

European Journal of Special Needs Education, Volume 32, 2017, Issue 3, pp. 377–390

Enhancing peer interaction; an aspect of a high-quality learning environment in Finnish early childhood special education

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This is an Accepted Manuscript of an article published by Taylor & Francis in *European Journal of Special Needs Education* on 16 October 2016, available online at <https://www.tandfonline.com/doi/10.1080/08856257.2016.1240342>

Abstract

The aim of this article is to investigate the pedagogical learning environment in early childhood special education (ECSE). The theoretical framework is based on a conception of interaction being as well a basic human need as, according to sociocultural theories, the basis of learning. Our study was conducted in ECSE kindergarten groups (N = 17) in the area of Helsinki, Finland. We were interested in the overall quality of the pedagogical environment, the quality of enhancing peer interaction (EPI) and the pedagogy for EPI amongst children with diverse characteristics and needs. Quality was evaluated using the Quantitative Learning Environment Assessment, completed with qualitative data, which consisted of the researcher's observations and interviews. The quantitative data were presented with descriptive statistics. Qualitative content analysis was used to make a closer examination of EPI pedagogy. The study indicated good pedagogical quality. EPI quality was predictably

good due to high overall quality. Our findings highlighted ECSE professionals' versatile pedagogical modes in structuring activities and space and intensive methods in EPI and participation, especially in scaffolding communication (with augmentative or alternative communication systems when needed) and supporting social competence.

Keywords: Early shildhood special education, pedagogical environment, peer interaction, scaffolded communication, guided social competence

Introduction

One of humans' innate biological and psychological needs is belonging to a group. Togetherness, as well as being accepted, respected and supported, contributes to well-being (e.g. Maslow 1968; Ryan and Deci 2000). Being a participant in a community of learners is also a crucial aspect of the educational process (Barab and Duffy 2012; Piispanen and Meriläinen 2015). However, some children are at risk of being left out of their peer group. Opportunities for participation can be limited for those who have difficulty in playing or learning with others or who have special educational needs (SEN) (de Groot Kim 2005; Viitala 2014). According to Viitala (2014), the core of social participation is interaction, friendship and acceptance in a peer group and a child's own sense of being accepted. A child with SEN can be rejected, even bullied, by other children (Repo and Sajaniemi 2015). Early exclusion can also lead to exclusion and other serious consequences later in life (Ladd 2005; Buhs, Ladd, and Herald 2006; Laine et al. 2010).

The social environment is a field for peer interaction and participation. From an early age, children are interested in each other and attracted to social relationships. In children's further development, emotional regulation as well as social understanding and executive functions play important roles in the consolidation of social competence, which is a basic element of peer interaction (Hay, Payne, and Chadwick 2004). The more experience children have in interacting with their peers, the more complex ways of interacting they construct (Howes and Matheson 1992; de Groot Kim 2005).

Pedagogical quality in early (special) education

High quality in early childhood education (ECE) facilitates peer relationships, well-being and learning for all children. Various studies have connected high quality with efficacy and results (Pianta et al. 2007; Mashburn 2008; Pakarinen et al. 2011). A pedagogical approach to quality emphasises that certain aspects of quality promote development and learning (Williams and Sheridan 2006). Sheridan (2007) has suggested the four dimensions of pedagogical quality: the dimension of society, the child, the teacher and the learning context. We find the dimensions of the teacher and the learning context to be relevant to the theme in this paper, while the connection to the other two dimensions remains indirect.

Quality is connected with a teacher's pedagogy; in other words, how a teacher organises the classroom's physical environment or creates an emotionally safe atmosphere or enhances interplay and participation and promotes children's learning (Stakes 2004; Mashburn 2008; Berris and Miller 2011). The concept of a pedagogical environment refers here to the teachers' focus on developmentally appropriate activities, boosting peer relationships, well-being and learning. A pedagogical environment combines physical, psychological and social dimensions, seen through the goal of education (Piispanen 2008). Therefore, a good design of the physical environment can enable children to feel safe and free to join in activities and the teachers to monitor and supervise the children in participating and learning (Berris and Miller 2011).

Children develop and learn in interaction, or as Vygotsky (1978) stated, in the 'zone of proximal development', with the guidance of an adult or a more competent child. Interaction between the teacher and the children and peer interaction are key elements in the learning process (Williams and Sheridan 2006; Mashburn 2008; Pakarinen et al. 2011).

