Blewitt et al., 2021). As an alternative, this study identifies a design-based relational approach that involves the development of positive, supportive relationships with peers and adults (Baines, Blatchford, & Kutnick, 2016; Kutnick et al., 2016) wherein children's mutual trust, communication and empathic competencies can be developed in learning and play contexts. This approach (see Section 3.3) has been integrated into normal within-class pedagogy, based on the development of close/supportive relationships amongst all children in a class.

## 2. Literature review

### 2.1. Facilitating social and academic development in preschool

Preschools provide contexts for developing children's social competencies which, in turn, may enhance academic and behavioural development (McCabe & Altamura, 2011). Blewitt et al. (2021) systematic review of preschool interventions identifies that enhancing social competencies is associated with decreased behavioural/emotional problems that allows for well-being and educational advance (also see Arnold, Kupersmidt, Voegler-Lee, & Marshall, 2012; Nakamichi, Nakamichi, & Nakazawa, 2021). Further, Bierman and Motamedi (2015) identify that there is pressure on preschool teachers to promote the acquisition of children's social competencies; the acquisition of these competencies, though, is often teacher-directed while competencies are expected to be demonstrated in a peer-group context. The classroom, thus, provides a complex arena for social competence dynamics (Farmer et al., 2011). These dynamics should not be characterized as solely teacher-directed as children's social development draws upon two distinct (adult- or peer-oriented) pedagogic 'worlds' (Corsaro, 1988; Kutnick et al., 2016) and take place in both structured and unstructured/play learning situations (Avgitidou, 2001; Booren et al., 2012; Singer, Nederend, Penninx, Tajik, & Boom, 2014). Thus, while preschool classrooms provide a group context for social competencies to develop (Spivack & Farran, 2016) they are also a venue where lack of these skills (seen as deficits or misbehaviours) focus on the individual child (Durlak et al., 2011; McCabe & Altamura, 2011).

Preschool teachers have been described as the early identifier of a child's socio-emotional competence problems (Doumen, Verschuere, & Buyse, 2009; McCabe & Altamura, 2011). They serve as a model for social behaviour (Veldman, Doolaard, Bosker, & Snijders, 2020) and the person responsible for initiating and directing social competence programmes (Bierman & Motamedi, 2015). Bierman and Motamedi (2015), further, note that most preschool programmes to enhance children's social competencies are teacher-led, focusing on developing/improving individual children's social skills, and few of these programmes have been successful. Harper and McCluskey (2003) and Martin et al. (2005) have suggested that alternative social competence approaches should be less teacher directed that draw upon peer-based, interpersonal interactions where close/mutual relationships can be developed. Peer relationships are particularly important as children will spend most of their time with peers while undertaking structured and unstructured/play learning activities (Booren et al., 2012).

Positive relationships between the child, teacher and peers appear fundamental to the development of children's social competencies; yet, aspects of these relationships may have the opposite effect. For example, gendered, homophilic interactions and a focus on misbehaviours may characterize some of children's relationships with peers and their teachers (Doctoroff et al., 2006; Martin et al., 2005). And, children's involvement with teachers may occur at the expense of engagement with peers (Harper & McCluskey, 2003). To overcome these relational (Harper & McCluskey, 2003), teacher-dependent (Bierman & Motamedi, 2015) and peer neglecting (Singer et al., 2014) problems, this study identifies the potential of a preschool peer-based relational intervention designed to develop inclusive, close relationships with peers (as well as teachers) that may help to enhance children's social, communicative and empathic competencies and academic development.

## **2.2. Role of the teacher in promoting preschool social competencies**

The preschool teacher's role is multifaceted; with classroom, learning and relational responsibilities. The literature consistently describes teachers as controlling classroom activities and children's behaviour both overtly and covertly (Doumen et al., 2009; Farmer et al., 2011). This control is not simply an authoritarian assertion of behavioural standards but includes emotional sensitivity, responsiveness (Harper & McCluskey, 2003) and security (Singer et al., 2014). Aspects of the role include: instructor, encourager, model and evaluator (Blewitt et al., 2021; Veldman et al., 2020); imparting social norms while facilitating social interactions (Farmer et al., 2011). Herein lies a contradiction: whereas teachers are responsible for scaffolding classroom behaviour for all children (Acar, Hong, & Wu, 2017; Spivack & Farran, 2016), they are most likely to focus on the identification of individual children's maladaptive social competence problems (Doumen et al., 2009; Farmer et al., 2011; McCabe & Altamura, 2011).

Teacher control has been described as an 'invisible hand' (Farmer et al., 2011), especially regarding children's interactions and relationships while undertaking learning tasks. In this adult-oriented pedagogic world, children's peer groupings tend to be large and inclusive (by sex, friendship, ethnicity; Kutnick et al., 2016; Martin et al., 2005) while undertaking structured and semi-structured learning tasks (Sendil & Erden, 2012). Studies (Acar et al., 2017; Blewitt et al., 2021; Harper & McCluskey, 2003) identify further contradictions between teachers' behaviour and its effect on children: a teacher's supervisory presence is associated with positive peer interactions while the lack of teacher presence is associated with negative peer interactions. Yet, too much teacher presence may inhibit peer interaction and teachers may not deem preschool peers capable of cooperation/collaboration (Johnson, Ironsmith, Snow, & Poteat, 2000; Veldman et al., 2020). Explanations for the lack of peer-based social competencies development may thus be attributed to teachers': social control (Farmer et al., 2011); perceptions that preschool children are too young to cooperate (Kutnick, Ota, & Berdondini, 2008), and the lack of understanding of effects of teacher presence when supervising peer groups (Acar et al., 2017; Veldman et al., 2020).

