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Teachers' perceptions of integrating kindergarten and first-grade primary school language curricula

Zoi Apostolou[1], **Nektarios Stellakis**[2]

Abstract: The purpose of this research paper is to investigate the perceptions of kindergarten teachers and first-grade primary school teachers on the integration of kindergarten and first-grade of primary school language curricula. This research is part of a broader study of the relation between natural/early and conventional/school literacy, the teachers' perceptions of the possibility of integration of language curricula, as well as practices resulting from the study of curricula. The data were collected through a questionnaire sample of 326 kindergarten teachers and 306 teachers who were teaching at the time of this study the first-grade of primary school in two Greek prefectures. Research data has shown that first-grade teachers appear to be more positive than kindergarten teachers towards integrating the two curricula. Both kindergarten teachers and first-grade teachers seem to partially agree with the creation of a curriculum with common goals and objectives. Nevertheless kindergarten teachers appear more hesitant, expressing their concerns and fears of a potential "schoolarization" of the kindergarten.

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Introduction

In recent years, the issue of enhancing child literacy has been a growing concern for the international community. Literacy has been shown to be linked to the subsequent school success or failure of the child and can therefore contribute in the end to social well-being, social justice and the development of democracy (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2005, 2007, 2015). According to the UNESCO (2004), literacy is defined as:

> The ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society (p.21).

Interdisciplinary research in recent decades has greatly expanded the scope of mastering literacy, adding new data on children's familiarisation with literacy and leading to a revision of it, regarding how literacy is enhanced and how language is taught. Research conducted internationally (see for example: Heath, 2009; Hindman and Wasik, 2011; Powell, Diamond, Bojczyk and Gerdel, 2008; Scull, Nolan and Raban, 2013; Snow, Burns and Griffin, 1998; Strickland and Shanahan, 2004; Zeegers, 2012; Zhu, 2010) but also in Greece (see for example: Aidinis and Grollios, 2007; Giannikopoulou, 2001; Kondyli and Stellakis, 2006; Papoulia-Tzelepi, 2001; Porpodas, 2002; Tafa, 2001; Xefteri, 2017) demonstrates that early language stimulation have great importance for reading development and children's literacy learning occurs through actions that have a meaning for them and a clear purpose. Various pedagogical, social, and psychological factors interact and influence learning to read and write, reflecting on the drafting of Greek curricula, related school textbooks, and the theoretical and methodological approaches proposed by

[1]University of Patras, Department of Educational Science and Early Childhood Education, Division of Social Theory and Analysis, Greece, e-mail:apostolo@upatras.gr, ORCID: https://orcid.org/0000-0003-4359-397X

[2] University of Patras, Department of Educational Science and Early Childhood Education, Division of Social Theory and Analysis, Greece, e-mail:nekstel@upatras.gr, ORCID: https://orcid.org/0000-0002-1934-8715

them for *kindergarten*[1] (4-6 years) and *primary school*[2] (6-12 years). Curricula set out the purposes and goals of education, the specific objectives, the fundamental pedagogical principles, the content, the methods of teaching and learning, the indicators of success and modes of assessment, the learning environment, school-family relationships and some complementary activities (Alahiotis, 2002). In Greece, for kindergarten (4-6 years old), Cross-thematic Curriculum Framework for Kindergarten (hereafter referred to as CTC) (Ministry of Education/Pedagogical Institute [MoE/PI], 2002b) is the curriculum and Preschool Teacher's Guide (hereafter referred as PTG) (Dafermou, Koulouri and Basagiannis, 2006)[3] consist the basic tool for kindergarten teachers. For first-grade of primary school (6-7 years old), Cross-thematic Curriculum Framework for Greek Language of Compolsury Education[4] (MoE/PI, 2002a) is the curriculum, Teacher's Book for Teaching Language in First-grade[5] (MoE/PI, 2008b) is the guideline book for teaching language at first-grade and Student's Book for First-grade[6] (MoE/PI, 2008a) is the textbook for the students.

The study of the objectives of the Greek curricula of the kindergarten and the first-grade of the primary school on the language module indicates reference to modern teaching approaches, such as the holistic approach, emergent literacy, the communicative approach and functional use of language. The conflict between traditional *skills based approach*, focusing on code understanding and the *whole language approach* that focuses on meaning has led to the adoption of a *balanced / equilibree approac*h model (see for example: Aidinis and Nunes, 2001; Comber and Nichols, 2004; Morris, 2015; Pearson, Raphael, Benson and Madda, 2007; Pressley, 2002; Xue and Meisels, 2004) which tries to combine the best elements from other approaches. Xue and Meisels (2004, p.222) state that "in order to learn to read effectively, children

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[1] In Greece, Preschool education connected to primary education: Law 1566/1985 stipulated that preschool education belong to primary education (children 6–12 years old); a great part of its operation follows the same legislative regulations that are in force for primary schools. Specifically, early childhood education is provided in kindergartens, which operate independently or in centres together with state primary schools for children aged 4–6. Since September 2007, under the provisions of Law 3518/2006, the second year of childhood education is compulsory for young children who have completed their fifth year of age by 31st December of their enrollment year. Most kindergartens are state-run, while the number of private ones is quite limited. Since 1984, preschool teachers trained at university departments of education, a fact that has contributed to elevating the status of early childhood education (Sofou and Tsafos, 2009).

[2] In Greece, Primary education lasts six years (6-12). Children who turn six by December 31 can enroll in the first grade. Attendance is obligatory. Cross Thematic Curriculum Framework for Compulsory Education (DEPPS) organised into 6 levels, each of them corresponding to one (1) out of six (6) primary school grades. The teaching subjects of primary school are *Religious Education, Language, Mathematics, History, Study of the Environment, Geography, Natural Sciences, ICT*, e.t.c. Modern Greek Language at first-grade is teaching for 9 hours per week (European Commission [EC], 2019).

[3] The preschool CTC provides instructions for planning and developing activities in the following five school learning areas: Language, Mathematics, Environment Studies, Creation and Expression (through Fine Arts, Drama, Music, Physical Education) and Computer Science. According to the CTC, these learning areas not conceived as independent subjects for independent teaching. Instead, the teachers consider these areas when planning and implementing meaningful and purposeful activities for the children. Thus, 3 years after curriculum's publication in the Government journal in 2003, the MoE/PI published a 431 page-long book, the Preschool Teacher's Guide (hereafter referred as PTG) (Dafermou et al., 2006). The PTG contains theoretical and methodological support, guidelines on the teaching of the five learning areas described above and good practice examples of development and planning of activities. PTG included a separate chapter for Literacy (Sofou and Tsafos, 2009).

[4] In line with lifelong learning literacy theory, the aim of teaching Greek Language in Primary school is to develop pupils' abilities to communicate effectively in speech and writing, in order to participate confidently in school and public life (MoE/PI, 2002a). To achieve this aim an eclectic approach to language is attempted, combining elements from different language theories on the basis of teaching and learning needs. The curicullum includes guiding principles (*Oral Speech*: Speaking and listening, *Written speech*: *Reading*, *Written speech*: *Handwriting and producing written discourse*, *Literature*, *Vocabulary*, *Grammar*, *Information management*) and general goals for these principles (MoE/PI, 2002a).

[5] The Teacher's Book for Teaching Language in First-grade contains texts and appropriate activities for the processing of these texts, which concern the main axes, as well as the categories of the teaching objectives of the Curriculum of the Language Studies for the Primary School (MoE/PI, 2008b).