The quality criteria of early childhood special education (ECSE) are largely shared with mainstream education. Some additional quality aspects are also emphasised, such as the use of techniques and interventions effective in teaching children with disabilities (Cook and Schirmer 2003; Skårbrevik 2005). The principles of inclusion are widely seen as a central issue in special education. According to the UNESCO's Salamanca Statement (1994), children with SEN have the right to an education in general ECE settings and schools and the right to receive the necessary support. In Finland, equality is one of the basic values of educational policy. However, the risk of social exclusion is growing, especially for children who have additional needs in learning social and interactive skills or other special needs (Hay, Payne, and Chadwick 2004; Repo and Sajaniemi 2014). The high quality of ECE is a basis for early intervention and therefore crucial in enhancing participation and inclusion and preventing exclusion.

Context and research aims

Altogether 230,000 children attended public day care in Finland in 2014. Eight per cent of those were identified as having SEN (National Institute of Health and Welfare 2014). The main reasons for early special education have been language disorders and social-emotional difficulties (Pihlaja, Rantanen, and Soenne 2010). In Finland, the special services for children with SEN are not classified as a separate system. The support is provided, as long as possible, in the context of general ECE programmes (Suhonen and Nislin 2012). Approximately, 77 per cent of children with SEN were attending day care in mainstream ECE settings; the rest were in segregated or integrated ECSE groups in public day care centres (National Institute of Health and Welfare 2013). According to the legislation (Day Care Act 1973/239), the group size in ECE is depending on the ratio between the staff and children (1:4 under three-year-old and 1:8 over three-year-old children). Usually, in a mainstream group, there are 21 children, 1 kindergarten teacher and 2 nursery nurses. If there are

children with SEN attending, the group size can be diminished, or a group can get a teaching assistant. An integrated special group is typically a kindergarten group of five children with and seven without SEN. This kind of ratio enables optimal peer support, and a model of typically developing children, as well as plenty of opportunities for peer interaction (Suhonen 2005). Children with severe disabilities and educational needs can also get a place in segregated ECSE groups with six to eight children, all with SEN. The typical structure of professional teams of both kinds of ECSE groups is an ECE special teacher, a kindergarten teacher and a nurse, though the recommendation is two ECSE teachers and one nurse (Pihlaja, Rantanen, and Soinnie 2010).

Although the present study was conducted in ECSE groups, it rests on the frame of inclusive ECE. One of the main goals in inclusive pedagogy is to increase social interaction between children with and without SEN (Koster et al. 2009). We hypothesise that an integrated ECSE group, when operating at its best, is a context of inclusive education, wherein every child gets the support needed and feels a sense of solidarity and cohesion (Suhonen 2005). In this article, we analyse the quality of the learning environment in early special education and highlight those pedagogical elements intended to empower participation and a sense of togetherness, which are usable as well in mainstream education. We ask: (1) What is the overall quality of the pedagogical learning environment in integrated ECSE groups? (2) What is the quality of enhancing peer interaction (EPI)? and (3) How do ECSE professionals enhance peer interaction?

Method

Participants

This study is part of a longitudinal study at the University of Helsinki on the quality effects of early special education on learning and well-being (see Alijoki et al. 2013; Suhonen et al. 2015). In total, 17 integrated ECSE groups participated in the current phase of the study. Our study has received acceptance by the Department of Early Education and Care in the city of Helsinki. All information is treated in confidence, and the anonymity of the participants is guaranteed. This article does not contain any information identifying the participants or the ECSE groups involved.

In the ECSE groups participated in the present phase, there was a total of 209 children, 89 (43%) of them with and 120 (57%) without SEN (Table 1). The main categories of SEN in the groups were self-regulation difficulties, language disorders and severe disabilities. For additional information on these categories, see Suhonen et al. (2015). The average number of children with SEN in a group was 5.2 (min 4, max 6). In 11 of the groups, the ratio between children without and with SEN was the recommended 7–8:5, while the remaining six groups had almost as many children with as without SEN. The staff of each group consisted of two ECSE teachers and one nursery nurse. Twelve (63%) of the groups had an assistant. In Finland, the requirements for an early childhood special teacher are a

bachelor's degree from an academic ECE programme and one year of study in a special education programme. Nursery nurses have vocational upper secondary education. There are no nationwide requirements for teaching assistants, but they often have their schooling in vocational institutes or upper secondary schools (Tables 2 and 3).