## **2.3. Role of children in promoting preschool social competencies**

Similar to their teachers, peer-related development of social competencies encompasses many contradictions. Children spend the majority of their preschool time undertaking activities in the presence of their peers (Booren et al., 2012). In this peer-oriented pedagogic world, children's groupings may be found in various sizes and compositions: of individuals, dyads, small and larger groups (Kutnick & Blatchford, 2014); friendship, attainment and gendered groups (Kington et al., 2013); and undertaking activities as solitary, parallel and social acts (Martin et al., 2005; Parten & Newhall, 1943). Farmer et al. (2011) identified that children construct and maintain social order within their preschool contexts and these contexts may promote social competencies of inclusion and sensitivity or exclusion (Corsaro, 1988). The social development literature (e.g. Damon & Phelps, 1989) identify the importance of peer relations associated with mutuality, reciprocity and the ability to undertake tasks as co-equals. In contrast, many group interactions are exclusive, homophilic (Booren et al., 2012; Martin et al., 2005) and status conscious (Farmer et al., 2011). The amount and quality of peer interactions may be limited by the presence (or lack) of teacher and whether the teacher takes-on a directive or observational role (Farmer et al., 2011; Kutnick et al., 2016). When teachers take-on an active role in promoting social competencies, there may be discrepancies as to their focus – on whole class, small groups or individual child (Harper & McCluskey, 2003; Spivack & Farran, 2016).

Simply providing a preschool venue for children to interact with peers and teachers is unlikely to promote particular social competencies such as communication, social support and empathic relationships (Martin et al., 2005). McCabe and Altamura (2011) explain that many peer relationships may lack a basis of security which make it difficult for a child to develop these social competencies. Veldman et al. (2020) further identifies that the effective development of social competencies among

peer relationships should be based on aspects of mutual trust, security and respect; the quality of these close relationships can facilitate or inhibit children's academic and social achievement (Durlak et al., 2011). If social and academic competencies are in-part based on classroom relationships then interventions to enhance children's social competencies would need to focus on classroom peer groups and their development of inclusive mutuality, communication and empathy rather than individual children's maladaptive behaviour.

## **2.4. Facilitating children's social competencies**

Facilitating social competencies has been described as a natural function of preschool teachers and/or the result of classroom interventions. Naturalistically, several studies (Doumen et al., 2009; Harper & McCluskey, 2003; Spivack & Farran, 2016) identify the teacher's role as modelling and supporting particular socio-emotional skills and interpersonal communication through explicit approval/disapproval of children's behaviours. Teachers' naturalistic support and control of children's social behaviour is complemented by structured interventions based on a variety of theories that focus on teaching/modelling of particular interpersonal competencies (Bierman & Motamedi, 2015). These interventions are intended to bolster a child's social competencies before maladaptive behaviour problems can be exacerbated in the classroom (McCabe & Altamura, 2011). Interventions are most effective if they: take place within classrooms (opposed to withdrawal); are started as early as possible in the preschool year; and, last as long as possible (Durlak et al., 2011). Interventions tend to take a 'tiered' approach starting with an individual focus before moving onto whole class (Blewitt et al., 2021; McCabe & Altamura, 2011) and are most effective when 'taught' by a specialist (as teachers may require extra training to overcome potential biases, Bierman & Motamedi, 2015) and following taught/prescribed social skills (ex. Play Time/Social Time; Odom & McConnell, 1997). Blewitt et al. (2021) systematic review of teacher-led interventions found only limited effects on children's social competencies; these limited effects are, in part, explained by a 'pedagogy (that) seems to be based on a model of individual care and control and insensitiveness to group dynamic processes' (Singer et al., 2014, p. 1233). Other problems associated with teacher-based interventions include inconsistencies in teacher training and too specific targeting of children's social skills (McCabe & Altamura, 2011). Of the few classroom group/peer-based interventions, most are based on establishing cooperative or collaborative pedagogies (Veldman et al., 2020) – many of which focus on children's communicative skills and their group learning outcomes. These group interventions tend to neglect the development of children's empathic and mutual/trust competencies (Kutnick & Blatchford, 2014). If peer-based interventions are to be effective, teachers will need to guide/scaffold peer interactions that focus on communication, empathy and mutuality (Acar et al., 2017) – the bases to self-supporting close peer relationships. The establishment of these social competencies is likely to take place over the course of a school year (Farmer et al., 2011; Veldman et al., 2020). Their effectiveness will also depend on the degree to which teachers: are committed to the programme; can change focus from the individual child to peer relationships (Baines, 2014; Harper & McCluskey, 2003); and perceive the development of social competencies as a fundamental aspect of the curriculum (McCabe & Altamura, 2011). Further, as Farmer et al. (2011) note 'in the absence of some form of (relational) intervention, undesirable norms can proceed from a handful of students to the functioning of an entire class' (p. 251).

Studies of preschool children's social competencies have drawn upon various: theories, methods, foci (individual/group or context), assessors and tools used to collect data. Underlying these aspects is a question of whether social competence is a phenomenological trait (Sendil & Erden, 2012) or whether social competencies can be developed over time drawing upon design-based and experimental methods (Anderson & Shattuck, 2012; Durlak et al., 2011; Singer et al., 2014; Veldman et al., 2020). Assessing children's competencies may be undertaken by: the teacher (Arnold et al., 2012; McCabe & Altamura, 2011; Spivack & Farran, 2016); the children (Doctoroff et al., 2006; Nakamichi et al., 2021) or researchers (Singer et al., 2014; Spivack & Farran, 2016). Depending on who assesses, one must be

aware of possible distortions in their assessment – especially for teachers’ preferences for pro-social behaviours (Acar et al., 2017; Spivack & Farran, 2016) and children’s homophobic (Martin et al., 2005) preferences. Tools to assess social competencies also vary, dependent on a trait orientation (McCabe & Altamura, 2011), teacher assessment (Spivack & Farran, 2016), observation of practice and interaction (Acar et al., 2017; Singer et al., 2014; Spivack & Farran, 2016), and teacher and child social preferences (Doctoroff et al., 2016; Johnson et al., 2000; Nakamichi et al., 2021). The effectiveness of any intervention will also be dependent on the commitment of the teacher (Baines, 2014; Harper & McCluskey, 2003). Until now, most studies have identified/promoted particular social skills (Odom & McConnell, 1997) often neglecting the importance of developing peer-based close relationships (Kutnick & Blatchford, 2014; Kutnick & Manson, 1998) to inclusively develop peer-based social competencies of mutuality, communication and empathy in classrooms.