[6] School textbooks have been elaborated based on National Curricula, applicable to all subjects, grades and education levels. They are distributed free of charge to pupils across the country (EC, 2019).

need a balanced instructional approach that includes learning to break the code and engaging in meaningful reading and writing activities". Within this theoretical framework, the primary school language curriculum cannot ignore and underestimate the experiences and knowledge children have acquired in the family environment and in the kindergarten. School literacy is a continuation of the early / natural literacy (Hasan, 2006; Matsagouras, 2007), not only because it is subsequent, but because school literacy must be built on the basis of natural literacy, since natural and school literacy are not distinct stages but adjacent parts of a continuous (Kondyli and Stellakis, 2006).

Within the framework of adopting a balanced approach to literacy, an important supporting factor is the continuation of the culture, traditions and learning experiences that children experience both in kindergartens and in primary schools (Broström, 2002; Fabian and Dunlop, 2006). In line with lifelong learning literacy theory (see for example: Djonov, Torr and Stenglin, 2018; Education, Audiovisual and Culture Executive Agency [EACEA], 2011; Hanemann, 2015, 2019; Hanemann and Krolak, 2017; Kennedy et al., 2012; Silva Joyce and Feez, 2016; UNESCO Institute for Lifelong [UIL], 2010, 2017, 2018; UNESCO, 2005, 2007, 2015, 2017; Xue and Meisels, 2004) mastering literacy is an ongoing process and smooth transitions of students from one level to another can be greatly facilitated if educators from one grade, for example the pre-primary school, cooperate with those of the next grade, that is, the primary school, and vice versa (Bredekamp and Copple, 1997; O'Sullivan, 2005). Kindergarten teachers and first-grade teachers must exchange curriculum information and modify it appropriately so that the curriculum can exhibit continuity, and children can continue their learning process and achieve greater future progress (Department of Education and Early Childhood Development [DEECD], 2009). Only in such a framework of shared approaches, perceptions and practices can the pupils work and continuity not be interrupted (Broström, 2002; DEECD, 2009; EACEA, 2011; Fabian and Dunlop, 2006; Frank-Oputu and Oghenekohwo, 2017; Hanemann, 2015, 2019; Hanemann and Krolak, 2017; Neuman, Snow and Canizares, 2000; National Institute of Child Health and Human Development Early Child Care Research Network [NICHD], 2005; O'Sullivan, 2005; UNESCO, 2017; Wasik, Bond and Hindman, 2006; World Education Forum [WEF], 2000).

According to the basic goal of CTC for kindergarten, preschool education in Greece is an integral part of our educational system (Dafermou et al., 2006; MoE/PI, 2002b) and therefore, national planning of a structured transition from pre-primary to primary school seems more important than ever. Therefore, the question arises of the need to integrate the two programs, kindergarten and first-grade, in particular as regards the language learning area. The adoption of a common pedagogical approach, common pedagogical and theoretical principles, objectives, content, teaching and learning methods, a comparable learning environment in the two curricula, delineate the concept of the integration of the two programs. Serving common goals in the light of a balanced approach and enhancing natural literacy could help to remove the potential discontinuity between curricula. In this context, a successful balanced approach to literacy requires the teacher on one hand to combine approaches, methods and techniques to become more effective for his students and on the other hand to stay informed, to train and collaborate (Hall, 2003). Collaboration between kindergarten and primary school teachers is considered as one of the most important factor in confronting the difficulties of the transition (Ackesjö, 2013; Alatalo, Meier and Frank, 2017; Broström, 2007; Dockett and Perry, 2007; Karydis, 2014; O'Sullivan, 2005; Sivropoulou and Vrinioti, 2009) as "the continuity" between the two educational institutions related directly with the development of normal transition (see for example: Dunlop and Fabian, 2002; Zeegers, 2012; Zhu, 2010).

In Greece, research focusing on the study of curricula and the perceptions of kindergarten teachers and first-grade primary school teachers on their teaching approaches, their collaboration and the transition is extremely limited. In particular, no research has been found in the Greek area concerning the perceptions of kindergarten teachers and first-grade primary school teachers about the integration of the two programs, as well as their interrelations. This research gap, identified in international and Greek literature, is what this paper seeks to address.

Method

The purpose of the study

The purpose of this research is to study the perceptions of preschool and early primary school teachers on the relationship between early / primary and conventional / school literacy, and in particular on the feasibility of integrating the two curricula and how they believe that unification could contribute to the optimization of the language teaching approach at both levels or the reasons for their disagreement with such a unification. We are going to deal with the answer to the following research questions:

(a) What are the teacher's perceptions (agreement/disagreement) about the potential integration of the two curricula?

(b) Which are the reasons of their agreement/disagreement about the potential integration of the two curricula and how they believe that integration could optimize the approach to language teaching at both levels (what teachers think about young learner's adjustment to primary school if there existed a common methodological approach to language teaching at both levels)?

The methodology of the study

The present research was conducted using a self-fulfilling electronic questionnaire (SurveyMonkey) (Bryman, 2017; Cohen and Manion, 2008; Creswell, 2016; Iosifidis, 2003; Robson, 2010). The self-administered questionnaire was organized in some study areas (knowledge of curricula, perceptions of the methodology of language teaching as suggested by the curricula, perceptions of the collaboration of kindergarten teachers and teachers of the first-grade of primary school, language teaching practices, perceptions of the unification of curricula) with closed and open-ended questions. These areas and questions were developed based on the theoretical framework of a broader research (a thesis). The questions were developed to answer the research questions of each axis. For the purposes of this paper, we will present the 8th axis of the questionnaire which examines the degree of agreement of teachers regarding the integration of the language curricula of kindergarten and first-grade or the first two grades of primary school. Questions (according to the topic of this paper) included in the questionnaire were:

(a) a closed-ended question: *"Do you agree or disagree with the integration of the language curriculum of the kindergarten and first-grade or the first two grades of the primary school?"*

(b) an open-ended question: *"Identify why (the reasons) do you agree or disagree with the integration of the two curricula of kindergarten and first-grade or the first two grades of primary school (1st part) and how you think integration could help optimize (or not) the approach to language teaching at both levels, or the reasons for your disagreement (2nd part)?"*

With the open-ended question, the respondents were asked to answer or comment on them in a way that they think best (Cohen, Manion and Morrison, 2007, p.321) with the purpose of investigating and understanding in depth the stated agreement / disagreement.

To process data, the *techniques* used were the quantitative for the closed-ended question and content analysis for the open-ended question. The collected research data from the closed-ended question were categorized into classification and tables and then coded and entered into the statistical program SPSS 25.0 (Statistical Package for the Social Sciences) for analysis with descriptive statistics (frequency distribution tables) (Bryman, 2017; Creswell, 2016) in two categories:

(a) agreement with the unification of the language curriculum of the kindergarten and first-grade or the first two grades of the primary school.

(b) disagreement with the unification of the language curriculum of the kindergarten and first-grade or the first two grades of the primary school.

