

Pre-school peer play: The beginnings of social competence

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Background: Successful school experience is influenced by children's ability to manage their emotions and relationships with others. Peer play provides an important learning context for the early development of social competence, but not enough is known about the emergence of peer relationships in the pre-school years. Our study explores peer play in 2- to 3-year-olds, identifying the roles played by temperament and emotion understanding, and examining convergence between parent and practitioner assessments of social behaviour.

Methods: 106 children aged 2 to 3 years yielded data from three questionnaires: the Goodman (Goodman & Scott, 1999) Strengths and Difficulties questionnaire, rated by parents and practitioners; the Rothbart et al.'s (2001) Child Behaviour Questionnaire measure of temperament, rated by parents; and the Fantuzzo et al.'s (1995) Penn Interactive Peer Play Scale, rated by practitioners. A subsample of 28 children completed emotion recognition and prediction tasks adapted from Denham (1986).

Results: Parent ratings of children's temperament – particularly effortful control/self-regulation and surgency/extraversion – predicted practitioner ratings of socio-behavioural and peer play competencies. Also, emotion understanding predicted interactive peer play competencies and pro-social behaviour. There was agreement between parent and practitioner ratings of pro-social behaviour, but there was evidence of divergence in judgements about behaviour problems.

Discussion: The findings show the importance of exploring play situations as a context for understanding the emergence of peer relationships and social competence in the pre-school years. They also highlight the links between parental judgements and practitioner perceptions of young children's interactions. Implications for our understanding and promotion of children's social competence are discussed, with attention to possible impacts on learning.

AS BELSKY (2001) points out, 53 per cent of mothers with children under 5 years, and 49 per cent of those with a child under 1 year, were in employment in the UK in 1999. The related rise in parents' use of professional childcare, and particularly day nursery provision, means that children are involved in group experience much earlier and for longer. Concerns have been debated about the possible impacts of the intensity and duration of these childcare experiences on children's socio-emotional and cognitive development and future school success (Belsky, 2001; Belsky et al., 2007). Although a clear consensus has not yet been reached on this complex debate, there is no doubt that childcare experiences highlight the significance of very young children's social interaction with peers as well as with adults.

Moving from a dominance of Piagetian influence in early years practice, the Practice Guidance for the Early Years Foundation Stage (DCSF, 2008) is now based on a broader range of theoretical approaches. The role of the practitioner is seen as crucial in using observation and reflection of spontaneous play to inform the development of an environment which 'extends and develops children's language and communication in their play' (DCSF, 2008). This has raised the profile in early years provision of social interaction as a context for effective learning. Experiential play opportunities, with the role of the adult seen as scaffolding children's learning, are now characteristic of early years provision in the UK (DCSF, 2008). Crucially, since social competence has been identified as a major indicator of

school readiness (August et al., 1996; Coolahan, 2000; Ladd 1990), it is recognised that childcare practitioners have a responsibility for scaffolding social as well as other areas of learning. However, in order to do so effectively, we need to understand more about the early emergence of individual differences in children's social competence.

When observing a socially competent toddler one would expect to see attempts to make social connections with others, utilising facial expressions and body language appropriate to the context and the social interactions of others (Slomkowski & Dunn, 1996). Use of language is not always essential, but verbal expressive and receptive abilities clearly facilitate engagement with social partners (Denham et al., 1990). Certainly, where language is observed, a socially competent child's expressions will be appropriate to the context and to the responses of others present (e.g. appropriate responses to a child who is hurt, anger at a perceived unfairness). Finally, it is important not to underestimate the complexity of the social-cognitive processes and the learning that needs to take place in the development of these observable behaviours. Socially competent behaviour depends on the accurate interpretation and understanding of others' behaviours, emotional responses, desires, and beliefs (Dunn et al., 1991). The understanding or 'reading' of the context will be the most influential in successfully communicating meaning and making connection or 'tuning in' with another individual.