### 3. Problem statement and methods

The review identified the importance of enhancing children’s social competencies within their pre-school experience while noting an over-reliance on teacher modelling and control of social competencies and relative lack of peer-based relational studies (Farmer et al., 2011; Singer et al., 2014). Within this study, we focus on the development of a peer-based relational intervention, exploring in particular the enhancement of children’s communicative, empathic and social support competencies with their peers. The study was undertaken in English preschools where the national early years curriculum emphasizes learning through play, social/emotional and cognitive development and effective communication among its early learning goals (EYFS, 2021). It focused on 4- to-5-year-olds, where all children in this age group have access to preschool experience. A relational intervention was co-designed and developed with teachers and undertaken over 18 months, with the intervention taking place over a full school year that drew upon multiple methods to identify contexts and activities where children spend the majority of their preschool time – during indoor semi-structured work/play. Co-development allowed teachers and researchers to work together to identify, explore and develop relational activities in which children could engage that coincided with the pre-school curriculum. Methodological tools focused on: descriptions of interpersonal learning contexts; children’s interpersonal social competencies including the composition of social groupings, use of communication and empathic skills; cognitive challenge of activity engagement; and roles of teachers within contexts. Underlying the intervention were further concerns as to whether this relational approach may help to promote social inclusion within the preschool classroom. The relational intervention had a strong theoretical base but required a transition from theory into classroom practice. Working with teachers allowed a ‘design-based’ approach (Anderson & Shattuck, 2012) that could be refined over time in consultation with the teachers. This design-based approach was preferred to experimental/quasi-experimental approaches in that: the intervention needed to draw upon characteristic preschool classroom activities that could only be identified in an initial research phase; the relational activities required co-design with teachers; and all teachers who participated wished to introduce relational activities into their classrooms rather than be assigned into control/experimental groups. The 18-month period allowed comparisons between typical child and teacher actions/activities at the end of the pre-school year before the intervention and over a full-year that included the intervention.

#### 3.1. Research questions

- (1) What contexts and activities characterize social competencies concerning children’s social grouping, communication and levels of cognitive challenge of 4–5-year-olds in preschool classrooms at the end of the school-year prior to the intervention

- (2) With regard to children's social grouping, communication and empathic competencies and levels of cognitive challenge, how did the relational intervention affect changes in teacher- and peer-oriented pedagogic worlds over a preschool year?
- (3) To what extent will teacher and child involvement in the intervention affect development of children's reciprocated social relationships, communication, empathy and levels of cognitive challenge?

### **3.2. Phases**

The study took place over 18 months, with 3 phases. In Phase 1, researchers collaborated with preschool teachers to establish methods and tools to survey classrooms and identify pedagogic and social competencies among children during indoor semi-structured activities. Over the following summer, researchers and teachers co-designed a peer-based, relational intervention that was initiated at the start of the following school year (Phase 2). The intervention was designed to encourage classroom inclusion, social competencies and learning attractiveness that focused on children's social groupings, reciprocal communication, empathic competencies and levels of cognitive challenge undertaken within the preschool curriculum. The intervention allowed comparisons at the start and end of the school year (Phases 2/3) and end-of-year comparisons (Phases 1/3) between the initial survey and the implementation year. Through the Phase 2/3 year, teachers undertook collaborative training with researchers that included: an initial 2 days of out-of-school meetings to discuss and exemplify the relational approach; two further half-day meetings to provide feedback and further development of the relational activities for classrooms; and various in-school feedback sessions that took place after researchers visited schools to collect data. The study followed BERA ethical guidelines (2018; university research ethics committee approval, and guaranteed anonymization, right to withdraw and permission for child engagement), and agreed ethical principles/participation with schools, teachers and parents of children.

### **3.3. Peer-based, relational intervention**

The intervention identifies that positive, supportive relationships with peers and adults are fundamental for children's learning and social development (Kutnick et al., 2016). The promotion of social competencies follows an attachment-like sequence: (1) the development of trust/mutual dependence among all children in a class (as opposed to trust developed between specific close friends) to inclusively support children's awareness of their classmates and provide an opportunity to highlight the positive contribution each person makes to the class (also see Damon & Phelps, 1989); (2) the development of social communication competencies where children are encouraged to express their ideas and feelings about themselves, others and their activities (also see Martin et al., 2005) and (3) the development of joint problem-solving and empathic competencies supported with effective collaborative group working skills that may be drawn upon in their semi-structured learning activities (also see McCabe & Altamura, 2011). The intervention introduced peer-based interactions to facilitate inclusive social groupings of children, reciprocal social communication and empathic understanding of others. To exemplify some of the activities introduced by teachers (also see Baines et al., 2016): age-appropriate trust and sensitivity exercises were initially adapted for children to use in pairs and small groups; followed by interpersonal communication including paired listening to others, asking questions, giving reasons for actions and reaching consensus while undertaking challenging tasks that require sharing of ideas in pairs and small groups. When undertaking these activities, teachers encouraged children to change partners frequently such that pairings are not dominated by pre-existing friendships and each child interacts with all other children in their class. Before and after undertaking relational activities, teachers drew together all children in their class for pre- and de-briefing; thus all class members were able to comment on what was being

undertaken and to offer ideas to further develop relational effects. Relational activities, as noted, took place in the normal classroom and involved all children. Activities took place (approximately) three times per week throughout the year. They would begin with in a Circle Time format (Mosley, 1998) to explain/pre-brief the activity and end with a further whole class de-brief after the activity. As children became more conversant with the activities, they spontaneously drew upon the activities when interacting with their peers.