For the open-ended question (for both 1st and 2nd part) we used content analysis, with the content of the sentence/phrase as a unit of analysis (Creswell, 2016) for the written text. The various units of analysis that were highlighted were classified in a specific category of analysis. Sentences are taken as the units of analysis, which are according to their semantic meaning (Koustourakis, 2014; Neves and Morais, 2001). The sentences were placed into one of the following 9 categories of analysis (for both 1st and 2nd part of open-ended question) that emerged from the objective and the theoretical framework of the specific research (Table 1). The first five (1-5) categories of analysis concern the answers of those who seemed positive towards the integration, while the last four (6-9) concern those who seemed negative towards the integration of the two curricula.

Table 1. Categories of content analysis for the open-ended question

Categories of content analysis
1. Common goals of the two levels
2. Common activities
3. Teachers cooperation
4. Smooth transition of students
5. Continuation of the curriculum and teaching practices with distinct boundaries for each level
6. Schoolarization of the pre-primary school
7. Different growth rate
8. Different teaching curricula
9. Different curriculum goals

In designing and conducting the research we have taken into account ethical issues and ethics, by requesting permission and consent from MoE/PI (Bryman, 2017; Cohen and Manion, 2008). The questionnaires were accompanied by a letter stating the purpose of the research, the value of participation, the anonymity of participants and that the results of the research will be informed. Further, the collected information from each participant was assigned pseudonyms (numbers) as part of concealing participants' identities. Confidentiality was observed by assigning passwords to files of softcopy data, and unauthorized person had no access to the collected hard and softcopy data (Bryman, 2017; Cohen and Manion, 2008).

The sample of the study

The study involved 632 teachers, 326 kindergarten teachers (Greek kindergartens) and 306 teachers teaching the year of the process in the first-grade (Greek primary schools) in the prefectures of Achaia and Ilia (the population was 488 kindergarten teachers and 380 first-grade teachers). The questionnaire was sent electronically (SurveyMonkey[7]) to the entire population and the survey sample for those kindergaten teachers and first-grade teachers who responded to it (Cohen and Manion, 2008; Creswell, 2016). However, the sample size and the geographical limitation of the survey did not allow us to generalize the results. There may be differences in their perceptions and practices from region to region. The findings of this research (although not generalizable) are representative of teachers' perceptions of the issue under consideration. Nevertheless, we believe that the findings should not lose their relevance but should serve as a basis for further relevant investigations.

In terms of gender, 243 (79.4%) teachers (Table 2) are women and 63 (20.6%) are men, while 325 (99.7%) kindergarten teachers (Table 3) are women. 85% of teachers and 88.3% of kindergarten teachers[8] have completed basic studies (University or Pedagogical Academy and Simulation Degree), while 15% of teachers and 11.7% of kindergarten teachers have additional studies (Retraining and/or Postgraduate and/or Doctorate). Teachers (88.2%) and kindergarten teachers (84%) hold permanent teaching positions. 43.1% of teachers have been teaching for 0-10 years, 30.4% for 11-20 years, while 26.5% for more than 20 years, whereas in cases of teachers of the same school, most have been teaching less than 10 years.

[7] SurveyMonkey is an online survey software allows you to launch any kind of online survey project.

[8] It is worth noting that in Greece, both kindergarten teachers and teachers of primary schools receive equivalent university education and there is a uniform pay for all teachers in the Greek public sector.

Regarding kindergarten teachers, 50.6% have been teaching for 0-10 years, 31.8% for 11-20 years and 17.6% for more than 20 years. 91.8% of teachers work in classical primary schools, with 48.7% of them located on the same premises as kindergartens. 244 (74.8%) kindergarten teachers work in two-grades kindergartens and 82 (25.2%) teach in small one-grade kindergartens in the two prefectures, with 151 (46.3%) being co-located with primary schools. 181 (59.2%) teachers and 182 (55.8%) kindergarten teachers work in urban schools, while 20% of teachers and kindergarten teachers work in semi-urban or rural schools (rural areas).

Table 2. Individual characteristics of First-grade Primary school teachers

First-grade Primary school teachers												
	Gender		Education		Years of service			Region of School			Co-located schools	
	Male	Female	Basic	Additional	0-10	11-20	>20	Urban	Semi-urban	Rural	Yes	No
Frequency	63	243	260	46	132	93	81	181	63	62	149	157
Percentage	20,6	79,4	85	15	43,1	30,4	26,5	59,2	20,6	20,3	48,7	51,3
(N)							306					

Table 3. Individual characteristics of Kindergarten teachers

Kindergarten teachers												
	Gender		Education		Years of service			Region of School			Co-located schools	
	Male	Female	Basic	Additional	0-10	11-20	>20	Urban	Semi-urban	Rural	Yes	No
Frequency	1	325	283	43	165	103	58	182	75	69	175	151
Percentage	99,7	0,3	88,3	11,7	50,6	31,8	17,6	59,6	23,0	21.2	53,7	46,3
(N)							326					

In the following section the research results are presented and analyzed.

Results

The presentation of the research findings, which refers to the quantitative and content analysis of the research material that emerged from the answers at the questionnaires with Greek pre-primary and first-grade primary school teachers' in the the prefectures of Achaia and Ilia, takes place in accordance with the categories of analysis outlined above.

Results of closed-ended question: Agreement and disagreement with the integration of the two curricula

Greek pre-primary and first-grade primary school teachers' perceptions on the integration of pre-primary and first-grade language curricula appear to fall into two categories. On the one hand are those *who (partially) agree with the integration*, and on the other hand are those *who strongly disagree*. In particular, answering the closed-ended question *"Do you agree or disagree with the integtation of the language curriculum of the kindergarten and first-grade or the first two grades of the primary school?"* 190 kindergarten teachers (58.3%) agree and 136 (41.7%) seem to disagree. 228 first-grade primary school teachers (74.5%) seemed to agree, while only 78 (25.5%) disagreed with integration (Table 4). In fact, this differentiation between kindergarten teachers and teachers is statistically significant (Cramer's V = 0.171, x^2 = 18,560, df = 1, p <0.001).

Table 4. Agreement and disagreement of first-grade teachers and kindergarten teachers

"Do you agree or disagree with the integration of the language curriculum of the kindergarten and first-grade or the first two grades of the primary school?"				
	Kindergarten teachers		First-grade primary school teachers	
	Agree	Disagree	Agree	Disagree
Frequency	190	136	228	78
Percentage	58,3	41,7	74,5	25,5
(N)	306		326	

Kindergarten and First-grade teacher's results of open-ended question (1st part): Why agree or disagree with the integration of the two curiccula

Regarding the 1st part of open question *"Identify why (the reasons) do you agree or disagree with the*

integration of the two curricula of kindergarten and first-grade or the first two grades of primary school", 142 (43.3%) of the kindergarten teachers and 75 (24,5%) of the first-grade primary school teachers answered, as they were optional. Initially the responses were categorized (in line with the categoris presented in Table 1) into agreement, disagreement with curriculum integration as well as some unclassified (Table 5).