Peer play provides an important context for identifying patterns of social competence in young children. Fantuzzo developed the Penn Peer Interactive Play Scale with parents of African-American children involved in the Headstart Programme (Fantuzzo et al., 1995). The descriptors and scale were designed to capture the play competencies which are displayed by children who regularly experience positive relationships as opposed to those who do not. Three specific play dimensions were identified, disruptive, disconnected and interactive play. Disruptive

play involves characteristics such as: starts fights and arguments, is rejected by others, and doesn't take turns. The disconnected play dimension includes descriptions such as: hovers outside play group, withdraws, refuses to play when invited, etc. Finally, interactive play is characterised as: helps other children, directs others' actions politely, encourages others to join play etc. Research suggests that within the defined population observable behaviours combine to form identifiable dimensions of play interaction (Fantuzzo et al., 1995). Furthermore, these dimensions are related to children's learning behaviours in school: Fantuzzo and McWayne (2002) showed that interactive play predicted greater classroom motivation, task persistence, and both independent work and co-operative learning, whereas disruptive and disconnected play predicted problematic profiles of dysregulated behaviour and disengagement in the classroom.

A wide range of variables, including temperament (Rothbart et al., 2001) and emotion understanding (Denham et al., 2003; Ensor & Hughes, 2005), have been identified as important to young children's social relationships and motivation to learn (see also Mendez et al., 2002). First, temperament has been suggested as central to the nature and development of individual differences in children's social interactions. Rothbart and colleagues (Rothbart et al., 2001; Putnam & Rothbart, 2006) have identified three specific aspects of temperament, namely Effortful Control, Negative Affect, and Surgency/Extraversion. Effortful control is defined by scores relating to low intensity pleasure, inhibitory control, attentional focussing, and perceptual sensitivity (e.g. 'Is good at following instructions', 'When drawing or colouring in a book, shows strong concentration'). Negative affect is identified by scores for sadness, discomfort, anger/frustration and fear (e.g. 'Is difficult to soothe when upset', 'Seems to feel depressed when unable to accomplish some task'). Finally, extraversion/surgency is defined by scores related to impulsivity, high intensity pleasure

and activity level, and low shyness (e.g. 'Seems always in a big hurry to get from one place another', 'Seems to be at ease with almost any person'). Individual differences in these dimensions can be identified through measuring parents' knowledge of their child over time and in a range of contexts. We believe there is good evidence that Effortful Control plays a key role in the early emergence of social competencies. It relates to the development of conscience and serves as a protective factor against behaviour problems (Rothbart et al., 2003). More generally, self-regulation has been shown to be a significant influence on peer relationships and a possible predictor of peer acceptance or rejection (Parker-Cohen & Bell, 1988; Szewczyk-Sokolowski et al., 2005.)

Second, the reading of emotional interactions is central to reciprocal relationships, and the lack of emotion understanding skills has been shown to predict problem behaviours (Denham et al., 2002). Specifically, Denham's findings from a longitudinal study following 127 children from age 3 to 4 through their kindergarten year, suggest that for girls, lack of emotion knowledge between 3 and 4 years may serve as an early warning of future social difficulties. For boys, lack of emotion understanding was found to predict angry/ aggressive behaviour. Where emotion understanding is strong, it is likely to lead to more competent social behaviour. For example, Slomkowski and Dunn (1996) showed that young children's emotion understanding predicted more 'connected communication' with friends.

Finally, it is important to note that we do not yet have a good understanding of whether the socio-behavioural profile exhibited by children in childcare settings (i.e. as seen by childcare practitioners) converges with the profile perceived by the children's parents. Evidence of convergence between different informants regarding socio-behavioural adjustment would provide a strong basis for forming conclusions about the variables that predict positive social learning outcomes. However, existing literature iden-

tifies some potential differences between informants with respect to young children (e.g. Seifer et al., 2004; Stifter et al., 2008). If there is in fact divergence between parent and practitioner perspectives on children's behaviour, then information about this will help early years staff to engage with parents in a sensitive and constructive way when working to support children who may display difficult or challenging behaviour.