### **3.4. Participant numbers**

Local area, state-supported nursery schools and nursery classes in primary schools were approached for their participation. After ethical agreement with schools, teachers and parents, an initial 16 teachers/classes agreed to participate (two teachers withdrew soon after starting the study). Thus in each of the 3 phases, 14 teachers participated. Phase 1 included 337 children, an average of 24 children per class. In phases 2 and 3, 347 children participated, an average of 25 children per class.

### **3.5. Tools developed/used**

The study developed and adapted tools including:

#### **3.5.1. Mapping**

Of child-peer and child-teacher activity during semi-structured work/play. Classroom maps were constructed by researchers with the help of each teacher to provide a phenomenograph of pedagogic actions and children's social groupings (Kutnick et al., 2016; Kutnick & Blatchford, 2014). Maps identified the physical setting of the classroom, where each child was at the observation time, what activity was being undertaken, level of cognitive challenge of each activity (from Camaioni, Bascetta, & Aureli, 1988),<sup>1</sup> with whom actions took place, social groupings and communication/reciprocated communication. Maps also noted whether pupil groups were Teacher- or Child-led, their size and composition (by sex, friendship and who organized the group). Mapping was undertaken by researchers, with friendship and activity data completed in consultation with the class teacher. Prior to collecting mapping data, researchers jointly trained by observing non-study classrooms and achieved a high level of reliability amongst their observations ( $\kappa = 0.94$ ). Each classroom was visited a minimum of two times per phase, allowing for an analysis of 1240 groupings of children (423 groupings in Phase 1; 420 in Phase 2; 397 in Phase 3). Among these groupings, 306 (24.7%) were Teacher-led and 934 (75.3%) were Child-led; the preponderance of Child-led groups characterized all 3 phases.

#### **3.5.2. Sociomatrices**

Sociomatrices (Oppenheim, 2001) were collected in each classroom and included separate child and teacher nominations regarding children's play and work during Phases 2 and 3. Each child was presented with photographs of all children in their class and asked to nominate: 'Who do you like to play with?' and in a separate questioning: 'Who do you like to work with?'. Teachers were also asked to focus on each child in their class and nominate 'Who would (child's name) like to play/work with?'. Analyses noted number of times each child was nominated and whether nominations were reciprocated. Phase 2 sociomatrices were completed by 303 children and for 300 children by their teachers. Phase 3 sociomatrices were completed by 345 children and for 300 children by their teachers.

#### **3.5.3. Collaborative Classroom Rating Scale (CCRS)**

CCRS was initially developed and piloted in phase 1 and sought to reflectively identify type and intensity of social inclusion/relational activities in the classroom. The development of reflective ratings was adapted from Berliner (1987) where, after consideration by teacher and researcher, a summative judgement is made regarding classroom practice after each observation visit.



Judgements were made regarding each of the (6) following aspects: whether the physical set-up of classrooms allowed children to work collaboratively (Learning context); whether children were assigned collaborative tasks (Activities/tasks); role of teachers in initiating and supporting peer-based relational activities (Adult role, Adult supports), and whether children used and supported relational activities when interacting with their peers (Peer interaction, Peer relational activity). Judgements were rated on a 5-point scale (0 = not observed at all; 4 = characterized observation period). Researchers were trained in the use of the CCRS by observing and rating non-study classes, their ratings were highly reliable (average alpha = 0.91). Ratings were completed after each visit to a classroom in each of the three phases; a total of 101 ratings were made: Phase 1 = 37; Phase 2 = 28; Phase 3 = 36.

#### ***3.5.4. Social Apperception Enquiry (SAE)***

SAE was designed to elicit empathic responses from children by focusing on a peer-based classroom situation and questioning what the interviewee would do in that situation. A picture (drawn in the manner of a Thematic Apperception Test, 2023) depicted a group of three children sitting/talking together with one child sitting alone on the outskirts of the group. A clinical interview technique was piloted in Phase 1 and SAE data was collected in Phases 2 and 3. Four or five children per class were randomly selected for interview per Phase; 57 children were interviewed in Phase 2 and 52 in Phase 3. Children were initially asked 'What is happening in this picture?'. Once the child recognized an outsider in the picture, she/he was further questioned for their empathic strategies to overcome exclusion. Answers were semantically content analysed (Cohen, Mannion, & Morrison, 2017) for types of response with regard to: Recognition of an outsider; Reason why the child was outside the group and Suggested solution in response to the outsider (see Table 2). Responses were analysed per phase.

## **4. Results**

Results are based upon data related to each of the research questions with means, proportional differences and statistical significance reported in Tables 1 and 2.

### ***4.1. What contexts and activities characterize social competencies concerning children's social grouping, communication and levels of cognitive challenge of 4–5-year-olds in preschool classrooms at the end of the school-year prior to the intervention (RQ1): Phase 1 results set a background for the intervention***

#### ***4.1.1. Maps***

Table 2 found children predominantly in Child-led groups. Teacher-led group size (mean = 6.29) was larger than Child-led groups (2.52). Groups were predominantly single sex. Teachers were most likely to compose Teacher-led groups while children were most likely to compose Child-led groups. Where friendships were identified, Teacher-led groups were more likely to combine non-friends with friends while Child-led groups were predominantly friendship-only. In Teacher-led groups, teachers were most likely to direct children's activities and behaviour and undertake activities of medium to high levels of cognitive challenge. Within Child-led groups, the rare presence of a teacher was mainly associated with introducing an activity or responding to a child's request. Social activity among children in Teacher-led groups was mainly parallel with a limited amount of solitary and joint although there was a high level of reciprocal communication. Within Child-led groups, there was a nearly equal mix of solitary, parallel and joint activity, children were (slightly) more likely to reciprocally communicate and engage in medium to high levels of cognitively challenging activities. A mapping category of 'exclusive/inclusive' combined data from single-/mixed-sex and friend/non-friend categories and found Teacher-led groups were more likely to be inclusive than Child-led groups.