Table 5. The reasons for agreement or disagreement with the integration of curricula (a)

"Identify why (the reasons) do you agree or disagree with the integration of the two curricula"						
	First-grade primary school teachers			Kindergarten teachers		
	Agree	Disagree	Unclassified	Agree	Disagree	Unclassified
Frequency	50	24	1	85	51	6
Percentage	66,67	33,33	1,33	59,86	35,92	4,23
(N)		75			142	

Next, in order to categorize the responses, their analysis was carried out based on categories that emerged from the answers themselves, which were re-sorted into the original *agreement / disagreement* categories. Of the 142 (43.3%) kindergarten teachers that responded, 85 appeared to favor integration, while 51 when answering this optional open-ended question appeared to be opposed to integration of the curricula, expressing their fears and concerns. Of the 75 (24.5%) first-grade primary school teachers who answered, 50 seem to be in favor of integration, while 24 appear to be opposed to integration of curricula. Six of these responses provided by kindergarten teachers and one by a teacher did not fall into either of the two categories (Table 6). They referred to the reasons of their aggrement (common goals, common activities, cooperation, smooth transition, continuity) or disagreement (schoolarization, different growth rate, diffeent curricula, different goals). Their answers are presented in more details to the next part of results, as these are directly related to the findings of the 2nd part of the open-ended question and explain their agreement or disagreement.

Table 6 [9]. The reasons for agreement or disagreement with the integration of curricula (b)

Kindergarten teachers		First-grade primary school teachers	
Agree	Disagree	Agree	Disagree
Common goals (10) [8]	Schoolarization (40) [6]	Common goals (3) [13]	Schoolarization (9) [4]
Common activities (13) [9]	Different growth rate (3) [12]	Common activities (1) [5]	Different growth rate (11) [4]
Cooperation (9) [9]	Different curricula (3) [17]	Cooperation (10) [7]	Different curricula (3) [4]
Smooth transition (8) [13]	Different goals (5) [8]	Smooth transition (3) [4]	Different goals (1) [9]
Continuity (45) [1]		Continuity (33) [5]	
Total 85	Total 51	Total 50	Total 24
Unclassified (6)		Unclassified (1)	
Total 142		Total 75	

Kindergarten teacher's results of open-ended question (2nd part): How integration could (or not) optimize the approach to language teaching at both levels

Theacher's answers to the 2nd part of the open question *"How integration could (or not) optimize the approach to language teaching at both levels?"* are presented below through some indicative responses of kindergarten teachers and first-grade primary school teachers. These answers categorized[10] according to the ways they propose to optimize the language teaching approach on both levels, are presented below.

Kindergarten teachers who respond that integration could optimize the approach to language teaching at both levels (Table 7), refer to:

[9] Next to each category is the number of replies categorized in it. In [ ] indicated the number of responses received in this category as the second, third or subsequent choice of respondents.

[10] Analysis categories for the 2nd part of the open-ended question are the same as those of the 1st part but these are presented here in more detail.

Table 7. How the integration could optimize the approach language (KT)

Categories of content analysis for the second part of open-ended question
(a) the existence of a common Language Curriculum and Study Guide, "continuity" of the lesson objectives, common goals, common language teaching hours and joint activities.
(b) smooth transition of children from kindergarten to primary school through the adoption of a joint curriculum (the creation of a common framework) and joint language activities, interactive linguistic approaches that will arouse the interest of children on both levels, with separate boundaries for each grade, the joint organization of activities and the joint participation in school events.
(c) collaboration, exchange of views by educators, expansion of knowledge, mutual support, (educational) continuation of teaching practices, joint seminars, mutual knowledge of both curricula, sequenced goal-setting, co-housing of kindergartens and primary schools for the purposes of cooperation and continuity.
(d) support by both levels school counselors.

These categories aim to a common approach of language for the two levels with some possible differentiations due to age variation. İn particular, the integration of the two curricula for kindergarten teachers mainly concerns *the continuity* (a) and *smooth transition of children* from kindergarten to primary school *through the adoption of a joint curriculum and joint activities* (b). Characteristically a kindergarten teacher said:

> There should be a common curriculum (in some areas) of the kindergarten and the primary school as long as the toddler is not deprived of certain activities that only in the kindergarten there is the time and the appropriate climate to carry out. Because there are some differences regarding the priorities of the kindergarten and those of a primary school (KT1)[11],

> The integration of kindergarten and first-grade primary school curricula would provide a common practice in language teaching, reducing inconsistencies in the content but also in the methodology of language teaching (KT2).

Kindergarten teachers seem to place a great deal of emphasis on the playful nature of learning, stating:

> There must be collaboration between kindergarten teachers and first-grade teachers, and goals that will be analyzed by both sides, without the kindergarten becoming a "school grade". Play is dominant in kindergarten (KT3).

The results of the integration of the two programs, according to the kindergarten teachers, would be particularly *effective for the children (b)*:

> By integrating curricula, the children will learn from the beginning a common way of approaching language teaching and there will be no confusion in their transition from one grade to the next ", " In preschool, infants have the opportunity to consolidate linguistic concepts that lead to school success, so the teacher "builds" on what was constructed in the kindergarten (KT4).

A kindergarten teacher also point to the effectiveness of integration for themselves (c):

> Kindergarten teachers would be less pressured to systematically teach the alphabet by parents and teachers, and teachers would be less demanding (KT5).

As far as teachers are concerned, the only references (a) made by kindergarten teachers concerning their work are the following:

> The primary school curriculum needs to be a continuation of kindergarten one. Teachers need to know what children have achieved from kindergarten so they can continue and not start assuming that children have the same starting point (KT6).

There is a clear reference to the need for primary school teachers to cooperate with kindergarten teachers (a and c) from a kindergarten teacher:

> I think that to some extent it is already integrated. I believe that it would be better for it to only apply to the kindergarten and first-grade of primary school because these two stages are when children are essentially introduced to literacy. It would ensure, on an official level, continuity between the two levels for the benefit of the students, without, of course, removing the need for cooperation between teachers. However, I consider the choice of a different methodology to meet the special needs of the preschoolers a precondition (KT7).

Kindergarten teachers referred to parents' expectations and concerns about language teaching (c),

[11] Kindergarten teachers will be marked with KT and primary school teachers with PT and a number for each of them.

which seem to affect their predisposition but also to some extent shape their work:

> Creating a common framework and thus facilitating children's understanding of how it works, continuity between the two grades, reassuring parents that they will participate and understand the language goals (KT8).

The following statement of a kindergarten teacher includes all of the above (a, b, c and d):

> On basic principles there could be set certain common goals to promote the building of language teaching, always taking into account the particularities of children's age, through curricula that will not schoolarize the kindergarten, but will transfer to the first-grade of primary school elements of the kindergarten (mostly learning in a playful way), so that the transition from one grade to another is smooth and enjoyable for children. The adoption of common elements in curricula would enhance the smooth transition of children and would set more specific goals without leaving the implementation of any of the programs being carried out, to an opportunistic and non-testable application of it. I find it essential to integrate into individual goals, always prioritizing the smooth transition that will help children, also giving teachers the opportunity to continue the educational process, without thinking only of what the parents want and ask for (KT9).

Kindergarten teachers who disagree with integration (Table 8) refer to:

Table 8. How the integration could not optimize the approach language (KT)

Categories of content analysis for the second part of open-ended question
(a) the different developmental level, the different learning abilities of kindergarten children compared to primary school children.
(b) the different approach to language teaching, the differentiation between the goals of the curricula and the working methods for the kindergarten and first-grade, different learning goals and "different interests, even between two so close ages, different linguistic and mental maturity".
(c) they emphasize socialization, teamwork, collaboration, spontaneous involvement of the child with the language; also the emerging, free and spontaneous character of literacy approach in kindergarten, but they mostly express their fear for a schoolarization of the kindergarten.