The present study

The present study was designed to explore individual differences in the social competence of children at day nurseries, with particular attention to the role of temperament and emotion understanding in peer play. We expected that parent-rated effortful control would be a predictor of positive, interactive peer play (as perceived by the childcare practitioners), and also that children with greater emotion understanding would be more capable of engaging in socially competent peer play. We also examined the patterns of convergence and divergence between parent and practitioner perspectives on social behaviour, including both negative patterns (e.g. disruptive behaviour) and positive patterns (e.g. pro-social behaviour). We expected that there would be some congruence with respect to socially competent behaviour.

Method

Participants

The total sample consisted of 106 boys and 89 girls from 24 pre-school settings. The ages ranged from 18 to 49 months for boys ($M=30.7$, $SD=4.9$) and from 19 to 46 months for girls ($M=30.7$, $SD=4.2$). Forty-three per cent of the children were White British, 17 per cent were Black Caribbean, 12 per cent were Black African, and the remaining 28 per cent were from a number of other ethnic backgrounds. Twenty-one per cent of the parents who returned questionnaires reported household incomes of over £50,000, 16 per cent of parents reported incomes of below £20,000, the remainder incomes between these levels.

The children were recruited for the study by inviting all private day nurseries in Croydon, a borough of London, UK, to take part in this research project. The day nurseries were invited to provide information about the children currently attending who were 2-years-old (in 2007). Of the 69 day nurseries who were sent information, 24 returned data (34 per cent). The nurseries ranged in size, some with more than 50 registered places and others as few as three places (mean 14 places). Of the 318 possible, 195 practitioner questionnaires (60 per cent) and 106 parental questionnaires (33 per cent) were returned. The analyses below relate to the 104 children with data from both parent and practitioner questionnaires. A subsample of 28 children completed emotion recognition and prediction tasks.

Measures

The Goodman (Goodman & Scott, 1999) Strengths and Difficulties Questionnaire (SDQ) was used for parents and practitioners to indicate their view of the child's socio-behavioural and emotional characteristics. The SDQ includes 25 items in groups of five, related to dimensions of: emotional symptoms, conduct problems, hyperactivity, peer problems and pro-social behaviour. Each item is measured on a three-point response scale (0=not true to 2=certainly true; scores reversed for two items in peer problems, two items in hyperactivity and one item in conduct problems). For the practitioner form, internal consistency estimates were satisfactory for conduct problems ($\alpha=.74$) and hyperactivity ($\alpha=.75$). Reliability of the pro-social scores was also satisfactory ($\alpha=.76$). after removal of one item (related to 'sharing'). The estimate for emotional symptoms was lower ($\alpha=.60$), and there was a lower level of reliability for the peer problems score ($\alpha=.51$), but item analysis did not suggest that removing any item would improve reliability. For the parent form, there were adequate reliability estimates for the hyperactivity score ($\alpha=.73$), conduct problems ($\alpha=.69$), and pro-social scores

($\alpha=.62$ after removal of the 'sharing' item). Internal consistency for emotional symptoms and peer problems was lower (both $\alpha=.50$), but item analysis did not suggest that removing any item would improve reliability. Children received mean scores across the items for each subscale.

Rothbart's (Putnam & Rothbart, 1996) Child Behaviour Questionnaire (short form) was used for the parental view of the child's temperament. The 36 descriptive statements (e.g. Seems to be at ease with almost any person) are rated on a seven-point Likert scale from 1=extremely untrue to 7=extremely true. A 'not applicable' option was available if the parent had not seen the behaviour or judged it as not applicable. The items relate to three major factors of surgency/extraversion, effortful control/self-regulation and negative affectivity (Rothbart et al., 2003). Internal consistency was satisfactory for all three dimensions ($\alpha=.71$, $.75$, and $.76$, respectively). Children received mean scores across the items for each subscale.

