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The emergence of dyadic pretend play quality during peer play: The role of child competence, play partner competence and dyadic constellation

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Abstract

The *quality* of social pretend play may have a positive impact on children's development. This study investigated to what degree this quality is a characteristic of a child versus a function of the play partner or the specific pairing of two children. For this purpose, preschool children's general pretend play quality (actor effect), their general influence on their play partner's pretend play quality (partner effect) and the role of the specific constellation between two children (relationship effect) were examined in a dyadic setting. Potential associations of the effects with children's age, gender, social cognitive and social competencies, as well as the dyadic composition of these variables and their friendship were examined. Children completed two to four dyadic pretend play situations with different peers. They were tested for their language ability, theory of mind and emotion understanding. Educators rated children's social competence (cooperation and sociability) and evaluated their friendship with one another. A social relations model analysis was conducted. The results indicated that children's pretend play quality was determined to the same degree by the child and by the specific pairing of two children. Positive associations were found between children's pretend play quality

and age, emotion understanding and sociability on the individual level. Further, the quality of children's social pretend play benefited from having older and more advanced play partners.

KEYWORDS

dyadic play, play partner, social interaction, social pretend play, social skills

1 | INTRODUCTION

Pretend play is defined broadly as a child's action of playing "as if" (Fein, 1981, p. 1096), thereby encompassing every playful behaviour that involves pretending. While pretending, children train and refine different social cognitive and social skills (Smith, 2010). Herein, especially *social* pretend play in interaction with others is associated with children's positive developmental outcomes (Lillard et al., 2013). During social pretend play, children can practice social behaviours such as sharing, cooperating and taking turns. They can slip into different roles and interact in these roles, which also helps children to take other perspectives (Ashiabi, 2007). Moreover, it is not just whether children's pretend play that is important, the *quality* of children's pretend play seems to make a particular difference to positive developmental outcomes (Bodrova, Germeroth, & Leong, 2013).

Previous studies have shown an influence of the structural play environments, such as the play material, on children's play quality (e.g., Martinsen, 2015; Trawick-Smith, Wolff, Koschel, & Vallarelli, 2014). However, little is known about the circumstances under which high-quality social pretend play occurs while playing with another peer and how much influence children's own competence, their play partners' competence, and their play partners' quality of play have. For one thing, social cognitive and social skills could likewise be a prerequisite for high-quality pretend play on the individual level (Dore, Smith, & Lillard, 2015; Lillard et al., 2013). For another, as a behaviour, playing is a function not only of a person alone but also of the (social) environment, and therefore environmental aspects such as the influence of children's interaction partners likewise could be considered in explaining pretend play quality.

So far, most of the studies only have compared pretend play quality between different children (see Lillard et al., 2013), and not within one child playing with different partners. Those studies that considered differences in a child's play partner's varying characteristics examined the effects of age or different attachment figures like parents and siblings (e.g., Cutting & Dunn, 2006; Howes & Farver, 1987; Youngblade & Dunn, 1995), and did not look at potential differences caused by the play partners' varying competencies or the specific pairing of two children.

The aim of this study was to investigate to what degree children's social pretend play quality while playing with different peers can be considered as a stable, individual competence (actor effect), *and* to what degree social pretend play quality, and therefore the chance of favourable development, is dependent on the interaction partner (partner effect) or constellational components (relationship effect). For this purpose, the pretend play quality of 3–4-year-old children was observed in several pretend play dyads with different peers. Potential associations with children's age, gender, language comprehension, social cognitive and social competencies as well as the dyadic composition and children's friendship status were investigated.

1.1 | Social pretend play quality

Children start to pretend at about the age of 10–15 months (Smith, 2010). From then on, their pretend play becomes increasingly mature. Beginning with single pretend play actions, their play then becomes more interactive

during the following years of life and develops into parallel, associative and finally cooperative social pretend play (*decentration*) (Fein, 1981; Howes & Matheson, 1992). At the same time, the quality of children's pretend play also increases on a symbolic level: Objects used in play shift from being real to being imaginative (*decontextualization*), stand-alone play actions increasingly become roles that are played out consistently and used flexibly (*role-taking*), and scenarios change from single actions to scripted and planned scenes (*sequencing* and *planning*) (Bodrova & Leong, 2007; Fein, 1981; Smilansky, 1968). Although this is the preferable developmental pattern of social pretend play quality, there are major inter-individual differences, and not all children achieve high-quality social pretend play (Robertson, 2016). Keeping in mind the positive impact of high-quality social pretend play, it is important to understand the reasons for these differences in children's play and to shed light on the factors that determine and facilitate the emergence of high-quality social pretend play.

1.2 | Inter-individual differences

A child's disposition or different competencies could be factors that explain differences in children's pretend play quality. Numerous studies have shown relations between different child competencies such as non-social cognitive skills (e.g., creativity), social cognitive skills (e.g., Theory of Mind [ToM]), social skills (e.g., sociability) and social pretend play quality (Bergen, 2013; Jaggy, Perren, & Sticca, 2020; Lillard et al., 2013). Lillard et al. (2013) concluded that these competencies equally could be a prerequisite or a result of high social pretend play quality. Dore et al. (2015) also proposed that ToM could be a predictor of social pretend play quality. Smilansky and Sheftaya (1990) reasoned that social cognitive and social competencies like understanding others' behaviour or cooperation can support social pretend play involvement and therefore these competencies also could lead to high-quality social pretend play. We therefore included social cognitive and social skills in our study to investigate possible associations with preschool children's general social pretend play quality.