Table 1. Children (N=225) in special education day-care groups.

STATUS	BOY			GIRL			IN TOTAL					
	n	Age		n	Age		N	Age				
		mean	min	max	mean	min	max	mean	min	max		
Without SEN	47	4.2	3	6	73	4.5	3	6	120	4.4	3	6
With SEN	83	5.1	3	6	22	5.4	3	6	105	5.2	3	6
In total	130	4.8			95	4.6			225	4.7		

Table 2. ECSE professionals' (N=69) training

	ECSE teacher	Nursery nurse	Assistant	IN TOTAL
N	38	19	12	69
Formal training %	84.2	84.2	41.7	93.8
Non formal %	15.8	15.4	58.3	6.2

Table 3. ECSE professionals' (N=69) working experience

	ECSE teacher		Nursery nurse		Assistant	
	n	%	n	%	n	%
< 5 years	1	2.6	3	15.8	6	50
5-10 years	2	3.6	4	21	1	8.4
> 10 years	35	93.8	12	63.2	5	41.6
IN TOTAL	38	100	19	100	12	100

Measurements

Learning environment assessment

The overall quality was estimated using the Learning Environment Assessment Scale (LEANS) (Strain and Joseph 2004). The instrument was developed as a self-assessment tool in ECE settings, especially when there are children with challenging behaviours attending.

Quality is rated on the form with a five-degree Likert scale, in which low scores indicate low quality (1 = very low, 2 = low, 3 = moderate, 4 = good and/or 5 = very good). The instrument consists of 45 items of pedagogical work divided into five dimensions: classroom arrangements (e.g. arrangements of play and learning areas, materials and toys); schedules and transitions (such as schedules of the day, the balance between adult-directed and child-directed classroom activities (for instance, the adults' style of promoting social skills and interaction); team work (e.g. shared teaching philosophy; integrating children's individual goals into the daily activities); and children's behaviour plans (including observations, documentation and collaboration with parents). The researcher spent four hours on two mornings (eight hours altogether) in each ECSE group, observing the daily routines and activities, as well as the physical environment of the group. All five dimensions of the LEANS assessment contained supplemental questions, which formed a framework for the interviews of ECSE teachers.

Enhancing peer interaction

Within the items of the LEANS assessment, the matter of EPI is not highlighted. On the grounds of several studies and documents, we identified 10 items of LEANS to assess the quality in EPI (Table 4).

The reliability of a quantitative LEANS assessment was evaluated by assessing inter-rater reliability (Hallgren 2012). Another trained researcher conducted the simultaneous LEANS assessment in four (24%) of the ECSE groups. The Spearman correlation between the estimations of the two observers was significant ($r = .746^{**}$, $n = 180$, $p < 0.01$). Thereafter, Cronbach's alpha (α), a measure of internal consistency of the instrument, was calculated to measure the homogeneity of the test items. According to Gliem and Gliem (2003), the acceptable value of Cronbach's alpha for a Likert scale is $>.6$, even though the goal should be an alpha of $.8$. In this study, the value of alpha of the dimension classroom arrangements was $<.6$. After deleting two items, the alpha of the five dimensions was in the range of $.598$ – $.728$. When all variables (43 items) were calculated together, the alpha was $.812$, indicating very good internal consistency. Within the EPI dimension, the value of alpha was $.744$. The quantitative data concerned the EPI dimension, gathered with a structured assessment form, and were supplemented by additional interviews with the ECSE professionals, carried out as a part of the quality assessments, to obtain as extensive a view as possible of the studied phenomenon. Our qualitative data contained the thorough field notes of the researcher's observations and the notes made during the interviews.

Table 4. the items related to enhancing peer interaction.