**Table 1.** Frequencies and averages for various measures by phase and teacher collaborative ranking (percent by column in brackets).

Measures	Phases*			Statistical difference	Explanation by phase	Differences by CCRS~	
	1	2	3			Difference	Explanation by rank
<i>CCRS</i> <sup>^</sup>							
1. Learning context	3.49	3.64	3.67	NS	–		
2. Activities/tasks	1.11	0.68	1.17	$f(2,98) = 5.08$ ++	3 > 2		
3. Adult role	1.11	0.64	2.03	$f(2,98) = 12.96$ +++	3 > 1; 3 > 2		
4. Adult supports	1.16	1.11	2.06	$f(2,98) = 7.74$ +++	3 > 1; 3 > 2		
5. Peer interaction	2.00	1.25	3.03	$f(2,98) = 29.12$ +++	3 > 1; 3 > 2; 1 > 2		
6. Peer relational activity	2.19	1.50	2.97	$f(2,98) = 17.01$ +++	3 > 1; 3 > 2; 1 > 2		
<i>Sociomatrices</i> <sup>`</sup> : Children							
1. Play		5.54	8.33	$f(1,988) = 61.26$ +++	3 > 2	$f(2,352) = 31.83$ +++	3 > 2; 3 > 1
2. Reciprocated play		2.00	3.89	$f(1,937) = 37.42$ +++	3 > 2	$f(2,346) = 17.35$ +++	3 > 2; 3 > 1
3. Work		3.25	5.42	$f(1,989) = 65.52$ +++	3 > 2	$f(3,351) = 23.85$ +++	3 > 2; 3 > 1; 2 > 1
4. Reciprocated work		0.73	1.9	$f(1,929) = 36.99$ +++	3 > 2	$f(2,343) = 12.12$ +++	3 > 2; 3 > 1; 2 > 1
<i>Sociomatrices</i> <sup>`</sup> : Teacher							
1. Play		3.10	4.49	$f(1,596) = 27.69$ +++	3 > 2	$f(2,297) = 37.35$ +++	3 > 2; 3 > 1
2. Reciprocated play		1.81	2.72	$f(1,596) = 24.52$ +++	3 > 2	$f(2,297) = 26.79$ +++	3 > 2; 3 > 1
3. Work		2.38	2.91	$f(1,581) = 7.50$ ++	3 > 2	$f(2,281) = 13.33$ +++	3 > 2
4. Reciprocated work		1.42	1.49	NS	–	$f(2,281) = 5.78$ ++	1 > 2; 1 > 3
<i>SAE</i>							
Outsider							
1. Not recognized		21 (37%)	10 (19%)	$\chi^2_4 = 4.14$ +	3 > 2	$\chi^2_4 = 3.56$ +	3 > 2; 3 > 1
2. Recognized		36 (63%)	42 (81%)				
Reason for outside							
1. No reason		32 (60%)	16 (31%)	$\chi^2_4 = 16.78$ ++	3 > 2		
2. Group rejects		18 (34%)	31 (60%)				
3. Self-exclusion		3 (6%)	0 (0%)				
4. Teacher separates		0 (0%)	1 (2%)				
5. Activity excludes		0 (0%)	4 (8%)				
Solution offered							
1. No solution		37 (84%)	18 (45%)	$\chi^2_5 = 14.48$ ++	3 > 2		
2. Play alone		0 (0%)	1 (3%)				
3. Ask adult		0 (0%)	3 (8%)				
4. Initiate by asking		7 (16%)	17 (44%)				

\*: Phases relate to: 1 – summer term prior year; 2 – autumn term current year; 3 – summer term current year.

<sup>^</sup>: Scale scores between 0 and 4.

~: Total classroom collective ratings divided teachers into three groups of: 1 – Low rating; 2 – Medium rating; 3 – High rating.

<sup>`</sup>: Average number of nominations.

+:  $p < .05$ .

++:  $p < .005$ .

+++:  $p < .001$ .

**Table 2.** Maps of classrooms by Phase and Pedagogic world (percent by column in brackets).

Group type	Phase*						Compare phases	
	1		2		3		1–3 Statistical difference	2–3 Statistical difference
	Teacher-led	Child-led	Teacher-led	Child-led	Teacher-led	Child-led		
<i>Pedagogic group</i>	126 (30%)	297 (70%)	74 (18%)	346 (82%)	106 (27%)	291 (73%)	NS	$\chi^2_1 = 9.80$ ++
<i>Sex of group</i>								
Teacher-led								
1. Mixed	18 (14%)		38 (51%)		47 (44%)		$\chi^2_1 = 25.78$ +++	NS
2. Single	108 (86%)		36 (49)		59 (56%)			
Child-led								
1. Mixed		37 (13%)		83 (24%)		82 (28%)	$\chi^2_1 = 22.32$ +++	NS
2. Single		259 (87%)		263 (76%)		209 (72%)		
<i>Who composed group</i>								
Teacher-Led								
1. T only	87 (70%)		51 (69%)		48 (45%)		$\chi^2_2 = 25.96$ +++	$\chi^2_2 = 12.96$ ++
2. Ch only	32 (26%)		18 (24%)		32 (30%)			
3. T + Ch	5 (4%)		5 (7%)		26 (25%)			
Child-led								
1. T only		17 (6%)		39 (11%)		42 (14%)	$\chi^2_2 = 20.48$ +++	NS
2. Ch only		273 (92%)		292 (84%)		233 (80%)		
3. T + Ch		5 (2%)		15 (5%)		16 (6%)		
<i>Relations in group</i>								
Teacher-led								
1. Friend	13 (10%)		3 (4%)		0 (0%)		$\chi^2_4 = 43.43$ +++	$\chi^2_4 = 21.42$ +++
2. Nonfriend	33 (26%)		4 (5%)		10 (9%)			
3. Fr + Nonfr	31 (25%)		23 (31%)		60 (57%)			
4. Unknown	32 (25%)		24 (33%)		12 (11%)			
5. Individual	17 (14%)		20 (27%)		24 (23%)			
Child-led								
1. Friend		70 (23%)		28 (8%)		27 (9%)	$\chi^2_4 = 211.94$ +++	NS
2. Nonfriend		23 (8%)		3 (1%)		5 (2%)		
3. Fr + Nonfr		20 (7%)		176 (51%)		162 (56%)		
4. Unknown		110 (37%)		16 (5%)		16 (5%)		
5. Individual		73 (25%)		123 (35%)		81 (28%)		
<i>Adult with group</i>								
Teacher-led								
1. Not present	13 (10%)		24 (32%)		54 (51%)		$\chi^2_5 = 72.40$ +++	$\chi^2_5 = 33.78$ +++
2. Observe	10 (8%)		3 (4%)		16 (15%)			
3. Introduce	21 (17%)		12 (16%)		11 (10%)			
4. Direct	69 (55%)		31 (42%)		11 (10%)			