1.3 | Partner and peer constellation influences on social pretend play quality

From a theoretical perspective, children could benefit from more experienced interaction partners who support them by setting an interactional framework through verbal suggestions, joint attention, coordination of the play or cooperation during play (Garvey, 1990; Lillard, Pinkham, & Smith, 2011; Vygotsky, 1978). Furthermore, following Bandura's (1971) theory of social learning, children also could benefit by imitating the mature pretend play behaviours of their interaction partners.

So far, the beneficial influence of experienced partners for children's pretend play has been shown for dyadic play between children and their parents (e.g., Farver, 1993; Slade, 1987) or siblings (e.g., Galyer & Evans, 2001; Haight & Miller, 1992; Howe, Petrakos, Rinaldi, & LeFebvre, 2005; Youngblade & Dunn, 1995) but only to some degree for their peers: Howes (1985) showed that older toddlers use specific strategies like verbal recruitment to integrate younger children into social pretend play. Howes and Farver (1987) were the first to examine the effect of the age of children's play partners on children's social pretend play quality, considering that older, more mature play partners may scaffold the play of their younger play partners. They found that 2-year olds showed a higher quality social pretend play in dyads with 5-year olds than in dyads with same-age children. Regarding children's play partners' play skills, Sluss and Stremmel (2004) showed that children's play skills, measured in a block-play party including pretend play actions such as decontextualization of blocks, affected their play partners' play skills, but only in girl dyads. Girl dyads in which a less skilled play partner was paired with a more skilled play partner reached higher dyadic play and communication scores than pairs of less skilled girls. However, only the dyad mean of pretend play was analysed, and the findings are therefore limited.

Moreover, it is not only a play partner's competence that seems to be important, but also the specific constellation of the dyad. Jing and Li (2015) investigated whether the gender of children's play partners played a role in the pretend play of 3–5-year olds, and showed that there was no main effect of gender. However, for the group of 5-year olds they found an effect of gender composition, with same-gender dyads outperforming mixed-gender dyads in their social pretend play quality. Furthermore, Hsu and Janes (2010) investigated the role of children's ToM skills by matching preschool children in high, mixed and low ToM skill dyads. They found that dyads with concordant ToM skills engaged in pretend play enactment longer than in metaplay, which describes the strategies planned and arranged by the children outside the play to set up a play scenario and to maintain the pretend play (Hsu & Janes, 2010). However, the authors did not look at differences in their play complexity. Howes, Hamilton, and Matheson (1994) showed that long-term friend dyads of 4-year olds outperformed short-term and non-friend dyads in their complexity of play. Youngblade and Dunn (1995) and Cutting and Dunn (2006) showed that the quality of the relationship between children and their siblings or peers was associated with their social pretend play quality while playing with their sibling or peer.

1.4 | Pretend play as a dyadic construct: The social relations model

Taken together, there is empirical evidence that (a) children's own competence could influence their social pretend play quality, (b) children's play partners seem to have an influence on their social pretend play quality, not only as more experienced players but also as more socially competent players who can scaffold during dyadic play and (c) the constellation of children seems to be important. However, the previously mentioned studies investigated either differences between children on the individual level or compared the effect of different play partners or dyad pairings. The impact of children's own competence versus the impact of their play partners' characteristics or the dyad constellation on children's social pretend play quality has never been investigated systematically in an integrated analytical framework.

The social relations model (SRM; Kenny & La Voie, 1984) is a framework that enables us to divide dyadic behaviour into these three components by considering different interaction partners. It describes the behaviour of an individual in a dyadic interaction as a function of (a) the general, stable behaviour shown by an individual over play partners, (b) the general, stable behaviour triggered by the interaction partner and (c) the specific relational behaviour within the interaction occurring over and above the stable effects. Imagine, for example, David and Deborah pretending together. The quality of *David's* pretend play during the interaction might reflect David's general ability to pretend across all play partners (David's actor effect). But it may also reflect a general, stable tendency of Deborah to evoke high-quality pretend play in all of her play partners (Deborah's partner effect). However, the quality of David's pretend play could also reflect a relational component of the unique constellation of David and Deborah playing together. It therefore may reflect the fact that David is especially good at playing with Deborah, more than would be expected from his general play quality with others or Deborah's general tendency to evoke pretend play behaviour in her partners (relationship effect from Deborah on David). Based on multiple dyadic interactions within a group, the SRM assigns a stable actor and a stable partner effect to each child as well as two relationship effects to each specific dyad (David's relationship effect with Deborah and Deborah's relationship effect with David). There are therefore three potential sources of variance in a child's pretend play quality that can be taken into consideration: The child (actor), the partner and their constellation (relationship).

1.5 | Present study

Using the SRM, the current study investigated to what degree children's social pretend play quality while playing with different peers can be considered to be a stable, individual competence *and* to what degree social pretend

play quality is dependent on the interaction partner or constellational components. Moreover, the study aimed to identify individual and dyadic characteristics that could explain variation in children's social pretend play quality. In a first step, the study investigated how much the children varied (a) in their general, stable pretend play quality (actor variance), (b) in how much they affected the pretend play quality of other children in general (partner variance) and (c) in how much the specific pairing of two children influenced their pretend play quality over and above stable actor and partner effects (relationship variance). Secondly, given substantial variance on the different levels, we wanted to examine whether children's actor, partner and relationship effects were associated with children's age, gender, language comprehension, social cognitive (ToM and emotion understanding) and social skills (cooperative and sociable behaviour) as well as with their friendship status. Thirdly, we investigated associations within the SRM effects. We examined whether stronger players also induce stronger play in their partners (e.g., whether David's actor effect was related to his partner effect = general reciprocity). We also investigated whether, if a child played especially well with a certain partner, this partner also would show especially high pretend play (e.g., whether David's relationship effect with Deborah was related to Deborah's relationship effect with David = dyadic reciprocity).