<i>REFERENCES</i>	<i>ITEMS OF LEANS ASSESSMENT FORM</i>
Well organized physical environment encourages the formation different peer groups and getting possibilities to participate (National Curriculum Guidelines 2004)	1. The classroom has clearly defined and well equipped learning centres. 2. Toys that promote social interactions are present.
Structured space offers conditions for joint attention (Musatti and Mayer 2011) The design of environment, including routines, schedules and transitions, especially helps to reduce behavioural challenges (Pihlaja, Sarlin and Ristkari 2015).	3. There is a stable and predictable schedule of activities
Activities should be planned so that children are encouraged to interact and participate (National Core Curriculum for Pre-primary Education 2014)	4. Teachers individualize the lesson plans for children and integrate children's personal goals and objectives into daily activities.
Language skills have an impact on peer relationships (Murphy, Faulkner and Farley 2014)	5. The teacher team ensures that all children have a functional and appropriate way to communicate
When a child has problems with communication, the use of augmented or alternative communication systems (AAC), is crucial for interaction (Light 2003)	6. Visual cues are used, when necessary. 7. Modifications and adaptations are provided for children when necessary to help them be successful and actively participate
Social skills are to be taught during play and activities (National Core Curriculum for Pre-primary Education 2014)	8. Children are taught specific social skills and receive multiple opportunities to practice skills during small- and large-group activities 9. Co-operative activities are planned on a daily basis
Professionals' role in enhancing interaction is crucial (Singer et al, 2014; Repo and Sajaniemi 2015)	10. Adults give time, attention and praise to children for demonstrating appropriate pro-social skills.

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Analyses

Statistical analyses were conducted with an IBM SPSS 22 program. The overall quality of the learning environment in ECSE groups was presented using descriptive statistics (mean, median, min, max and SD).

The quality in EPI, the dimension formed on the basis of previous studies, was first presented with statistics (mean, median, min, max and SD). Thereafter, the qualitative data were analysed conducting a slightly modified content analysis with the help of Atlas TI software. The data, containing the field notes and the notes of interviews analysed together, were systematically coded and categorised step by step, dividing the material into content analytical units: the expressions of pedagogical mode of actions. The coding started with reading through the raw data several times. The first circle coding (see Saldaña 2009) included a comparison of the data sequences with each other and descriptive coding (summarising the topic of a fragment in a word or short expression) with several sub-codes linked to codes and sub-categories. Over the second circle, the pattern coding combined sub-categories into generic categories (examples of first and second circle coding, see Table 6)

Findings

The overall quality

Our results revealed that the quality of learning environment in the integrated ECSE groups (N= 17) was assessed on average as good. The quality was scored as good with the dimensions team work and behaviour plans and as weak with classroom arrangements (Table 5).

Table 5. Quality of learning environment within the five dimensions of LEANS.

	Mean	Std. Dev.	Median	Min	Max
<i>CLASSROOM ARRANGEMENTS (9 items)</i>	3.34	0.41	3.4	2.5	4.2
<i>SCHEDULES AND TRANSITIONS (11 items)</i>	3.78	0.4	3.73	3.09	4.55
<i>CLASSROOM ACTIVITIES (11 items)</i>	3.9	0.44	4.0	3.09	4.36
<i>TEAM WORK (6 items)</i>	4.07	0.36	4.0	3.29	4.71
<i>BEHAVIOUR PLANS (6 items)</i>	3.99	0.52	4.0	3.0	4.83

Table 6. Enhancing peer interaction (EPI)

<i>ITEMS OF LEANS</i>	<i>CODING EXAMPLES</i>	<i>SUB-CATEGORY</i>	<i>CATEGORY</i>
1) The classroom has clearly defined and well-equipped learning centres.	Home play area marked off Car play with parking space carpet		
2) Toys that promote social interactions are present.	Sand play always available Play with water occasionally	STRUCTURING SPACE AND TIME	INDIRECT GUIDANCE
3) There is a stable and predictable schedule of activities	Constant sequences of daily activities Variable sequences		
4) Teachers individualize the lesson plans for children and integrate children's personal goals and objectives into daily activities.	Goals utilized in individual activities Goals utilized in group activities Goals not taken into account	PLANNING	
5) The teaching team ensures that all children have a functional and appropriate way to communicate	Responding to a child's initiation of interaction Modelling the use of pictures / signs Picture books used		
6) Visual cues are used, when necessary.	Pictures available Pictures / sign in use	SUPPORTING COMMUNICATIVE COMPETENCE	
7) Modifications and adaptations are provided for children when necessary to help them be successful and actively participate	Use of AAC Dividing play groups Support in joining in the play Modelling when playing		DIRECT GUIDANCE
8) Children are taught specific social skills and receive multiple opportunities to practice skills during small- and large-group activities	Common rules / good manners Training in turn-taking and turn waiting Guidance when needed	SUPPORTING SOCIAL COMPETENCE	
9) Adults give time, attention and praise to children for demonstrating appropriate pro-social skills	Encouraging for common play Responding to a child's initiation of interaction Positive feedback		
10) Co-operative activities are planned on a daily basis	Activities during circle time Playing daily		

Quality in EPI

To assess the quality in EPI, we made two parallel analyses. The qualitative analysis was done on the basis of the content of the scale items, identified from the LEANS assessment (see Table 4 above).