Fantuzzo et al.'s (1995) Penn Peer Interactive Play Scale (PIPPS) was used for practitioners to indicate the child's patterns of play. The play scale uses a 32-item teacher-report questionnaire to measure three dimensions of children's responses in a free play situation. The scores for the core elements of play interaction (e.g. 'shares ideas'), disruption (e.g. 'destroys others' things'), and disconnection (e.g. 'wanders aimlessly') indicate the child's use of social competencies in a peer interaction context with minimal adult influence. Each item is measured on a four-point response scale (1=never to 4=always). Internal consistency was high for all three dimensions ($\alpha=.85$, $.87$, and $.82$, respectively). Children received mean scores across the items for each subscale.

A subsample of 28 children was available for additional assessments of children's emotion understanding, using photograph and puppet activities based on those established by Denham (1986). Given the very young age of these children, our focus was

on gaining simple measurements of children's receptive and expressive emotion vocabulary. First, in our 'receptive-photographs' task, children were presented with five pairs of photographs showing different facial expressions and were asked to indicate by pointing which of the two photographs showed a particular emotion ('happy', 'sad', or 'angry'). Children scored one point for each correct answer. Second, in our slightly more complex 'receptive-puppets' task, children were asked over three trials to identify the emotions depicted by various puppet faces from a choice of 'happy', 'sad', or 'angry'. This was done by asking questions such as, 'Which is happy?', and then asking the children to indicate their choice by selecting the face to be put on the puppet. Children scored two points for identifying the correct emotion, and one point for selecting a wrong emotion but with the correct valence (i.e. 'sad' instead of 'angry'). Finally, in our 'expressive-puppets' task, the children over three trials were shown the puppet faces and asked to respond verbally to 'What does he/she feel?'. The answers were scored in the same way as on the 'receptive-puppets' task.

Procedure

Practitioners at the participating day nurseries were supplied with both practitioner and parent questionnaires, and were requested to distribute and collect completed questionnaires. Six months later, the subsample of 28 children for whom we had written parental consent to participate in emotion understanding assessments were visited at their nurseries by the first author. The emotion understanding assessments were completed individually in the familiar setting of the day nurseries in one session lasting approximately 15 minutes.

Results

Tables 1 and 2 provide descriptive statistics and intercorrelations (within informant) for the parent and practitioner questionnaire measures. These show that both parents and

practitioners display a robust level of within-informant consistency in their ratings of the children. Below, we examine the relationships among the variables across informants in order to evaluate our central research hypotheses.

Temperament and peer play

Table 3 shows the correlations between parent-rated temperament and practitioner-rated peer play in the childcare context. As predicted, out of the three factors identified by Rothbart et al. (2003) in assessing temperament (i.e. surgency/extraversion, negative affect, and effortful control), effortful control was found to have a specific association with positive social responses in the free play context. Specifically, a regression analysis on the PIPPS scores, with parental ratings of effortful control, negative affect, and surgency/extraversion as predictors, showed that only effortful control uniquely predicted practitioner scores for interactive play. That is, children with a temperamental disposition for higher levels of self-regulation appeared to be more likely to play in an interactive, socially competent way with their peers. In addition, the regression analysis on disconnected play showed that children with higher levels of surgency/extraversion were less likely to display disconnected play characteristics such as wandering aimlessly or being confused in play. However, the regression analysis on disruptive play showed no significant associations between this PIPPS play type and the temperament measures. Table 4 shows the results of these three regression analyses.

Emotion understanding and socially competent behaviour

The work with the subsample of children who completed emotion understanding assessments showed that, as predicted, the parent and practitioner ratings of pro-social behaviour and interactive peer play were significantly associated with the children's scores on the emotion understanding tasks.

Table 1: Descriptive statistics and intercorrelations of parent questionnaires.