Based on the findings of SRMs on behaviour (Kenny, Mohr, & Levesque, 2001), we expected the actor as well as the relationship variance to be high and the partner variance to be low to medium high. Furthermore, based on Vygotsky (1978), we hypothesized that the higher a child's general social pretend play quality (actor effect), the higher the generally evoked pretend play quality in other children (partner effect) would be (i.e., that skilled players tend to elicit high-quality pretend play in others). For the relationship effects, no assumption about the reciprocity within a dyad was made.

2 | METHOD

2.1 | Participants

The present study was carried out in the context of a larger intervention study. As a first recruitment step, 42 playgroup educators from a rural region with a predominantly middle-class population were asked in random order to participate in the study, from which 8 playgroups confirmed. In a second step, all parents were informed about the study in writing and were asked to provide written consent for their child's participation. In Switzerland, playgroups are educational institutions open for children above 3 years of age. The aim is to give children the opportunity to play once to twice a week with peers under the supervision of a trained playgroup educator. Children usually start 1 or 2 years before they attend the mandatory kindergarten.

Playgroup educators were between 34 and 52 years old (M = 43.4; SD = 6.7), trained in pedagogical work with young children, and had worked for an average of 7.9 years (SD = 5.4) as playgroup educators. All educators were Swiss and had known the children for at least 18 weeks at the beginning of the study. Parents of 67 children out of 69 gave permission to include their child in the study. For five children, permission was only given for the collection of questionnaires or video material during the intervention, and they therefore were excluded from the present analysis. One of the eight groups had to be excluded because one child refused his/her testing and therefore only three children remained, too few for social relations analyses (Kenny, Kashy, & Cook, 2006). Another child was excluded for the present analyses because he/she did not want to participate in the pretend play assessment.

Taken together, 57 children (67% female) out of seven playgroups participated in the present study, with an average of 8.14 (range 5–11) children per group. In total, 109 dyads played together. In some cases, children played together twice (14 dyads); for these dyads, only the first occasion was included. Two further dyads were excluded because a child changed playgroup from the first to the second measurement point and SRMs do not allow inter-class changes. For these children, only data from the first measurement point were used. For another four

dyads, we only had permission to evaluate one partner within the dyad, so we included only the data from that child. The final sample included 93 dyads from 57 children who played on average with 3.20 (SD = 0.72) different children (range 2–4). Of the 93 dyads, 69% did not involve friends, 12% received unilateral friendship nominations and 19% had reciprocal friendship nominations. Forty-three percent of the dyads were female, 49% were mixed-gender dyads and 8% were male dyads. Children were between 37 and 56 months (M = 46.5, SD = 3.8). Eighty-nine percent of the children spoke German as family language and 11% were learning German as a second language and had a basic knowledge of German.

2.2 | Procedure

Children were informed about the study in an age-appropriate way and were given the opportunity to refuse or stop their individual assessment at any time without any consequences. Children were assessed by trained graduate students pursuing an early childhood education or psychology degree. Assessments were carried out at two measurement points (12 weeks apart).

At each measurement point, children's pretend play quality was assessed twice, each time while playing with a different, randomly selected peer. Thus, in total the first (t1 and t2) and second (t3 and t4) measurement points represented a data base consisting of children's pretend play quality in up to four dyads with up to four different play partners. Children's language comprehension, ToM and emotion understanding were tested at the first measurement point. Playgroup educators completed a questionnaire on children's social behaviour and friendship status at the first measurement point.

Four playgroups were randomly selected to participate in a play tutoring intervention for six consecutive weeks. The intervention was similar to that described in Perren, Sticca, Weiss-Hanselmann, and Burkhardt Bossi (2019). The play tutor brought a standardized set of role-play materials, and both encouraged and guided the children in their play for 30 min per week.

2.3 | Instruments

2.3.1 | Assessment of social pretend play quality

The *Dyadic Pretend Play Assessment* (DPPA) was developed to assess children's social pretend play quality in a half-standardized dyadic setting while playing with a randomly selected peer (https://osf.io/yjkub). Its feasibility was checked in a small pilot study, in which small adjustments were made to the introduction story and coding scheme. Its factorial validity, retest reliability and sensitivity to change were supported and are described in the manual.

In the 5-min videotaped assessment, an unknown examiner introduced two children to a short open-ended story about a panda family going to have a picnic at the lake. The story was played out partly by the examiner and partly by the children using small animal figures and unstructured materials (e.g., a blue blanket). After the introductory story, children were invited to continue to play with the story by themselves and were given additional play figures. For 5 min, children were free to act out their own ideas and play together. Children's videotaped social pretend play quality was evaluated afterwards based on the standardized manual. The manual is based on characteristic features and steps of the normative development of pretend play (Bodrova & Leong, 2007; Hauser, 2013; Smilansky, 1968). It consists of the categories and response options shown in Table 1.