The items comprised four sub-categories divided into two large categories, titled indirect and direct guidance. (Table 6). The quantitative analysis of those scale items indicated quite good quality (N = 17, M = 4, Md = 4.1, min = 3.1, max = 4.8, SD = .52), as expected, as the overall quality was high. The highest scores were given the items 'Children are taught specific social skills and receive multiple opportunities to practise skills during small- and large-group activities' (N = 17, M = 4.3, Md = 4, min = 3, max = 5, SD = .77) and 'Co-operative activities are planned on a daily basis (N = 17, M = 4.3, Md = 5, min = 2, max = 5, SD = .91).

EPI by ECSE professionals

The findings of the qualitative analysis concerning pedagogy in EPI are first demonstrated following the analytical structure presented above. The data related to direct guidance gave us material for a closer content analysis, the findings of which we present thereafter, as a summation of the implemented EPI pedagogy.

Indirect and direct guidance of EPI

Indirect guidance was divided into two sub-categories. Within the sub-category structuring space and time, indirect guidance for peer interaction was enforced with versatile repertoires of well-equipped learning/playing areas and largely consistent and stable schedules of activities. The schedules were not tightly structured or lesson based, but approximate; for example, Breakfast – Outdoor activities – Circle time – Gymnastic – Free play, etc. The mornings were more adult centred, whereas the afternoons were based mostly on children's free activities. The sub-category planning concerned the children's individualised goals and targets. Those goals involving communication and social skills were largely integrated into the everyday activities.

Excerpt 1. At the moment our foci are the goals concerning communicative skills – we (the team of professionals) invest in AAC systems, mostly pictures and the use of picture books. We set goals together and plan activities for the whole group and for individuals as well. Also the support of socio-emotional skills is important. – ECSE teacher. (Field notes from an interview, 3 February 2015)

Still, there were differences amongst the teams in terms of how the individual goals and objectives for the children should be achieved. Some of the professionals had an ideal of

individual lessons and training, and they expressed dismay when they found the resources inadequate for that.

The category of direct guidance also appeared in two sub-categories. In the section supporting communication, the emphasis was on using augmentative or alternative communication (AAC) systems, such as pictures, signs and technical (hearing; speaking) aids. Of the modes used for enhancing communication, most were positive or functioning; still, few were encoded to have challenges or compromised support.

Excerpt 2. Pictures are not used systematically. A child is asked to choose a play activity. He points at a picture. 'No, that is not possible', says a nurse, who leads a child to another activity, which she [the nurse] has chosen. Another child has a communication book with him when playing and during the circle time. No one touches the book. (Field notes from observations, 9 February 2015)

Some of the professionals expressed strong concerns or their challenges, for example, the lack of children's communicative competence or the team members' low level of AAC skills.

Excerpt 3. A communication book doesn't work in the everyday practices of a children's group. Maybe [it would work] when you work alone with a child ... – ECSE teacher. (Field notes from an interview, 14 April 2015)

Several modes in supporting social competence were encoded (e.g. play and teaching social skills like sharing, turn taking or good manners). Moreover, different kinds of intervention programmes were mentioned, such as KUTTU (play supported with pictures, developed in Finland, and intended to improve communication and play skills), Group Theraplay (an adaptation of the dyadic Theraplay therapy, an adult-directed, structured play group) and the Activity Programme for Body Awareness, Contact and Communication, developed by Marianne and Christopher Knill.