	Mean (SD)	Overall socio-behavioural functioning (SDQ)						Temperament (CBO)			
		Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Surgency/Extraversion	Negative Affect	Effortful Control		
Emotional Symptoms	.301 (.291)	-	.326**	.346**	.276**	-.047	-.317**	.380**	-.104		
Conduct Problems	.565 (.410)	-	.462**	.221*	-.110	.033	.399**	-.158			
Hyperactivity	.766 (.458)	-	-	.215*	-.256**	-.030	.319**	-.270**			
Peer Problems	.298 (.302)	-	-	-	.198*	-.223*	.240*	-.007			
Prosocial	1.60 (.356)	-	-	-	-	.206*	-.177	.351**			
Surgency/Extraversion	4.62 (.721)	-	-	-	-	-	-.213*	.204*			
Negative Affect	3.74 (.912)	-	-	-	-	-	-	.055			
Effortful Control	5.58 (.672)	-	-	-	-	-	-	-			

* $p < .05$ ** $p < .01$

Table 2: Descriptive statistics and intercorrelations of practitioner questionnaires.

	Mean (SD)	Overall socio-behavioural functioning (SDQ)						Peer play (PIPPS)		
		Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Interactive	Disruptive	Disconnected	
Emotional Symptoms	.364 (.370)	-	.123	.162	.493**	-.008	-.161	.179	.577**	
Conduct Problems	.445 (.467)		-	.596**	.295**	-.217*	-.322**	.819**	.269**	
Hyperactivity	.908 (.501)			-	.427**	-.394**	-.492**	.657**	.528**	
Peer Problems	.455 (.346)				-	-.362**	-.412**	.388**	.651**	
Prosocial	1.29 (.464)					-	.662**	-.262**	-.319**	
Interactive	2.33 (.496)						-	-.235*	-.409**	
Disruptive	1.50 (.458)							-	.380**	
Disconnected	1.65 (.516)								-	

* $p < .05$ ** $p < .01$

Table 3: Correlations between parent-rated temperament and practitioner-rated peer play.

	<i>Peer Play</i>		
	<i>Interactive</i>	<i>Disruptive</i>	<i>Disconnected</i>
Effortful Control	.22*	-.01	-.02
Surgency/Extraversion	.00	-.06	-.21*
Negative Affect	.06	.06	-.06

* $p < .05$

Table 4: Regression analyses of practitioner-rated peer play scores, with parent-rated temperament dimensions as predictors.

	<i>Peer Play</i>					
	<i>Interactive</i>		<i>Disruptive</i>		<i>Disconnected</i>	
Temperament	β	R ²	β	R ²	β	R ²
Effortful Control	.23*	.05	.00	.01	.03	.06
Surgency/Extraversion	-.02		-.05		-.24*	
Negative Affect	.06		.05		-.12	

* $p < .05$

Table 5: Correlations of emotion understanding scores, parent and practitioner ratings of pro-social behaviour (SDQ), and practitioner ratings of interactive peer play (PIPPS).

	<i>Parent SDQ Prosocial</i>	<i>Practitioner SDQ Prosocial</i>	<i>Practitioner PIPPS Interactive</i>
Receptive Photo	.555**	.393*	.435*
Receptive Puppet	.310**	.399*	.257
Expressive Puppet	.442**	.226	-.002

* $p < .05$ ** $p < .01$

As shown in Table 5, the parent and practitioner ratings of pro-social behaviour on the SDQ, as well as the practitioner ratings of interactive peer play, were all significantly correlated with scores on the Receptive-Photograph/Puppet task. The Expressive-Puppet scores also correlated with the parent SDQ pro-social score.

Convergence between parent and practitioner ratings

Our final aim was to evaluate the degree of convergence in parents' and practitioners' perceptions of the overall socio-behavioural functioning of the young children. In fact, correlations between parent and practitioner ratings on the SDQ showed little

direct concordance between parent and practitioner ratings of various behavioural difficulties on the SDQ ($r < .15$ for emotional symptoms, conduct problems, hyperactivity, and peer problems). However, as predicted, there was significant convergence between informants with respect to pro-social behaviour ($r(96) = .39, p < .01$).

Discussion

The results of the present study shed light on the emerging social competence of very young children in childcare settings. In line with our hypotheses, both temperament and emotion understanding appear to be associated with more socially competent peer play, and there seems to be good convergence between parents and practitioners especially with regard to such social competence. On the other hand, there was clear divergence between informants with respect to behavioural problems.