The individual child's behaviour in each of these categories was rated at 60-s intervals, resulting in up to five cycles per child. For each category, the highest observed level of pretend play was rated. Because planning seldom was observed (M_{t1-t4} = 1.32), it was excluded from further analyses. The overall scale of social pretend play quality built out of the four remaining subscales showed good internal consistency (Table 2). The reliability of the rating

TABLE 1 Coding scheme for DPPA ratings

Category	Level	Description	Example
Decentration	1	No decentration	Child explores animals
	2	Self-related pretend play action	Child eats from cake
	3	Object-related pretend play action	Child feeds dog
	4	Other-related pretend play action	Child takes dog and interacts with his/her play partners figures
Decontextualization	1	No decontextualization	Child explores the cake
	2	Object imitation	Child uses the dog and walks
	3	Object substitution	Child uses alligator as plane and flies
	4	Fantasy transformation	Child feeds the dog with imaginative treats
Role-taking	1	No role-taking behaviour	Child takes no role
	2	Role-taking without role-conforming behaviour	Child places the panda family on the blanket
	3	Role-taking with some role-conforming behaviour	Child takes dog and yells and then takes other role
	4	Sustained role-taking and role-conformity	Child takes dog and runs, yells and eats and interacts as dog
Planning	1	No planning	Child walks with the dog
	2	Planned single play action without performance	Child asks for dog but does not use it
	3	Planned and performed single play actions	Child asks for dog and feeds it
	4	Several connected planned and performed play actions	Child asks for dog and pandas, feeds the dog, walks and interacts with panda, which are waiting for the dog
Sequencing	1	No sequencing	Child explores the cake
	2	Limited script elements are performed	Child feeds dog and walks
	3	Several related actions are performed	Child buys food, yells for the pandas, feeds them and washes mouths afterwards
	4	Flexible application of a script to the play	Child accepts play partners idea that the alligator first must cook the meal and integrates it to the script

Abbreviation: DPPA, Dyadic Pretend Play Assessment.

scales was assessed by double coding 20% of the observation cycles. The inter-rater reliability was high, with intra-class correlations for all categories ranging from 0.80 to 0.99.

2.3.2 | Tests of children's social cognitive and language skills

2.3.2.1 | Theory of Mind

ToM skills were tested using the German version of the Extended Theory-of-Mind Scale (EToM; Henning, Hofer, & Aschersleben, 2012; Peterson, Wellman, & Slaughter, 2012). The EToM is a well-validated test that consists of

TABLE 2 Descriptive statistics of the study variables

Variable	N	M	SD	α	Range Potential	Actual
Theory of Mind[a]	52	0.48	0.30	–	0–1	0–1
Emotion understanding	52	0.52	0.26	.64	0–1	0–1
Language comprehension	52	0.62	0.24	.73	0–1	0–1
Sociability	54	1.50	0.52	.77	0–2	0–2
Cooperation	54	1.42	0.42	.59	0–2	0.33–2
DPPA t1	53	2.01	0.65	.90	1–4	1–3.50
DPPA t2	52	2.12	0.63	.91	1–4	1–3.45
DPPA t3	51	2.22	0.53	.84	1–4	1–3.45
DPPA t4	52	2.31	0.59	.87	1–4	1–3.45
Age in months	52	46.48	3.75			37–56
Female	57	0.67	–			

Note: The variation in sample size is due to the variation in the number of educator reports or children tested.
Female = gender with "0 = male" and "1 = female".
[a]Due to the increasing difficulty of the items, Cronbach's alpha was not calculated for the ToM scale.

multiple tasks of increasing difficulty tapping into different developmental stages of ToM. For the present study the first four tasks were selected: *Diverse desire, diverse beliefs, knowledge access, contents false belief* (e.g., "smarties test"). For each task passed the children received 1 point. The mean of correct responses was used as the ToM-score for the analyses.

2.3.2.2 | Emotion understanding

To test children's emotion understanding, the German Version of the Test of Emotion Comprehension was used (TEC; Janke, 2006; Pons & Harris, 2000). For the present study, the subtests *recognition* and *external cause* were used (e.g., "Can you show me the sad person?"). For each item passed the children received 1 point. The mean of correct responses to the 10 items was used as the emotion understanding score for the analyses.

2.3.2.3 | Language comprehension

Children's language comprehension was tested using the German language development test for 3–5-year olds (SETK 3–5; Grimm, Aktas, & Frevert, 2010). The SETK 3–5 is a widely used and standardized test for the language assessment of German mother tongue children. For the present study, the first 14 items of the subtest *sentence comprehension* were used (e.g., "Can you show me the picture of the dog running?"). For each item passed, the children received 1 point. The mean of correct responses to these 14 items was used as the sentence comprehension score for the analyses.

2.3.3 | Teacher reports on children's social skills and friendships

Children's social skills were rated by playgroup educators who completed a questionnaire on children's social behaviour (Self- and Other-oriented social COMPetences [SOCOMP]; Perren, 2007). For the current study, the subscales *sociability* and *cooperative behaviour with peers* from the SOCOMP were used. All items were rated on a

3-point scale (0 = not at all true, 1 = partially true, 2 = definitely true). The *sociability* subscale, covering propensity to participate in social interactions, consists of four items (e.g., "Converses with peers easily"). The *cooperative behaviour with peers* subscale consists of three items (e.g., "Compromises in conflicts with peers"). For both subscales, the corresponding mean of the items was used for the analysis.

Children's *friendship* was assessed through the questionnaire by asking the playgroup educators to nominate the three children of the playgroup with whom a child liked to play most of the time. This produced a dichotomous variable on the individual level (0 = no favourite play partner; 1 = favourite play partner). On the dyadic level it produced a linear variable (0 = no friends; 1 = unilateral friendship nominations; 2 = reciprocal friendship nominations).

3 | RESULTS

3.1 | Statistical analyses

Statistical analyses were performed using R (Version 3.5.1). In a first step, preliminary analyses were made to examine children's mean of social pretend play quality over all children between the single measurement points, as well as to examine each children's individual pretend play course over time. Afterwards, a SRM for round-robin data were calculated using the formula of Kenny et al. (2006).