Kindergarten teachers express their fears and worries about the diefferent developmental level (a and b):

> Learning abilities and perception rates are different at every age level. To "blackmail" a 4-year-old to climb linguistically and cognitively in order to reach higher linguistic goals before he has matured phonologically is not right. Language is not autonomous, and is determined by the psycho-emotional needs of preschoolers, which are at a different level from that of first or second grade primary school children. That is why, in my opinion, the two curricula should not be integrated, because phonological conquest from grade to grade requires different goals, methods and evaluation. Something I think an integrated curriculum cannot achieve (KT10),

> I disagree because I don't want kindergarten to be a miniature primary school. The preschool plays an important role and should not be turned into a hardcore school where children will act as soldiers for the sole purpose of acquiring skills that will help teachers in their work. On the contrary, I firmly believe that, if teachers were trained to transmit the love for knowledge through activities (like kindergarten teachers), education would have another impetus in the Public Education System. Teachers who teach in the first-grades of primary school must pass special exams and work with preschool counselors (KT11).

They dispute (c):

> If consolidation happens, I am afraid that the kindergarten will lose its current purpose and will be schoolarized. Up until now, unfortunately, only kindergarten teachers have taken the initiative faced with indifferent teachers (KT12),

and express their fears about the playful nature of the kindergarten that will be lost (c):

> Tthe teaching of the language subject in the first-grade is based on mechanisms of knowledge and continuous repetition, while in the kindergarten it is emerging, freer and spontaneous, this stops with the introduction of children into primary school and systematic teaching. In no case should the kindergarten become primary school; however the first-grades of primary school should be like a kindergarten. Learning through play (KT13).

Another kindergarten teacher, condensing the above (a, b and c), says:

> I believe that integration should be for three years: from kindergarten to 2nd grade. The teachers of the two levels should work together and of course the teachers should keep a portfolio, not just the "grades book". In fact, I think it would be more effective if the portfolio was the same from the beginning of the child's education in kindergarten. Then the teacher of the 1st and 2nd grade would update it. Then it would make sense for this portfolio to exist, which no one is paying attention to now ... I think it would be useful if, at least in first-grade, teachers created a few 'corners' in their classrooms. For example, they could have a mat for students to sit there to read their fairy tales or to be the talking circle or even a couple of kindergarten tables, like an "artist's bench"! ... They should also make the

most of the flexible zone's time for an approach to language by creating children's stories, poems, limericks, posters or advertisements ... and so much more ... Through the implementation of school activity programs, or other educational programs, the kids would have the ability to work together as a team and inevitably use the language in all its forms .... I have an example from my daughter, who now goes to the 4th grade ... She is not so good at spelling, but she has excellent vocabulary, a lot of imagination and oral fluency. She also draws quite well. When she drew a "board", she was seriously concerned with how to write the title, that is, with the correct spelling, but on the contrary, she was not interested in learning the spelling assigned for the next day in order to get a good mark! The sterile repetition of the same spelling has not helped her much so far ... Teachers should eventually have to attend compulsory language teaching seminars ... By the way, if I can express my complaint ... When our little ones from kindergarten go to primary school, teachers treat them like students of High School! Sitting behind the chair, stern, distant ... Without a caress, a hug, a kiss ... When the kids "move up" in the school system they change, they transform. They get tougher, more competitive, I think, and it's not just the fact that they're getting older...(KT14).

First-grade teacher's results of open-ended question (2nd part): How integration could (or not) optimize the approach to language teaching at both levels

The responses of first-grade teachers to the integration of kindergarten and first-grade curricula and how it could optimize (or not) the approach to language teaching at both levels, although numerically fewer than those of kindergarten teachers, are interesting.

First-grade teachers who believe that integration could optimize the approach to language teaching at both levels (Table 9) referred to:

Table 9. How the integration could optimize the approach language (PT)

Categories of content analysis for the second part of open-ended question
(a) common goals, continuity of teaching practices, creation of a common framework, common linguistic activities, joint organization of activities.
(b) cooperation, exchange of views of teachers.
(c) continuity of the teaching objectives of the lesson with distinct limits for each grade.
(d) the transfer of preschoolers' portfolios and assignments.

They referred to the close cooperation between kindergarten teachers and school teachers as well as to the primary and high school cooperation (b) in a single teaching framework (a):

An effective collaboration could exist between kindergarten and primary school on a curriculum basis, as long as it is institutionalized. There should be similar cooperation between primary school and high school (PT1),

I think that the collaboration of teachers and kindergarten teachers is very important as kindergarten teachers could benefit from the theoretical background of teachers, while teachers from the playful forms of teaching introduced by kindergarten (PT2).

They also mentioned the continuity (c) that can be secured by the integration of the two curricula, in particular, a first-grade teacher refer:

a) Students' preparation and first contact with writing should be done in kindergarten, so that they can proceed smoothly to learning to read and write, b) They will not be taught the same things, which is boring for them, but will continue from where they left off, c) Inevitably, some children learn from their family to write before 1st grade, so there is a gap between the children who know how to write and those who do not; therefore we have a two-speed class, so integration would help avoid this situation. It could help immature children before entering primary school and experience failure (PT3).

A first-grade teacher refer to the collaboration of teachers very characteristically:

Teachers should be aware of the curricula of both levels at an early stage. Then it would be possible to integrate so that first-grade teachers would continue the work of kindergarten teachers and not start from scratch (PT4).

First-grade teachers who believe that integration could not optimize the approach to language teaching at both levels of the two curricula (Table 10) refer to:

Table 10. *How the integration could not optimize the approach language (PT)*

Categories of content analysis for the second part of open-ended question
(a) the different developmental level and the different learning abilities of kindergarten and first-grade children.
(b) the different approach to language teaching, the differentiation of the objectives of the curricula and the way the kindergarten and primary school function, the different learning goals and 'different interests, even between two very close ages, different linguistic and mental maturity'.

(c) the different roles of two school, emfisizing at the socialization character of kindergarten and expressing their fear about its schoolarization.
(d) protection of their labor rights.

They refer to the different objectives of the two curricula (a and b):

> I disagree with the integration of the curricula of kindergarten and first-grade primary school because the learning process in kindergarten is more playful, while in primary school it becomes more "serious", as it is the stepping stone for the student's entrance into the school environment. I also think that the integration of the curriculum of the first two grades of primary school is not feasible since the child intended for first-grade does not have the maturity to meet the teaching objectives of the second grade (PT5).

One teacher's response (a and c):

> The kindergarten places or should place a greater emphasis on the socialization of the pupils, the receptivity of the new, the group. It cannot be integrated with first-grade because I believe the child will this way be going backwards, due to his/her age. The first-grade is the next step in the ladder. The kindergarten has to feed the horse and the primary school has to urge it to run (PT6)

is typical.

Some teachers are critical of kindergarten literacy work (b and c):

> Kids in kindergarten are not prepared at all with prewriting exercises. In many cases they cannot even spell their name. So these must be done in the first days of primary school. So students are pressured from the beginning to learn too much. These must therefore be taught in kindergarten so that there is continuity in the curriculum for both levels (PT7).

They refer to the different roles of the two schools (c):

> The role of the kindergarten is not the same as the role of primary school. The one or two-year age difference of these children is crucial with regard to their abilities. The difference in their capabilities also dictates different goals in the curriculum (PT8).