First, evidence from this study suggests that the parental view of temperament, as indicated using Rothbart's CBQ (Putnam & Rothbart, 2006) can predict elements of social competence in peer interaction contexts outside the home environment. In particular, we found that parent-rated effortful control predicted greater practitioner-rated interactive play, as we thought, and also that parent-rated extraversion/surgency predicted lower levels of disconnected play. The former finding is consistent with our expectations that effortful control, and self-regulation more generally, plays a key role in social competence (see also Rothbart et al., 2003). This may have significant and wide-ranging consequences: one review of work on school readiness suggests that '[c]hildren who are temperamentally less distractible ... are rated by their teachers as being more teachable and achieve at higher levels academically' (Blair, 2002, p.112).

The second finding, that extraversion/surgency predicted less disconnected and withdrawn peer interaction, appears straightforward. However, the management in early years education of children with a tempera-

mental disposition towards high intensity pleasure and sociability is not likely to be simple. Although it was clear that surgency was associated with less social withdrawal, we did not find any correlation of surgency/extraversion with disruptive peer play, suggesting that children with high levels of surgency may or may not exhibit this kind of problematic peer interaction. Potentially, combinations of high surgency with high negative affect or low effortful control could predict negative developmental trajectories. Indeed, Tremblay and colleagues have suggested that there may be a sensitive period for learning to inhibit aggressive behaviour (Tremblay et al., 1999). This has major implications for the importance of both the home learning environment and the environment at early years settings. The potential for the practitioner-parent relationship to be a protective factor for such children needs to be further explored, with a recognition of the significant role played by adults sharing care for young children.

In addition, our data extend the existing literature regarding the role of emotion understanding in socially competent behaviour. Specifically, children who were able to recognise and name emotions were more likely to be perceived by adults as pro-social, and their behaviour during free play situations was also more likely to be judged by practitioners as interactive (e.g. helping, sharing). Previous research has shown that aspects of emotion understanding predict aspects of competent social interaction with peers (e.g. Ensor & Hughes, 2005; Slomkowski & Dunn, 1996), and our results confirm that these kinds of patterns can be found as early as 2 years of age.

Finally, the observed patterns of convergence and divergence in parent and practitioner observations raise interesting issues. There appeared to be a consensus about pro-social behaviour, building on the link between parent-rated effortful control and practitioner-rated interactive play discussed above. It seems that parents and practitioners, despite seeing the child in very

different settings, tend to correspond in their views about socially competent behaviour. However, intriguingly, there was almost no convergence at all in perceptions of problem behaviour. This may be connected to some degree with the relatively weak internal consistency of some of the SDQ subscales in this very young age group – possibly because perceptions of problem behaviours have not yet been consolidated into clear constructs at this age. However, we believe that the divergence may reflect genuine differences in perceived and actual child behaviour across settings. Indeed, Stifter et al. (2008) have also found that there is moderate convergence between parent and independent observers in relation to positivity, but none in relation to negativity.

In our study, the parent ratings could not directly predict externalising difficulties in the pre-school setting, raising questions about the social-contextual factors involved in the very early emergence of disruptive play patterns. As pointed out by Seifer et al. (2004), mothers' judgements about other children corresponded to independent observer judgements, yet judgements related to their own children did not. It seems possible that biases in informants' global judgements of negative behaviour make it difficult to find agreement about what is a 'problem' across different settings. Our findings seem to suggest that parents and practitioners have very different frames of reference for evaluating problem behaviours. In the context of the relationship between parents and childcare settings, this highlights the importance of paying greater attention to parents' judgements of their child's attributes. It would also indicate that the method of gaining the parental view is important: it may be that allowing parents to contribute their general knowledge and understanding of children's behaviour, built up over time and across multiple contexts, may be more productive than requiring explicit judgements about negative, 'problem' behaviours. The challenge is to provide a context that promotes role equality in the

discussion, with the recognition that parents and practitioners have unique contributions to make to support a child's progress.