Excerpt 4. The most important goal in our work is to enhance children's social competence. – ECSE teacher. (Field notes from an interview 27 February 2015)

Excerpt 5. Once a week, we have guided play as a main activity of the day. Then the focus is on the social competence sector. We have also been practising identifying and expressing one's own feelings by means of pictures. We are scaffolding interaction with pictures especially with those who need it... and we have had group-based Theraplay as an intervention period. – ECSE teacher. (Field notes from an interview, 19 March 2015)

The implemented pedagogy in EPI

We analysed the content of guiding within the two sections of direct guidance and concluded a summation of the EPI pedagogy. (Figure 1). Scaffolded interaction and guided

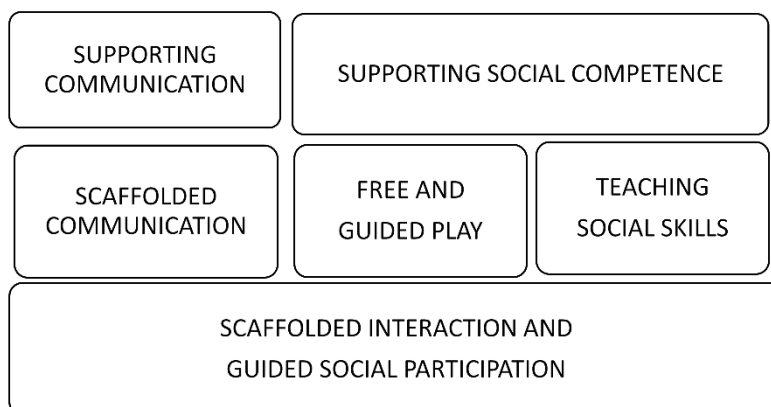
participation were seen as a combination of supporting communication and supporting social competence. The professionals' sensitivity in observing and interpreting a child's initiatives to communicate and interact was an important element of the implemented pedagogy.

We also found the use of AAC systems aimed at expressing and understanding language to be characteristic of the sub-category supporting communication. Numerous possibilities for participating and practising skills for interaction were given, and many professionals showed excellent skills in using AAC systems, e.g. picture books with which a child can communicate and signs. Non-verbal communication was taken into account as well, as a form of participation, especially in playing. In supporting social competence, the ECSE professionals also described playing as a context of children's own culture, as well as for learning social skills. Guidance during play activity involved several modes. Free and guided play differed on the grounds of the role or position of the adults. Dividing a play group was perceived as a pedagogical mode. During the interviews with the professionals, about half of them pointed out the importance of having an influence on composing the play groups. Promoting participation came about by guiding a child to parallel play, supporting him/her in joining in the play and taking part or acting a role in a children's play. As well as being a component of play, teaching social skills was also understood as a separate mode, combining basic ideas such as sharing and turn taking, good manners and common rules, as well as promoting shared attention in everyday routines and daily activities.

Excerpt 6. During the morning circle, the adults are sitting behind the children, ready to provide back-up when needed. That back-up, and the use of AAC, seems to enable experiences of succeeding and participating for every child. One of the boys attends the Knill exercise with a strong support of an assistant; after that he chooses as his play activity communicating with pictures. (Field notes from observations, 10 April 2015)

We want to ensure that everyone's participation in daily circle times, as well as the sense of success during everyday routines and activities, will become a reality. – ECSE teacher.
(Field notes from an interview, 10 April 2015)

Figure 1. Summation of the implanted EPI pedagogy



Discussion

The quality of the pedagogical environment

In our study, the overall quality of the learning environment, including the quality in EPI, was assessed on average as good. The result was expected, considering our earlier studies (Alijoki et al. 2013). The finding can be considered important: according to Mashburn (2008), the pedagogical process and the social environment have proven to be crucial aspects of quality in early education. Moreover, several authors have reported a relationship between high quality and professionals' education and competence (e.g. Burchinal and Cryer 2003; Kalliala 2011). In the ECSE groups involved in our study, there were two special education teachers in each group. Most of the ECSE professional teams in Finland have one special teacher, one kindergarten teacher and a nurse (Pihlaja, Rantanen, and Soinne 2010). It seems likely that the high quality in our studies may be due to the high level of pedagogical education.