They express their concern about the schoolarization of the kindergarten (c):

> I think that with this integration there will be a lot of knowledge and concepts that will have to be taught to children from a very early preschool age. In the effort to get students to acquire all this knowledge, I think there will be stress and pressure to obtain the knowledge required. But what is the goal in the end, the range of knowledge or learning in an enjoyable way? (PT9).

Finally, first-grade teachers express their concerns about their labor rights, but also the confusion that may arise concerning the work of kindergarten and school teachers (d):

> I think that there has to be relevance, but there is no need to integrate the curriculum because if that happens, on the one hand, kindergarten teachers are given the opportunity to teach in primary school and teachers to teach in kindergarten (which is not right for any of our labor rights), and on the other hand, I find that the teaching approach is very different in kindergarten compared to primary school. Primary school curriculum should come as a continuation of kindergarten curriculum and not identify with it (PT10).

Conclusion and Discussion

The research questions concern the perceptions of kindergarten and first-grade teachers about the need to integrate the two curricula on the language learning area and ways to optimize the approach to language teaching at both levels in the context of integration or their reasons to disagree with it.

The findings lead to the following conclusions: From the findings of the closed-ended question, first-grade teachers appear to be more positive, compared to kindergarten teachers, on integrating the two curricula. This differentiation seems to reflect their general pedagogical beliefs, their philosophy as well as their teaching practices. However, both kindergarten and first-grade teachers seemed to view positively the possibility of cooperation, exchange of views and work, joint organization of activities in the linguistic field, to form the bridge between the two levels; common goals, the (educational) continuity of teaching practices, the creation of a common framework, the transfer of student files and work. These findings are in line with Greek and international research findings (see: Ackesjö, 2013; Alatalo et al., 2017; Broström, 2007; Byrnes and Wasik, 2019; Dockett and Perry, 2007; Karydis, 2014; Sivropoulou and Vrinioti, 2009; Zeegers, 2012; Zhu, 2010). In particular, in the context of information, co-

education, cooperation and exchange of views, the adaptation and co-creation of theoretical principles and teaching practices under a common practice could be encouraged (Alatalo et al., 2017; Djonov et al., 2018; EACEA, 2011; WEF, 2000; Zeegers, 2012; Zhu, 2010).

From the findings of the open-ended question and accordingly to international studies (Ackesjö, 2013; Alatalo, Meier and Frank, 2016; Cruickshank and Haefele, 2001; Hjelte, 2005; Karydis, 2014) our findings stated that kindergarten and first-grade teachers refer to the reasons of their aggrement (common goals, common activities, cooperation, smooth transition, continuity) or disagreement (schoolarization, different growth rate, diffeent curricula, different goals) with the inegration of the two curricula. First-grade teacher's responses at the 2nd part of the open-ended question explain their agreement or disagreement more specifically, as they seemed to be significantly influenced by the burden of the responsibility for language teaching (Barrett et al., 2007; Byrnes and Wasik, 2019; Djonov et al., 2018; EACEA, 2011; Hanemann, 2015, 2019; Hanemann and Krolak, 2017; Kennedy et al., 2012; Xue and Meisels, 2004) and to be critical of the results of the 'teaching' of kindergarten teachers, considering it merely as a basis and a reinforcing element for the systematic teaching and substantive work of the primary school. Their answers suggest a view of the role of kindergarten as an earlier stage of preparing children for the first-grade of primary school rather than as an autonomous stage of building knowledge to be then used in primary school (Hidi and Boscolo, 2006; Morris, Tyner and Perney, 2000; Neuman et al., 2000; NICHD, 2005). They expressed the view that the kindergarten operates at a different 'lower level'. The fact that children come from different kindergartens that taught different things (due to the lack of a common textbook) makes it difficult for them to detect what children know, so they do not use students' prior knowledge in their teaching. Kindergarten teachers who disagree with integration explain their disagreement as strongly express the fear of a schoolarization of kindergarten and the loss of the emergent, free and spontaneous nature of literacy in the kindergarten (DEECD, 2009; Paris, Byrnes and Paris, 2001; Wasik et al., 2006). Some researchers (see for example: Ring and O'Sullivan, 2018) call the global trend of preparing children for school by prescribed curriculum 'an epidemic'. But, accordingly to Ackesjö and Persson (2019), the process of schoolarization on one hand tends to narrow the aim of the preschool class to a focus on isolated learning outcomes for children and on the other hand, it may create a sense of wholeness in the educational system as the preschool class moves closer to, and becomes a clear part of, primary school. In line with these findings (Ackesjö and Persson, 2016, 2019; Broström, 2017; Sahlberg, 2016) our kindergarten teachers seem to exprees their fear that pedagogical integration and the introduction of the preschool pedagogy into school education could be replaced by more school-oriented, knowledge-economy arguments that emphasize increased goal achievement. However, first-grade teachers who disagree with integration insist on the inability of preschoolers to acquire knowledge intended to be acquired by primary school children, who are theoretically in the age group with the relative cognitive, mental and emotional maturity (Ackesjö and Persson, 2016, 2019; O'Sullivan, 2005; Silva Joyce and Feez, 2016; Wasik et al., 2006; Xue and Meisels, 2004).

Morever, both kindergarten and first-grade teachers, at the 2nd part of the open-ended question, emphasize the need for co-operation, but not integration, as even those who agree delineate and define it within a specific context. They are concerned about how integration will take place and propose common goals and teaching approaches that will be governed by continuity and consistency. In line with lifelong learning literacy theory (Djonov et al., 2018; EACEA, 2011; Hanemann, 2015, 2019; Hanemann and Krolak, 2017; Kennedy et. al., 2012; Silva Joyce and Feez, 2016; UIL, 2010, 2017, 2018; UNESCO, 2005, 2007, 2015, 2017; Xue and Meisels, 2004) the issue of enhancing child literacy has been one of the most important factor for subsequent school success or failure of the child and therefore contributing in the long run to social well-being, social justice and the development of democracy (UNESCO, 2005, 2007, 2015, 2017). They want to keep the game as the primary teaching and learning tool in kindergarten and systematic teaching with elements of the playful kindergarten learning system in the primary school (O'Sullivan, 2005; Silva Joyce and Feez, 2016; Xue and Meisels, 2004; Xefteri, 2017). Their answers, in line with international research findings (see for example: Hurst and Reding, 2000; Keely, Smith and Buskist, 2006; Kramer, 2003; Stronge, 2002; Xefteri, 2017), show the professionalism and conscientiousness with which they practice the teaching profession. It is surprising that, while referring to change and the

creation of an integrated framework, few consider their need for continuous and systematic training on contemporary teaching matters, although it is a widespread demand of teachers (Hanemann and Krolak, 2017; Silva Joyce and Feez, 2016; Zeegers, 2012; Zhu, 2010).

We consider that this study provided valuable insights into how preschool and first-grade of primary school teachers made sense of the possible integration of the two curricula. The results could constitute the pillars for institutionalizing a more co the goal is to have continuity through a balanced literacy curriculum and smooth transition of children to elementary school. The results could be the pillars for establishing a framework that could function as a bridge between kindergarten and primary school with obvious positive outcomes for young students, teachers and the school community at large. According to the basic goal of CTC for kindergarten (MoE/PI 2002b) and PTG (Dafermou et al., 2006), preschool education is an integral part of our educational system and therefore national planning of a structured transition from kindergarten to primary school seems more important than ever.