(Continued)

Table 2. Continued.

Group type	Phase*						Compare phases	
	1		2		3		1–3 Statistical difference	2–3 Statistical difference
	Teacher-led	Child-led	Teacher-led	Child-led	Teacher-led	Child-led		
5. Act with	9 (7%)		4 (6%)		6 (6%)			
6. Respond	4 (3%)		0 (0%)		8 (8%)			
<b>Child-led</b>								
1. Not present		254 (86%)		249 (72%)		207 (71%)	$\chi^2_5 = 27.45$ +++	$\chi^2_5 = 14.41$ ++
2. Observe		7 (2%)		17 (5%)		19 (6%)		
3. Introduce		16 (5%)		42 (12%)		15 (5%)		
4. Direct		7 (2%)		20 (6%)		25 (9%)		
5. Act with		0 (0%)		2 (1%)		5 (2%)		
6. Respond		12 (4%)		16 (4%)		20 (7%)		
<b>Social interaction</b>								
<b>Teacher-led</b>								
1. Solitary	19 (15%)		17 (23%)		21 (20%)		$\chi^2_2 = 12.14$ ++	NS
2. Parallel	60 (48%)		28 (38%)		27 (25%)			
3. Joint	47 (37%)		29 (39%)		58 (55%)			
<b>Child-led</b>								
1. Solitary		90 (31%)		122 (36%)		82 (28%)	NS	NS
2. Parallel		100 (34%)		112 (32%)		99 (34%)		
3. Joint		105 (35%)		112 (32%)		110 (38%)		
<b>Reciprocated communication</b>								
<b>Teacher-led</b>								
1. With rec.	100 (79%)		55 (74%)		87 (82%)		NS	NS
2. No rec.	26 (21%)		19 (26%)		19 (18%)			
<b>Child-led</b>								
1. With rec.		173 (59%)		196 (57%)		205 (70%)	$\chi^2_1 = 8.91$ ++	$\chi^2_1 = 12.91$ +++
2. No rec.		122 (41%)		150 (43%)		86 (30%)		
<b>Cognitive challenge</b>								
<b>Teacher-led</b>								
1. Low	8 (6%)		0 (0%)		1 (1%)		$\chi^2_2 = 5.90$ +	NS
2. Medium	60 (48%)		42 (58%)		60 (59%)			
3. High	58 (46%)		31 (42%)		41 (40%)			
<b>Child-led</b>								
1. Low		30 (10%)		28 (9%)		16 (6%)	$\chi^2_2 = 5.25$ +	$\chi^2_2 = 15.12$ +++
2. Medium		173 (59%)		229 (68%)		161 (56%)		
3. High		93 (31%)		78 (23%)		106 (38%)		

(Continued)

Table 2. Continued.

Group type	Phase*						Compare phases	
	1		2		3		1–3 Statistical difference	2–3 Statistical difference
	Teacher-led	Child-led	Teacher-led	Child-led	Teacher-led	Child-led		
<i>Inclusion/ Exclusion</i>								
Teacher-led								
1. Exclusive	73 (58%)		34 (46%)		56 (53%)		NS	NS
2. Inclusive	53 (42%)		40 (54%)		50 (48%)			
Child-led								
1. Exclusive		237 (80%)		226 (77%)		212 (73%)	$\chi^2_1 = 4.25 +$	NS
2. Inclusive		59 (20%)		80 (23%)		79 (27%)		
<b>Average group size</b>	6.29		8.05		5.28		Teacher groups NS	Teacher groups $F_{(1,178)} = 5.33+$
		2.52		2.38		2.45	Child groups NS	Child groups NS

\*: Phases relate to: 1 – summer term prior year; 2 – autumn term current year; 3 – summer term current year.

+:  $p < .05$ .

++:  $p < .005$ .

+++:  $p < .001$ .

#### 4.1.2. CCRS

Table 1 scores showed a high means for Learning context allowing children's collaboration. Lowest means were found for Activities/tasks and Adult role/support. Moderate means were found for Peer interaction/relational activity with other children. Children were found to be in larger, more reciprocally communicative and inclusive groupings, with directed activities in Teacher-led groups. Child-led groups were more exclusively same-sex, friendship-oriented, with lower levels of reciprocal communication and undertaking less cognitively challenging activities.

### 4.2. With regard to children's social grouping, communication and empathic competencies and levels of cognitive challenge, how did the relational intervention affect changes in teacher- and peer-oriented pedagogic worlds over a preschool year? (RQ2)

#### 4.2.1. Phase 2–3 comparisons over the intervention year

**4.2.1.1. Maps.** Both phases showed clear divisions into Teacher- and Child-led pedagogic groups: with a predominance of Child-led groups in both phases and an increasing proportion of Teacher-led groups in Phase 3. The increase in number of Teacher-led groups indicated a decrease in average group size (from 8.05 to 5.28 children) and the potential for more pupil–teacher interaction. There were no significant differences in the sex composition of either type of groups over phases. Teachers were more likely to integrate children's choices in group composition post-intervention. Both Teacher- and Child-led groups were more likely to integrate friends and non-friends by post-intervention. Teacher role changed over time: becoming less overtly participative, increasing their observing and responding while decreasing directing. Within child groups, there were only small changes in teacher behaviour although there was an increase in reciprocal communication post-intervention. There was no significant post-intervention cognitive challenge change in Teacher-led activities, but a higher level of cognitive challenge in post-intervention Child-led groups. There were no significant differences in the inclusive/exclusive nature of teacher groups and a small, but significant change towards inclusion in child groups.