3.2 | Descriptive analyses and changes over four play occasions

Table 2 contains the descriptive statistics of the study variables. Firstly, we tested whether children's mean pretend play quality over all children differed significantly between the four assessment points. Although social pretend play quality means increased from t1 to t4, we did not find significant differences between adjoining measurement points from t1 to t2 ($t(51) = 1.26$, $p = .23$), t2 to t3 ($t(47) = 0.99$, $p = .33$), and t3 to t4 ($t(50) = 0.83$, $p = .41$). Significant differences were found between t1 and t3 ($t(48) = 2.21$, $p < .05$), t1 and t4 ($t(49) = 3.08$, $p < .05$) and t2 and t4 ($t(51) = 2.12$, $p < .05$).

Interestingly, this trend of increasing means was not found descriptively on the individual level: A closer inspection of children's individual pretend play quality course showed that children did not seem to increase steadily in pretend play quality and that individual trajectories seemed to differ substantially between children (Figure 1), which may indicate partner and constellation influences on pretend play quality. Nonetheless, keeping in mind the rising overall means, the relationship effect estimates potentially were inter-mixed with potential sequence or intervention effects. We therefore controlled for sequence and intervention in the subsequent relationship effect analyses.

3.3 | Social relations model

We calculated the SRM with the R package "TripleR" from Schönbrodt, Back, and Schmukle (2012), which uses a method of moments approach and imputes missing values outside the diagonal as row and column means. For this purpose, a pairwise dataset was created. We calculated an overall SRM for all dyads (t1–t4) and two separate SRMs for the first and second measurement points to compare variance partitioning and bivariate correlations between the two assessment points, so that we could determine potential biases due to the time lag between measurements and the small number of interactions.
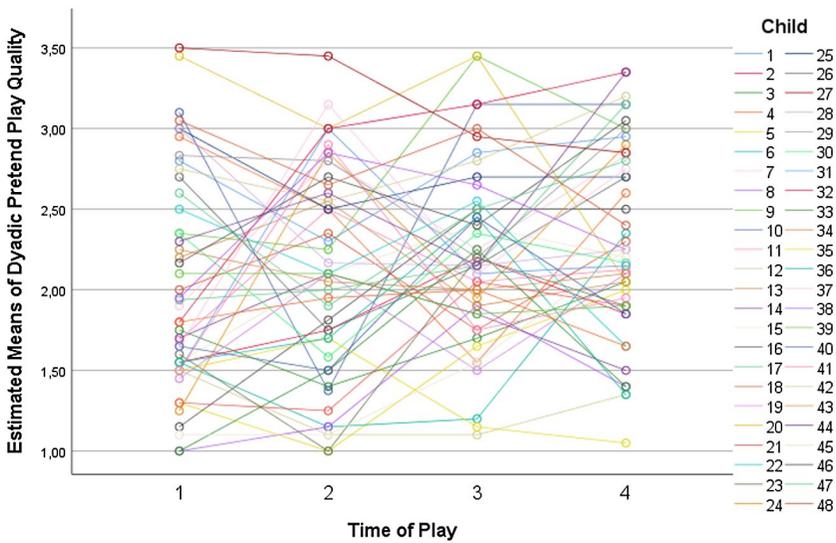
FIGURE 1 Individual dyadic pretend play quality course of the children. Only children who played at all 4 time points are shown

3.3.1 | Variance partitioning

In a first step, we investigated how much the children varied (a) in their general, stable pretend play quality (actor variance), (b) in how much they affected the pretend play quality of other children in general (partner variance), and (c) in how much the specific pairing of two children influenced their pretend play quality (relationship variance). The variance partitioning of children's latent social pretend play quality was calculated by using latent modelling, which requires exactly two manifest variables in TripleR but enabled us to separate the error from relationship effects. In line with our theoretical framework, the mean of the decentration and decontextualization scores was used as one indicator, and the mean of the role taking and sequencing scores as the second indicator for children's social pretend play quality.

Table 3 shows the variance partitioning of the SRM as well as the reciprocity correlations and the bivariate correlations of actor and partner effects with child competencies. The variance partitioning revealed significant actor, partner and relationship variance for children's social pretend play quality, with actor and relationship variance being high and partner variance being low. Furthermore, we checked whether similar distributions were found for the separate SRMs of the first (t1 and t2) and second (t3 and t4) measurement points, which overall was the case, although the partner variance was estimated somewhat higher.

3.3.2 | Associations between child characteristics and stable individual effects

Second, we examined whether children's actor and partner effects were associated with children's age, gender, language comprehension, social cognitive (ToM and emotion understanding) and social skills (sociability and cooperation).

Estimated actor and partner effects of each child were merged with the individual data set for the individual analysis, in which actor and partner effects were correlated with individual variables, controlling for playgroup membership. Because actor and partner effects of a child are estimated as the mean over all measurement points of that child or his/her partners in proportion to the group mean in the SRM, potential intervention and time

TABLE 3 Social relations model (SRM) estimates of children's social pretend play quality (1st/2nd measurement point)

Variance partitioning		Actor	Partner	Relationship	Error
	Pretend Play Quality	0.38***	0.09**	0.39***	0.14
		(0.30***/0.37***)	(0.19**/0.15**)	(0.37***/0.35***)	(0.14/0.14)

Reciprocity correlations		General reciprocity	Dyadic reciprocity[a]
	Pretend Play Quality	0.40**	0.42***
		(0.24*/0.61**)	(0.36**/0.46**)

Partial correlations[b]		ToM	TEC	SETK	SC	CO	Age	Female
	Actor effect	0.08	0.34*	0.22	0.30*	−0.01	0.33*	0.03
		(0.03/−0.04)	(0.26*/0.37**)	(0.21/0.20)	(0.26†/0.09)	(0.08/−0.12)	(0.38*/0.26†)	(−0.02/0.00)
	Partner effect	−0.14	0.17	0.01	−0.06	0.08	0.24†	−0.05
		(−0.20/−0.05)	(−0.02/0.19)	(−0.04/0.08)	(−0.03/−0.15)	(0.17/0.02)	(0.23/0.01)	(−0.15/−0.08)

Note: Female = gender with "0 = male" and "1 = female".