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Research Article

Silence and its mechanisms as the discursive production of the 'normal' in the early childhood classroom

Karen Watson[1], **Zsuzsa Millei**[2], **Eva Bendix Petersen**[3]

Abstract: In this paper, we aim to better understand and trouble the discursive (re)production of what is taken as the 'normal' in 'inclusive' early childhood classrooms. We do so by exploring the practices of the 'including' group, the so-called 'normal, in relation to or in the presence of those who are variously labelled as 'non-normal'. We highlight those mechanisms that are associated with silence and taboo, and through which the including group produces and maintains itself. We present data produced during a six-month ethnographic study in three early childhood classrooms in Australia. Using the notion of category boundary work in the analysis, we illuminate the practices of silence: 'ignoring', 'moving away', 'turning away' and 'keeping silent' through which children undertake the category work of the 'normal'. The effect of this category work, we argue, is that disability or the diagnosed subject becomes 'the elephant in the room', strongly present but avowedly ignored. We draw out some considerations for practice in the concluding part of the paper.

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> … from a discourse theoretical point of view, it is not possible to explain why communities are more or less inclusive. We can only investigate how the inclusion and exclusion processes take place and get a better and deeper understanding of these processes (Hedegaard Hansen, 2012, p. 97).

Introduction

In the above quote Hedegaard Hansen (2012) calls for the exploration of social practices in everyday settings through which inclusion and exclusion happen. More specifically, Hedegaard Hansen (2012) and others argue for exploring the idea and mechanics of inclusion around dilemmas such as, who needs to participate in the including, what are the limits of inclusion, what structural issues obstruct inclusion, and 'into what' does inclusion needs to happen (Davis & Watson, 2001; Graham, 2006). Inclusive early childhood education in Australia as in other parts of the world is an obligation (Nutbrown & Clough, 2009; United Nations Educational, Scientific and Cultural Organization [UNESCO], 1994) but exclusionary structures and practices form considerable obstacles to the realization of this commitment (Cologon, 2014). The idea of 'inclusion' implies that there is a 'need' to include and that there is somewhere to be included into. Graham (2006) defines 'inclusion' as a 'bringing in' which implies a dualism, where there are those who are 'automatically' and 'naturally' included – the 'normal', and those who are 'automatically' not included but are in 'need' of including. Therefore, the challenge for inclusive practice is not to think about how to do inclusion better (Slee, 2013). Instead, inclusive practice is about detecting, understanding and dismantling exclusion as it presents itself in education. It entails exploring the mechanics of inclusion and exclusion.

In this article, we set out to identify and problematize some of the mechanisms of 'inclusion' practiced by the including group, or the 'normal'. This exploration remains important since research often

[1] University of Newcastle, Faculty of Education and Arts, Newcastle, Australia, e-mail: karen.watson@newcastle.edu.au ORCID: https://orcid.org/0000-0002-5456-1888
[2] Tampere University, Faculty of Education and Culture, Tampere, Finland, e-mail: Zsuzsa.Millei@tuni.fi ORCID: https://orcid.org/0000-0003-4681-6024
[3] Roskilde University, Department of People and Technology, Roskilde, Denmark email: evabp@ruc.dk ORCID: https://orcid.org/0000-0003-4583-6007

highlights how, from the perspectives of children with special needs, the experience of inclusion often comes with "exclusion, isolation, loneliness, and bullying, and difficulties finding friends" (MacArthur, 2013, p. 793). The concept of 'inclusion' is not well defined or understood in education. The illusion of 'inclusion' as a finished product (Slee & Allan, 2001) is potentially problematic Graham and Slee (2008) argue that inclusion infers a 'benign commonality' where unchallenged assumptions view inclusion as a taken-for-granted phenomenon, with a shared common meaning and understanding. This is however potentially dangerous as it conceals differences and creates a hazardous familiarity that avoids confronting or talking about difference (Allan, 2010).

The problem of inclusion is often located 'within the child' as a deficit (Davis & Watson 2001; Harwood, 2006). At the same time, regulatory practices in early childhood education seek to "normalize" children deemed to have deficits (Dalkilic & Vadeboncoeur, 2016). This deficit driven medical model perspective (Purdue, 2009; Slee, 2010) together with the ubiquitous developmental and psychological thinking that orientates diagnosis of any deviance from the norms, are firmly embedded in early childhood classrooms (Burman, 2008; Cannella, 1997). The societal and educational focus on the child 'in need of including', is detrimental to all children as it assigns privilege to the 'normal' while marginalizing those who do not fit the normalized vision, producing them as deficient, wrong or abnormal (Walkerdine, 1988).

In this study, we turn away from the child to be included and focus on the including group, those without a diagnosis, what we term here as the 'normal', the peers who participate in the including. In current special and inclusive education relations with peers are less explored (Ferreira, 2018). Focusing on peers also troubles the individualizing gaze that further marks the child as 'the problem' and fixes the child's position at the margin. Drawing on data produced as part of a larger study (Watson, 2015), we examine some of the complex ways in which young children act in inclusive settings, re/producing and guarding their position of being included, or being 'normal', and how they further mark and exclude the 'others' in early childhood settings. This is an important concern as "the main motives of parents for sending their child with a special need to a regular school … is to grow up as far as possible in a normal environment" (Koster, Nakken, Pijl, & van Houten, 2009, p. 118, our emphasis) i.e. in an environment together with the so called normal peers. In this paper, we explore some of the mechanisms through which the 'normal', the norms that position the including children as such, are mobilised and exercised by 'normal' children (children without a diagnosis).

Methodology

Foucault (1977, p. 184) describes the norm as "the new law of modern society" as it gives muscle to a homogenous social body. The norm imposes uniformity and at the same time individualises and marginalises those who differ. Psychological sciences have produced the technical means of individualization (Petersen and Millei, 2016). These are applied in institutional settings, such as the early childhood classroom where comparisons to norms and judgements are made about children by their teachers and by children. Those who 'measure up' are categorised as 'normal' subjects and those who do not fit the parameters are classified as the different or 'not normal' subjects.

This exploration of the normal follows poststructural thinking (Davies, 1993, 1998; Foucault, 1977; Law & Davies, 2000; Petersen, 2004) by paying attention to the constitutive force of discourse and particular discursive practices (Davis & Harré, 1999). We explore 'What is going on in situations?' and focus on the particularities and complexities of lives in context, always paying attention to how the researcher herself mediates and creates the data that is being produced (Stronach & MacLure, 1997). The focus is on discourses understood as meaning-systems and meaning-making, recognising how everyday utterances and actions are linked into larger 'regimes of truth'. Thus, we are interested in examining what discourses do, what their effects are in the constitution of the 'normal' and for so called 'inclusionary practices' (Foucault, 1972).

Thinking with childhood studies (James, Jenks, & Prout, 1998) and acknowledging that our positioning is a discursive construction itself, we view young children from an early age as capable,

competent, and active negotiators in their social world and aware of diversity and difference (Cannella, 1997; Davies, 1989). In the process of becoming a culturally intelligible person, children learn to navigate binaries offered to them as a way of making sense of themselves and others: male/female, white/black, able-bodied/disabled, etc. Davies (1989) argues that children also learn that the categories in the binary are not equal, but that one is relatively subjugated. This awareness shape the ways children behave toward others and go about their everyday activities (Beazley & Williams, 2014; Davis & Watson, 2001; Koster et al., 2009; Robinson & Jones-Diaz, 2006). Young children identify normalising discourses around their own identities and adjust their actions accordingly. They observe norms and the behaviour of others around them, and decide whether or not those are applicable or the same or different to their behaviours (Robinson & Jones-Diaz, 2006). The early childhood classroom is arguably the first institution, other than the family and the media, that introduces children to the world of human as well as nonhuman differences (Millei and Cliff, 2014). By using norms, labels and categories made available to them via the discourses in a particular context, children readily include and exclude their peers based on their differences (Connolly, Smith, & Kelly, 2002; Davis & Watson, 2001). Thinking with these ideas about children, difference and the 'normal', the data was created.