**4.2.1.2. CCRS.** Classrooms in both phases had high means for Learning context. Means for all other measures (Activities, Adult role/support, Peer interaction/relational activity) were significantly higher post-intervention – especially regarding peer-based actions.

**4.2.1.3. Sociomatrices: (Table 1).** Post-intervention, children made significantly more friendship choices (including reciprocated choices) for Play and Work; an average increase of two or more friends per category. A similar pattern was found (except for Reciprocated work) among teacher perceived choices.

**4.2.1.4. SAE (Table 1).** Post-intervention children showed: higher Recognition of an outsider; gave significantly more Reasons as to why the child was outside the group; and were more likely to offer a Solution involving the outsider – especially empathically asking the outsider to join their group.

#### 4.2.2. Phase 1/3 comparisons between the previous year and post-intervention

**4.2.2.1. Maps.** Distinctive Teacher- and Child-led groups were identified and the balance between these group types and group sizes were similar in both phases. Phase 3 Teacher- and Child-led groups were significantly more likely to be mixed-sex than Phase 1. Phase 3 Teacher-led groups were more likely to be composed by teachers and children and more likely to combine friends and nonfriends. Similarly, Phase 3 Child-led groups were more likely to combine friends and non-friends. Teachers were less likely to assert their presence in Phase 3 than in Phase 1 as well as being more observant and less directive. Teachers encouraged more joint activity in Phase 3, although this was not significant for Child-led groups. Child-led groups showed significantly more

reciprocated communication in Phase 3 than Phase 1, while there was no significant difference for Teacher-led groups. Cognitive challenge of activities differed significantly between phases and types of group: Teacher-led groups showed greater emphasis on medium challenge activities in Phase 3 than in Phase 1; Child-led groups increased in high cognitive challenge in Phase 3. Finally, there was an increase in Child-led inclusive groups in Phase 3 while ratios of inclusivity for Teacher-led groups were not significant.

**4.2.2.2. CCRS.** Learning context was found at a high level across phases. Teachers in Phase 3 were significantly more likely to introduce and support their children's collaborative activities. And, children increased their Peer interaction/relational activity.

**4.2.2.3. Sociomatrices and SAE.** Sociomatrices and SAE were not undertaken in phase 1, hence no comparisons could be made.

**4.3. To what extent will teacher and child involvement in the intervention affect development of children's reciprocated social relationships, communication, empathy and levels of cognitive challenge (RQ3): These analyses focus on degree of teacher/classroom commitment to the intervention affected children's social competencies over the Phase 2–3 period**

**4.3.1. CCRS**

Results undertaken in Phase 3 were summed and divided into three equal categories of high, medium and low levels of classroom relational commitment. Table 1 shows that children in high commitment classes significantly increased their peer choices for all four sociometric aspects to a greater extent than children in medium and low commitment classes. Within Play and Work, average number of sociometric choices were: Play – high: 10.3, medium: 6.9, low: 7.3; Work – 6.6, 5.6, 3.4. Reciprocated choices in play and work means were 5.2, 3.0, 3.2 and 2.6, 1.9, 1.0 for high, medium and low commitment respectively. Teachers' perceptions of peer choices were also differentiated by relational commitment; teachers in high commitment classes identified more child-peer choices than other classes for Play, Reciprocated play and Work (Play: 6.7, 3.0, 4.7; Work: 3.8, 2.2, 3.3). The perception of Reciprocated work by teachers was not significantly different for levels of CCRS commitment, possibly indicating that (even) low commitment teachers still expect children will work together.

**4.3.2. SAE**

Results showed children in high commitment classes were most likely to suggest ways to integrate the outsider.

**4.3.3. Maps**

Children in high commitment classes were least likely to engage in low cognitive challenge and most likely to engage in high challenge activities ( $X^2_4 = 13.62, p < 0.01$ ). Further, in low commitment classes, children were less likely to engage in joint activities ( $X^2_4 = 15.56, p < 0.004$ ). Overall, classes with the highest commitment to the intervention encouraged a greater range children's choices/reciprocated choices for peer play and work, empathic responses to others, parallel and joint activities undertaken at higher levels of cognitive challenge.

**5. Discussion**

The preschool literature emphasizes that children's social competencies support academic/cognitive achievement and social inclusion; especially the ability to empathize/support others, communicate reciprocally and interact with a range of dissimilar peers (gender, friendship, etc.). Reviews of social competence interventions identified problems of teacher-dominance, focus on individual

maladaptive behaviours, neglect of peer interactions and lack of sensitivity for classroom contexts. Being aware of these problems, this study developed a peer-based relational approach and methodological tools to: enhance empathy and communication skills among all children in preschool classrooms; recognize the role of pedagogic classroom contexts likely to promote cognitively challenging activities; and, involve both teachers and children in social competencies development.