Abbreviations: CO, cooperation; SC, sociability; SETK, language comprehension; TEC, Test of Emotion Comprehension; ToM, Theory of Mind.

[a]Controlled for time point of play and intervention.

[b]Controlled for playgroup membership.

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

effects on the quality of social pretend play at the individual level do not affect the interpretation of the actor and partner effects, as they affected all children within the same group to the same extent and therefore are controlled for in the calculation of actor and partner effects.

In the SRM including all four play occasions, bivariate correlations showed positive associations between a child's actor effect and age, emotion understanding and sociability (Table 3). No relation was found between actor effects and gender, language comprehension, ToM or cooperation. Furthermore, a positive association was found between the partner effect and child age. No relation was found between a child's partner effect and gender, language comprehension, ToM, emotion understanding, sociability or cooperation. The separate SRMs showed slightly different findings: The correlations became weaker and the positive association between partner effects and age disappeared in the first and second measurement point SRM. For the second measurement point, the association between actor effect and sociability disappeared as well.

3.3.3 | Associations between dyad characteristics and relationship effects

Furthermore, we examined whether children's relationship effects were associated with the dyad's age, gender, language comprehension, social cognitive (ToM and emotion understanding) and social skills composition as well as with their friendship status.

Relationship effects of the whole SRM (t1–t4) were read out and merged with the pairwise data set to analyse dyadic inter-relations. To consider dyadic dependencies, we used multilevel analyses for the relationship analysis (Kenny et al., 2006). Relationship effects served as dependent variable at Level 1. For each predictor, a separate multilevel model was analysed. A child's friendship with his/her partner was used as predictor at Level 1. A dyad's age, language comprehension, ToM, emotion understanding, sociability and cooperation composition, each calculated as the dyad mean and grand mean centred as well as gender composition (with two dummy variables representing female and mixed-gender dyads, and male dyads as the reference category) and friendship status, were each used as predictors of relationship effects at the dyad level (Level 2). As relationship estimates are calculated for each single time point, the analyses controlled for the time point of play (t1–t4) as well as the intervention (= 0/1) at Level 1.

The multilevel analyses revealed no significant associations: The relationship effects were not predicted by a child's friendship to his/her play partner (β = 0.08, SE = 0.08, $t(150)$ = 0.97, p = .33), controlled for time and intervention. Additionally, the dyadic age composition (β = 0.15, SE = 0.09, $t(78)$ = 1.57, p = .12), sex composition (β_{mixed} = 0.04, SE = 0.17, $t(82)$ = 0.25, p = .81; β_{female} = −0.02, SE = 0.17, $t(81)$ = −0.12, p = .90) or friendship status (β = 0.07, SE = 0.09, $t(84)$ = 0.75, p = .46) did not predict relationship effects; and neither did the dyadic mean of ToM (β = −0.02, SE = 0.09, $t(87)$ = −0.18, p = .86), emotion understanding (β = 0.02, SE = 0.09, $t(83)$ = 0.19, p = .85), language comprehension (β = 0.05, SE = 0.09, $t(84)$ = 0.55, p = .58), sociability (β = 0.06, SE = 0.09, $t(109)$ = 0.68, p = .50) or cooperation (β = 0.04, SE = 0.07, $t(135)$ = 0.62, p = .54); each analysis controlled for time and intervention.

3.3.4 | Reciprocity correlations

Additionally, we investigated whether children's general social pretend play quality, that is, their actor effect, was related to their general impact on their partner's pretend play quality, that is, their partner effect (= general reciprocity), as well as whether a child's specific pretend play quality with a specific partner, for example, David's relationship effect in interaction with Deborah, was related to that partner's specific pretend play quality with the child in a specific play situation, for example, Deborah's relationship effect in interaction with David (= dyadic reciprocity).

General and dyadic reciprocity correlations were calculated within the SRM by correlating a child's actor and partner effects on the individual level, and children's relationship effect within a dyad and therefore on the dyad level. A statistically significant general reciprocity of actor and partner effects within one child was found (Table 3): The higher a child's play quality in general (actor effect), the more positively this child affected other children's play quality (partner effect). In addition, we found high dyadic reciprocity between relationship effects, showing that the higher a child's social pretend play quality within a specific dyad, the higher the social pretend play quality of the child's partner within this dyad, statistically controlled for the children's actor and partner effects.

4 | DISCUSSION

Pretend play with peers constitutes an opportunity for young children to practice and develop social cognitive and social competencies. It is important to identify influences on children's social pretend play quality, so that we can support this development more effectively. The aim of the study was therefore to investigate to what degree children's social pretend play quality while playing with another peer can be considered to be a function of a child's individual competence, stable between play partners (actor effect) *and* to what degree social pretend play quality, and therefore the chance of favourable development, is dependent on the interaction partner (partner effect), or the specific pairing of two children (relationship effect). Furthermore, potential associations between children's actor, partner and relationship effects with children's age, gender, language comprehension, social cognitive and social competencies were examined, as well as the dyadic constellation and children's friendship. For this purpose, a social relations model was used.