Conclusions and limitations

Increasingly, children in the UK are attending a variety of forms of childcare before going to school-based provision, and some concerns have been raised about the impact this may have on children's achievement and behaviour when they reach school entry. We believe that understanding the individual differences in social competence emerging from around 2 to 3 years of age will be crucial for understanding the social relationships that children form in schools later on, particularly as it has already been shown that early social interaction patterns have wider predictive value in terms of associations with classroom adjustment in school (Fantuzzo & McWayne, 2002). Peer play in particular provides a critical learning context for developing social competence. Whereas adults in the main aim to nurture and support young children in their care, the 'horizontal' relationship with peers makes new demands on children's social understanding, requiring children to develop skills in negotiation, compromise, and mutual support. Our results indicate that both temperamental patterns and emotion understanding play a role here, and further illustrate the patterns of convergence and divergence between parent and practitioner views of children's socio-behavioural functioning. The interplay of home and group social experience influence the child's developing understanding of how the social world works and of the most effective ways to thrive. Thus, we believe that gaining a comprehensive understanding of children's behaviour from multiple perspectives will be crucial for effective scaffolding of children's socio-emotional and cognitive learning.

Our study is limited by a focus on a restricted set of questionnaires and emotion understanding assessments with a relatively small sample of children. Future research would benefit from detailed observations of

actual peer interactions, in order to triangulate the results with the parent and practitioner perspectives. Doing so would also enable a clear assessment of how the varying quality of early years day nursery provision could moderate the relationships between temperament, emotion understanding, and social competencies. With regard to the experiential approach evident in current early years provision in the UK, the scaffolding used to support children's social learning is likely to be very different in a high quality setting as opposed to one of lower quality (see Sylva et al., 1999). Finally, we recognise that temperament and emotion understanding are just two of many factors likely to be involved in the emergence of socially competent behaviour

during the pre-school years. In future research, additional attention to family and community experiences, socioeconomic status, and general cognitive functioning would help to clarify the way in which social experiences, cognitive processes, and temperamental factors all interact with each other in affecting children's developing social competence.

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References

- August, G.J., MacDonald, A.W., Realmuto, G.M. & Skare, S.S. (1996). Hyperactive and aggressive pathways: Effects of demographic, family, and child characteristics on children's adaptive functioning. *Journal of Clinical Child & Adolescent Psychology*, 25, 341–351.
- Belsky, J. (2001). Emmanuel Miller Lecture: Developmental risks (still) associated with early child care. *Journal of Child Psychology and Psychiatry*, 42, 845–859.
- Belsky, J., Vandell, D.L., Burchinal, M., Clarke-Stewart, K.A., McCartney, K. & Owen, M.T. (2007). Are there long-term effects of early child care? *Child Development*, 78, 681–701.
- Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological conceptualisation of children's functioning at school entry. *American Psychologist*, 57.
- Coolahan, K., Fantuzzo, J., Mendez, J. & McDermott, P. (2000). Pre-school peer interactions and readiness to learn: Relationships between classroom peer play and learning behaviours and conduct. *Journal of Educational Psychology*, 92, 458–465.
- Department for Children, Schools and Families (2008). *Practice guidance for the early years foundation stage*. Nottingham: DCSF Publications.
- Denham, S.A. (1986). Social cognition, pro-social behaviour, and emotion in pre-schoolers: Contextual validation. *Child Development*, 57, 194–201.
- Denham, S.A., Blair, K.A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S. & Queenan, P. (2003). Pre-school emotional competence: Pathway to social competence? *Child Development*, 74, 238–256.
- Denham, S.A., McKinley, M., Couchoud, E.A. & Holt, R. (1990). Emotional and behavioural predictors of pre-school peer ratings. *Child Development*, 61, 1145–1152.
- Denham, S.A., Caverly, S., Schmidt, M., Blair, K., DeMulder, E., Caal, S., Hamada, H. & Mason, T. (2002). Pre-school understanding of emotions: Contributions to classroom anger and aggression. *Journal of Child Psychology and Psychiatry*, 43, 901–916.
- Dunn, J., Brown, J., Slomkowski, C., Tesla, C. & Youngblade, L. (1991) Young children's understanding of other people's feelings and beliefs: Individual differences and their antecedents. *Child Development*, 62, 1352–1366.
- Ensor, R. & Hughes, C. (2005). More than talk: Relations between emotion understanding and positive behaviour in toddlers. *British Journal of Developmental Psychology*, 23, 343–363.
- Fantuzzo, J., Sutton-Smith, B., Coolahan, K.C., Manz, P.H., Canning, S. & Debnam, D. (1995). Assessment of pre-school play interaction behaviours in young low-income children: Penn interactive peer play scale. *Early Childhood Research Quarterly*, 10, 105–120