### **5.1. Phase 1**

Mapping identified social competence, cognitive activities and interactions characteristic of preschool classroom contexts. As expected, results largely replicated previous studies concerning pedagogic worlds (Kutnick et al., 2016; Singer et al., 2014), group sizes and composition (Kington et al., 2013; Martin et al., 2005) and roles of the teacher (Blewitt et al., 2021). Children interacted in two distinct pedagogic worlds, dominated by peers or teachers. Group sizes of solitary children, pairs and triads and larger groups were found in both in both pedagogic worlds. Teacher-led groups tended to be large, socially inclusive and undertook activities at relatively high levels of cognitive challenge. Child-led groups were small, mainly single-sex and friendship-based. Teachers, in Teacher-led groups, mainly directed children's behaviours and introduced activities. They arranged classroom activities such that children could potentially interact with other children. Yet, there was little evidence of engaging children in collaborative activities; these actions and interactions are the context within which socio-emotional and interpersonal competencies are likely to develop. Children were likely to construct and maintain a social order (similar to Farmer et al., 2011's description) that tended towards higher levels of communication, cognitive activity and inclusive interactions in Teacher-led groups. On the other hand, children spent most of their time away from the teacher. Child-led groups engaged in lower levels of communication (non-reciprocated) and cognitive challenge amongst exclusive, homophilic groupings. The social order of child groups appeared to limit opportunities for children to develop/use social and inclusive competencies amongst themselves.

### **5.2. Phase 2–3 comparisons**

CCRS showed that classrooms at the start of the school year were set-up such that children could collaborate (similar to Acar et al., 2017; Singer et al., 2014) while end-of-year ratings showed higher levels of teacher and peer support for collaboration and interaction. Both play and work sociomatrices showed an expansion in number of nominated friendships and reciprocated friendships over the preschool year (similar to Sylva et al., 2010's longitudinal study). These enhanced competencies took place with higher levels of reciprocated communication and gender/friendship inclusion. Over the intervention year, SAE showed children became more aware of potential insider/outsider group problems and identified aspects of empathic support needed to overcome this problem (as recommended by Veldman et al., 2020 and McCabe & Altamura, 2011); this may prove a potential counter to homophilic tendencies (a problem previously identified by Martin et al., 2005). Maps identified changes toward increased inclusion within children's pedagogic worlds. Smaller Teacher-led groups allowed for more sensitive teacher/child interactions (as recommended by Harper & McCluskey, 2003) while maintaining an inclusive composition. Larger Child-led groups allowed for increased mixed-sex/friendship inclusion. Teachers became less directive and more responsive to children's expressed needs (as recommended by Singer et al., 2014). Child-led groups showed higher levels of reciprocated communication allowing engagement in higher cognitive challenge activities.

### **5.3. Phase 1–3 comparisons**

CCRS of classroom set-up of activities was similarly high for Phases 1 and 3. Yet, Phase 1 teachers/children were less likely to engage and support collaborative and communicative activities. Maps



found Phase 3 Teacher-/Child-led groups more inclusive by gender/friendship. Phase 3 teachers were less directive and more responsive when working with groups. And, Phase 3 children were more engaged in reciprocal communication and higher cognitive challenge activities. The relational approach thus provided an alternative intervention in line with Singer et al.'s (2014) recommendation to move away from previous classroom pedagogies 'based on a model of individual care and control and insensitiveness to group dynamic processes' (p. 1233). Yet, participating in an intervention did not necessarily mean that effects were similar for all classes. Similar to Baines (2014), McCabe and Altamura (2011) and others, teachers' commitment to/support for the relational approach varied – with teachers/classes that scored highest on the CCRS showing the greatest enhancement in children's social competencies.

Peer-based relational findings from this study provide an alternative to previous less successful, teacher-led, social skills focused, individual (non-peer) oriented social competence interventions in preschools. Developing peer-based close relationships in classrooms differs from behaviourally-based social skills training and can be easily integrated into the preschool curriculum. Many teachers already use aspects of this approach (Circle Time to introduce and reflect upon experiential/activity-oriented curriculum, etc.) and, as evidenced by our teachers, can easily integrate developing peer relational activities into their daily/weekly plans. Once they begin these inclusive, peer-relational activities, children have demonstrated their ability to spontaneously apply these social competencies within an expanding range of other children in their classes.

## 6. Conclusion

This design-based study exemplifies various social competence and inclusion outcomes arising from a preschool intervention based upon a relational approach. The approach was co-developed with teachers in light of theoretical, methodological developments and short-comings identified from a review of the preschool social competence literature. No single element of the intervention stood out as the way forward. Enhancing social competencies of the children involved trust, communication and joint problem-solving and were found to affect range and inclusion of friendship and work partners, reciprocal/social communication, level of cognitive challenge approached and empathic support for others. Aside from these specific social competencies, a number of more general points may be drawn from the outcome of the study: (1) to further validate the use/outcomes of the relational approach, this type of research/practice would benefit from a larger, quasi-experimental study and within other, non-western cultures; (2) improving preschool children's social competencies may best be undertaken as a joint enterprise between teachers and children – overcoming the tendency for a teacher-dominated approach; (3) development of children's social competencies requires a long-term commitment (minimally over a school year) with actions undertaken within the normal curricula that characterize the preschool classroom and could be assessed over a longer time period (as the children progress into primary school); (4) rather than using a single instrument to 'measure' social competence, methods should be further developed such that a range of social competencies can be identified; and (5) preschool teachers should be further encouraged to work with researchers (and others with social competence expertise) such that multiple perspectives on children's development can be considered in the relational approach and that teachers feel more fully supported when implementing a new approach to activities in their classrooms.

## Note

1. In accordance with Camaioni et al. (1988), classroom cognitive activities in which children engaged were observed for: intention to fully carry-out the activity; use of appropriate means to carry-out the activity; and, pursuit of the activity (for further explanation, see Kutnick et al., 2016).

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## Notes on contributors

*Peter Kutnick* is a social and developmental psychologist. He holds an emeritus position in the School of Education, Communication and Society at King's College London. His areas of expertise include social pedagogy of classroom groups, achievement in classrooms and STEM education programmes. He has held a number of international positions.

*Dr Jen Colwell* is an honorary fellow at the Education Research Centre of the University of Brighton and an independent education consultant. Her areas of expertise include early childhood education, pedagogy and education, social exclusion and reflective teaching.

## ORCID

*Peter Kutnick*  <http://orcid.org/0000-0002-0095-2269>

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