One major finding of the study was that social pretend play quality was affected about equally by stable differences between children in their general pretend play quality (actor effects) and by the specific pairing of two children (relationship effect). A child's tendency to evoke pretend play quality consistently in others (partner effects) varied only slightly but still substantially between children. Furthermore, several variables that were associated with children's SRM effects were identified. A child's age, emotion understanding and sociability were associated positively with his/her general social pretend play quality (actor effect). Child age also was associated positively with the child's general influence on his/her play partner's social pretend play quality (partner effect). Additionally, high general reciprocity indicated that the higher a child's general pretend play quality, the higher was the generally evoked pretend play quality in others (i.e., that skilled players tend to trigger high-quality play in others). And the higher the specific pretend play quality while playing with a specific child (e.g., David is especially good at playing with Deborah), the higher is the partner's specific pretend play quality with the child (e.g., Deborah is especially good at playing with David).

4.1 | Children's general pretend play quality over play partners

The high level of actor variance indicated that a large proportion of variance lies within a child and contributes to a rather stable play quality with different play partners during dyadic peer play. Bearing in mind the small age range (37–56 months), this finding indicates that the differences between children are not due simply to normative developmental differences, and reinforces the notion that there are considerable individual differences in children's social pretend play quality (Robertson, 2016).

Children's general social pretend play quality was associated positively with age, emotion understanding and sociability. The positive association with age corresponds with previous research findings and confirms the developmental pattern of social pretend play (Howes & Matheson, 1992). Furthermore, the results showed that more sociable children showed a higher quality social pretend play in general, which again is in line with the previous findings of Perren et al. (2019). Children who enjoy social interaction may spend more time in social play

and therefore may have more practice or experience, which could lead to higher play competence during social pretend play (Bodrova et al., 2013; Howes & Matheson, 1992). The positive association with children's emotion understanding also has been found in previous studies (e.g., Lindsey & Colwell, 2013). As the prerequisite for appropriate reactions to the behaviour of others (Trentacosta & Fine, 2010), emotion understanding may help children to maintain the roleplay, which may lead to more mature play scenes.

Children's gender, language comprehension, ToM and cooperation were not associated with their social pretend play quality, which is in partial contradiction of the existing literature and theoretical claims. Previous studies have shown inconsistent results concerning gender differences in pretend play (Göncü, Patt, & Kouba, 2002). As most of the studies examined differences in themes, material or communication, the lack of association found in the present study could mean that gender differences in the *quality* of play are not yet present in 3–4 year olds (Jing & Li, 2015). However, we provided the same play materials for all children in the present study, which also could explain that there were no gender differences. The absence of an association with language comprehension was unexpected as previous studies have found positive associations, suggesting that pretend play and language have a common underlying symbolic component (Lillard et al., 2013). Thus, as the Dyadic Pretend Play Assessment also is appropriate for children with rudimentary language skills, children may be prompted by the figures used and may reach higher scores, for example, just by producing sounds, and therefore this finding could be attributed to the instrument's characteristics. The lack of association with children's ToM could be due to the age of the sample. At this stage of development emotion understanding as a precursor of ToM (O'Brien et al., 2011), could be more important to maintain the play because children's ToM has not yet matured. Furthermore, children's social pretend play quality seems to be unaffected by their cooperation skills. It might be that cooperation is an important prerequisite for the emergence of social pretence (Bodrova et al., 2013), but not for the *quality* of it. Further studies of preschool children's social pretend play *quality* are needed to gain more insight into the associations with these competencies.

4.2 | Children's influence on the pretend play quality of play partners

In contrast to the high level of actor variance, only a small variance in partner effects, that is, in the degree to which children generally affect the play quality of their peers, was found. This finding is in line with previous findings of dyadic behaviour variance (Kenny et al., 2001). Nonetheless, low partner variance does not mean that there are no partner effects at all, only that children's general influence on their play partner does not vary much between children. Moreover, in comparison to the findings of other dyadic behaviours such as smiling, where, on average, 4% of partner variance was found (Kenny et al., 2001, 2006), in the present study children's play partners still accounted for almost 10% of the variation in children's dyadic pretend play quality, which by comparison therefore may be considered a rather substantial variation in partner effects between children. However, differences were found between the overall SRM and the separate analyses. The variance of the partner effects was found to be higher in the separate SRMs. This finding can be explained by the smaller number of partners in the smaller round-robin design, which produces greater variation in partner effect values between children than in the overall SRM, where partner effects tend to regress to the mean.

Positive associations were found between partner effects and a child's age. Howes and Farver (1987) assumed that older play partners are more conterminous to more experienced partners, which is in line with our findings of positive associations between a child's general pretend play quality and age. Accordingly, the effect of the age of play partners can be thought of as mediated through the social pretend play quality of the partner. Thus, Howes and Farver (1987) showed that the improvement of young children's social pretend play quality while playing with an older child did not persist, as children playing afterwards in same-age dyads showed decreased social pretend play quality. To achieve a persistent improvement in children's social pretend play quality, we would recommend implementing mixed-skilled dyads regularly (Gray, 2011). Furthermore, children's general partner effects

were not associated with children's gender or with their language comprehension, social or social cognitive skills. Concerning gender differences, one reason could be that the present study included nearly 67% girls which limits the representativeness of the results. The lack of associations of partner effects with children's language comprehension, social cognitive, and social skills indicate that these child competencies did not affect their play partners' pretend play quality in *general*. This finding indicates that there is no specific social cognitive or social competence of a "perfect" play partner that applies to all children to the same extent.