- Fantuzzo, J. & McWayne, C. (2002). The relationship between peer-play interactions in the family context and dimensions of school readiness for low-income pre-school children. *Journal of Educational Psychology, 94*, 79–87.
- Goodman, R. & Scott, S. (1999). Comparing the strengths and difficulties questionnaire and the child behaviour checklist: Is small beautiful? *Journal of Abnormal Child Psychology, 27*, 17–24.
- Ladd, G. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development, 61*, 1081–1100.
- Mendez, J.L., Fantuzzo, J. & Cicchetti, D. (2002). Profiles of social competence among low-income African-American pre-school children. *Child Development, 73*, 1085–1100.
- Parker-Cohen, N. & Bell, R.Q. (1988). The relationship between temperament and social adjustment to peers. *Early Childhood Research Quarterly, 3*, 179–192.
- Putnam, S.P. & Rothbart, M.K. (2006). Development of short and very short forms of the children's behaviour questionnaire. *Journal of Personality Assessment, 87*, 103–113.
- Rothbart, M.K., Ahadi, S.A., Hershey, K.L. & Fisher, P. (2001). Investigations of temperament at 3 to 7 years: The children's behaviour questionnaire. *Child Development, 72*, 1394–1408.
- Rothbart, M.K., Ellis, L.K., Rueda, M.R. & Posner, M.I. (2003). Developing mechanisms of temperamental effortful control. *Journal of Personality, 71*, 1114–1143.
- Seifer, R., Sameroff, A., Dickstein, S., Schiller, M. & Hayden, L.C. (2004). Your own children are special: Clues to the source of reporting bias in temperament assessments. *Infant Behaviour and Development, 27*, 323–341.
- Slomkowski, C. & Dunn, J., (1996). Young children's understanding of other people's beliefs and feelings and their connected communication with friends. *Developmental Psychology, 32*, 442–447.
- Stifter, C.A., Willoughby, M.T., Towe-Goodman, N. & the Family Life Project Key Investigators (2008). Agree or agree to disagree? Assessing the convergence between parents and observers on infant temperament. *Infant and Child Development, 17*, 407–426.
- Sylva, K., Sammons, P., Melhuish, E., Siraj-Blatchford, L., Taggart, B., Smees, R., Dobson, A., Jeavons, M., Morahan, M. & Sadler, S. (1999). *The effective provision of pre-school education*. London. Institute of Education University of London.
- Szewczyk-Sokolowski, M., Bost, K.K. & Wainwright, A.B. (2005). Attachment, temperament, and pre-school children's peer acceptance. *Social Development, 14*.
- Tremblay, R.E., Japel, C., Perusse, D., McDuff, P., Boivin, M., Zoccolillo, M. & Montplaisir, J. (1999). The search for the age of 'onset' of physical aggression: Rousseau and Bandura revisited. *Criminal Behaviour and Mental Health, 9*, 8–23.

Preschool-aged children's peer interactions are influenced by several factors including social competence, prosocial actions of peers and their own, environmental settings, and temperamental characteristics. At early ages, social competence manifest during the play with peers significantly. The numerous studies on preschool children defend the idea that the ability to establish relations with one's peers represents an essential competence and a self-regulation indicator for the future developmental stages. The present study proposes to demonstrate the association between children&apo