The quality in EPI

In studying EPI quality as part of the LEANS assessment, we defined two categories, indirect and direct guidance. We found the sub-category structuring time and space to be a crucial aspect of indirect guidance, containing mostly systematically implemented practices. According to Musatti and Mayer (2011), spatial arrangement creates the conditions for joint attention and shared meanings of peer activities. On the other hand, childhood sociologists like Strandell (1995) have criticised the playing areas organised by adults as being more forbidding than tempting for play and being restrictive in terms of creativity. Thus, the role of routines can be bipartite, both exclusive and inclusive, depending on the impact of pro-fessionals (Williams 2001). Strain and Joseph (2004) have stated that the

assessment of classroom design helps the teacher create functional practices in terms of social interaction and participation. Furthermore, routines and the structure of schedules and transitions are crucial in reducing challenging behaviours (Pihlaja, Sarlin, and Ristkari 2015). As regards the sub-category planning, our findings showed that the professionals integrated children's individual goals into the daily group activities, including play. According to sociocultural learning theories, such integration emphasises learning as a social phenomenon (Piispanen and Meriläinen 2015), whereas the preference for individual training might be influenced by an individual-based construction of diversity (Pihlaja, Sarlin, and Ristkari 2015). Although Rakap (2015) reminds us of the need for appropriately delineated, individualised goals and objectives, the goal should be to encourage children to collaborate, interact and participate (Finnish National Board of Education 2014).

Direct guidance consisted of supporting communication as well as social competence. In our study, the professionals were generally able and willing to use AAC systems and scaffold peer interaction amongst children in many ways. According to Light (2003b), the ability to enhance the communication of an individual provides information about the development of communicative competence – linguistic, operational, social and strategic – especially in supporting those who require AAC. We also highlighted the relevance of play in terms of social competence. The ECSE professionals used several modes in supporting a child in joining play and during play, e.g. by taking part or acting a role in the children's play activities. Their support was especially directed to children who faced challenges in peer relations due to SEN. This leads us once again to the zone of proximal development, that is playing with a more competent child or adult partners in order to grow (Vygotsky 1978).

Enhancing peer interaction

Our main finding was the summation of indirect and direct guidance, implemented during scaffolded communication, guided play and teaching social skills in daily activities. We defined enhancing communication and social participation as a summary of ideally realised EPI pedagogy. The concept refers to providing opportunities to participate with the guidance of ECE professionals whenever participatory appropriation – the stage of a child's own advanced participation – is not achieved (see e.g. Rogoff 2008; Kultti 2015). In EPI, especially when there are children with language disorders involved, the professional's capacity in using and/or learning the use of AAC systems is crucial (Reiche et al. 2003). Because of the significant differences in social communication and play between children with and without SEN (Suhonen et al. 2015), interventions like AAC systems, used when needed, might be essential to enable interaction and full participation (Light 2003a). That kind of pedagogical competence of sensitive and committed professionals who recognise and consolidate children's verbal and non-verbal initiatives enables guided communication and social participation (Kultti 2015). This highlights the professionals' role in studying participation as a core of inclusion and in maximising peer interaction in a group of children with and without SEN (Koster et al. 2009).

Trustworthiness and limitations

The trustworthiness of the qualitative part of the study was considered with three factors (Birks 2014). Firstly, we were familiar with the theories and the scientific discussion related to our subject. Secondly, during the research process, we discussed the methodological congruence between the stated aims and the methodological framework. And finally, we strove for a logically advanced process from data collection to analyses, findings and conclusions. In our study, the data were collected in natural situations and in a natural location, which increases ecological validity (Schmuckler 2001). Some of the field notes were used to confirm the interpretations of the observations. Since the qualitative data offered additional information, the fact that the studied phenomenon has been approached from differing perspectives improved ecological validity as well.

As a limitation, we found that, in integrating different kinds of data and analyses, a larger amount of quantitative data would have provided more fertile ground for the study. However, with the participants of the present longitudinal study, a larger number would not have been possible. We were also aware that Strain and Joseph developed their assessment tool for self-assessment in ECE groups, not for the field of research. That being the case, the criteria for assessment depend largely on an observer's interpretation. This is what we had to keep in mind in reading the results and drawing conclusions

Concluding thoughts

A high-quality learning environment observed in ECSE groups, especially in terms of EPI, highlighted the elements for planning and carrying out inclusive early education. It is crucial to assess the pedagogical environment when the goal is to enhance children's participation and promote their social inclusion. Furthermore, the pedagogical competence of ECSE professionals proved to be a determining factor in empowering peer interaction and scaffolding children's communicative and social competence. That kind of 'pedagogic capital' is required as a resource for inclusive early education, as well as for early special education.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This study was supported by The Education Fund under Adult Education Allowance, and the Research Fund of the Mannerheim League for Child Welfare under Grant.

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