4.3 | Relationship variance and multilevel analyses of relationship effects

The results showed that the dyadic constellation of two children explained a similarly high level of variance in children's social pretend play quality as did the actor effects and is therefore equally important in understanding variability in social pretend play quality. In contrast to the partner effect that describes the stable behaviour children trigger in all of their interaction partners and that accounted for nearly 10% of variability in children's pretend play quality, the relationship effect (e.g., how good is David at playing with Deborah, independent of what would be expected from his general play quality with others and Deborah's general tendency to evoke pretend play behaviour in her partners) explained nearly 40% of the variance. It therefore seems to be more important which specific children play together rather than how much play quality a partner evokes generally in his/her play partner. However, although the relationship variance was that high, and there seemed to be specific constellational components that influence this variation, the present study found no associations between relationship effects and friendship or dyad compositions. One reason could be that we looked at the dyad mean. This approach leads to a loss of information because the similarity or difference between children was not considered in detail. A play partner could be more stimulating for some children than for others, depending on the similarity or differences between these children. This also was seen in the partner effect results, which showed that social and social cognitive competencies were not associated with children's general influence on others. Regarding the influence of the dyads' friendship status or gender composition on the relationship effects, it is also possible that we did not have enough variance in the friendship status and gender composition to reveal significant effects, as 69% of the dyads were not befriended and only 8% of the dyads were male dyads. Considering the high amount of variance explained by the specific constellation, further studies should take a closer look at constellational components by examining the dyad composition in more detail, for example using dyadic response surface analyses (Schönbrodt, Humberg, & Nestler, 2018). More knowledge about these constellational dynamics is needed and is fundamental to deriving practical implications for educators.

4.4 | Reciprocity of effects

The results revealed significant general and dyadic reciprocity of effects. The higher a child's general social pretend play quality, the higher the social pretend play quality of his/her partners was in general which means that skilled players tend to elicit high-quality pretend play in others.

Together with the positive associations of partner effects and age, these findings reinforce the theoretical assumptions of Vygotsky (1978) that children can benefit from more experienced play partners. This result has major practical implications. If teachers want to promote the development of children's social pretend play quality, we would argue for mixed-skilled play settings from time to time, where children can learn and profit from more experienced children. However, the results showed that it is enough to have an age range from 37 to 56 months, as children's pretend play quality differed significantly within this range. Moreover, one has to keep in mind that children's general influence on their play partners varied only slightly between children and therefore the finding of general reciprocity may in comparison explain only a small part of children's variation in their social pretend play quality.

Additionally, dyadic reciprocity was found. The higher a child's social pretend play quality within a dyad, the higher the social pretend play quality of the child's partner within the same dyad, statistically controlled for children's actor and partner effects as well as for time and intervention effects. Thus, together with the high relationship variance there seems to be a substantial constellational component in the emergence of dyadic social pretend play quality that is reciprocal and which definitely should be investigated further.

4.5 | Strengths and limitations

The present study is the first to use the social relations model to examine dyadic pretend play and therefore to enable the investigation of actor, partner and relationship components. A newly developed instrument was used, enabling the measurement of social pretend play quality in a half-standardized setting where children were encouraged to play together, assessing children's play in a standardized way but simultaneously as close as possible to their everyday behaviour. Moreover, the study has high practical relevance and gives important recommendations for early childhood practice.

Nonetheless, there are several statistical restrictions. Firstly, the SRM assumes that there are no sequence effects within the different interactions and therefore the relationship variance is mixed with potential sequence effects, which is a general characteristic of the SRM. However, we were able to control for sequence effects in the relationship analysis. Additionally, some of the children participated in an intervention between the two measurement points. Again, we controlled for intervention effects in actor and partner effect estimates and the subsequent relationship analyses.

Furthermore, not every child played with every other child within the same group, and the design therefore was not a completed round-robin design. We still used the social relation model for round-robin analyses, keeping in mind that missing values up to 20% lead to only a small systematic bias with actor and partner variance overestimated and relationship variance underestimated (Schönbrodt et al., 2012). As the feasibility of repeated assessments with a full design is difficult to implement in large groups of preschoolers, this estimation bias had to be accepted. For further studies, we would recommend investigating smaller groups of about five children, where a full design means four play sessions per child. Furthermore, others have proposed that it also is possible that children's pretend play quality influences their social-cognitive and social skills (Lillard et al., 2013), and therefore the causality of the different associations remains unclear. The present study gives only initial insights into relations among the constructs. Additionally, the generalization of the finding is limited based on the small sample size.

4.6 | Conclusion

The present study sheds light on the extent of individual and interactional contributions to the emergence of social pretend play quality. In addition to the variables identified, which are associated with high social pretend play quality on the different levels, the present study illustrated the value of the dyadic constellation as well as the value of a mature play partner for the emergence of high-quality social pretend play. The higher a child's social pretend play quality was, the higher his/her play partner's social pretend play quality was both in general and also on the situational level within a specific dyad. However, considering that children do not seem to differ much in their general influence on their play partners pretend play quality but in how much the specific pairing with a child influences their pretend play quality, it rather is the constellation of two children in specific dyads that seems to make the difference, that is, it is important which specific children play together. This finding has important implications for the further investigation of social pretend play and associations with children's development: Research should consider the influence of the dyadic constellation on children's play, otherwise findings can be biased, which also could account for the many inconsistent findings in previous studies. At the same time, the

present study raises new issues for further research. Further studies should investigate the differences causing these variabilities between dyads. For this purpose, the interaction between the children should be investigated in more detail, taking into account the communication style or scaffolding of the partner, or the relative composition of child competencies within a dyad.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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