The data was created over a six-month period using ethnographic methods in three Australian early childhood settings. Ethnographic methods are regarded as a key approach in exploring the social worlds of young children (Alderson, 2008; Christensen, 2004; James et al. 1998; Traweek, 1988). The research participants included both the children and the educators in the classrooms. Informed and ongoing consent was obtained from parents, carers and educators as well as from the children themselves. The study received approval from the University of Newcastle's ethics committee. Multiple classrooms were invited to participate with three assenting. The classrooms, all located within early childhood centres, were situated in two regional urban centres of New South Wales, Australia. While each preschool classroom was unique in its own way, they all provided for the most part, a 'standard' child-centred program. Approximately, 75 children aged between two and six years, and twelve educators participated in the project. All the participants' names have been replaced with pseudonyms. Each classroom had several children with a diagnosis enrolled. There is intentionally no commentary on the children's diagnostic labels. The discursively produced labels and associated homogenising characteristics that define and prescribe the diagnosed child, and their behaviours, are challenged in this study. The child is marked by the diagnosis bestowed upon them. The 'details' of the diagnosis do not alter the child's marked position among the children. Making no mention of the diagnosis is one way of disrupting acknowledgement of it, of 'refusing to be in the know'.

In creating the data, close attention was paid to the undiagnosed children's encounters with and around each other and the diagnosed child/children. Sometimes photos of the children were used to start conversations about their encounters with each other and their daily activities. The conversations were often audio-recorded, always with the children's and their parent's consent. The diagnosed child was initially the focus of the photographs as they went about their day in the play context, in an attempt to elicit conversations. The child with a diagnosis became inadvertently conceptualised and viewed as a catalyst in this study, allowing for the examination of the normal and its discursive constitution. However, it became apparent that the children liked to see themselves in the photos and talked about what they were doing, rather than talking about the diagnosed child. Moreover, they seemed to find discussions about the diagnosed child uncomfortable, usually changing the topic of the conversation or being silent. Looking reflexively, this strategy may have in some ways inadvertently contributed to the diagnosed child's marked position, it did however, allow for the workings of the normal to be clearly observed. The uncomfortable feelings of peers disappeared by changing the conversation and they could also leave the situation freely.

Adopting a poststructural perspective, the researcher observed and participated with children and their educators in daily practices, in which she focused on the operation of discourses, knowledges and power relations that produced particular subject positions, privileging the 'normal', while subordinating others. As heuristics to analyse the data and inspired by Foucauldian discourse analysis, we used positioning theory (Davies, 1989) and the analytical concept of category boundary work (Petersen, 2007).

Positioning theory proposes that discourses make certain subject positions available to people and these subject positions are negotiated and constituted relationally (Harré & van Langenhove, 1999, p. 16). Children learn how to position themselves within discourses and variously take up membership in associated categories in social practice. Once having taken up a position as one's own in a situation, the person sees the world from that vantage point with those storylines, images, metaphors and concepts that this position shores up (Davis & Harré, 1999). Categories are linked to actions that are taken for granted as characteristic activities of a member of the category (MacLure, Jones, Holmes, & MacRae, 2012). Importantly, positioning is not static and fixed but one that is constituted and reconstituted through the shifting situations and many discursive practices in which a person might participate.

The following is a selection of scenarios that illustrate how the unmarked 'normal' children took up particular category membership positions made available via multiple circulating discourses when they encountered a child with a diagnosis. Having taken up their membership, the children work on knowing how to belong and they also aspire to be correctly located as a member (Davies, 1993). They engage in category maintenance work to uphold this membership. In this way, the 'normal' is produced, reproduced and maintained in the social practices of the children and the classroom by the ways each acts, talks, and shifts his/her/their practices; this is made discernible most clearly and dramatically in the effects that these practices produce (Butler, 2004, p. 41).

Our choice of term, 'child with a diagnosis' is intentional to describe how the child is marked by psychological and medical discourses and consequently how the child's identity is produced in the classroom (Davis & Watson, 2001). Using this term emphasises that the child 'was given' this position by a medical, psychological or educational professional, and therefore was 'marked' by this diagnosis as different to or compared to others who are considered 'normal'. The 'child with a diagnosis' became the catalyst for examining the active and sustained production and maintenance of the 'normal' more visible. While we aimed to maintain our focus on children without a diagnosis, the 'child with a diagnosis' is still present in our explorations.

Practices That Re/Produce the 'Normal' and Their Effects

There are multiple discourses in the classroom that prescribe what it is to be and act as 'normal', such as being 'big' and 'little', 'friend' or 'not friend', 'helping' and 'being helped', or 'I have learned this' and 'they are just learning'. While prevalent in the children's narratives and also in their practices, these discourses were also obvious in actions that were not accompanied by words. In this paper, we turn our attention to the things that were not seen, not said and not heard. The focus is to explore the 'silences' as they are a critical part of the whole, "the relevant speech act 'spoken' beneath the surface" (Mazzei, 2007, p. xii). As Foucault (2008, p. 27) explains:

'Silence' is considered a discursive practice. Silence itself – the things one declines to say, or is forbidden to name, the discretion that is required between different speakers – is less the absolute limit of discourse, the other side from which it is separated by a strict boundary, than an element that functions alongside the things said, with them and in relation to them within over-all strategies.

Keeping 'silent', being 'silent' or not speaking, or perhaps moving out from the situation or speaking about something in different terms in order to avoid speaking, are examples of what could be cogitated as discursive moves (Mazzei, 2007). Silences contribute to the meaning between words that helps to think differently about our data (Mazzei, 2007). These discursive moves shape the category boundary of the 'normal/abnormal', while at the same time, they are also a product of it. What are the effects of 'silences'? How does 'silence' position subjects? In discourse analysis, the qualitative researcher looks for meaning but meaning can be masked if one only interrogates the spoken in the data. 'Silences' have much to teach the researcher (Mazzei, 2007).

In examining the 'silences', it is crucial not to create a binary between speech and 'silence', that is between what one says and what one does not say, but instead, theorising with Foucault, it seems:

> [w]e must try to determine the different ways of not saying such things, how those who can and those who cannot

> speak of them are distributed, which type of discourse is authorised, or which form of discretion is required in either case (Foucault, 2008, p.27).

'Silences' pervade discourses and become part of them to exclude those who do not 'speak' from the authorised (normal) discourse and in contrast privilege those who do.

We focus on two every day, and in many ways, 'invisible' or seemingly 'unremarkable' actions that accompany silence: 'moving away' and 'ignoring'. We understand these practices as effects of the constitution of the 'normal/abnormal' (re)produced by the unmarked children. To begin this analysis, we start with an observation where two unmarked children encounter each other in a sandpit and mobilize power to remove a child with a diagnosis who disturbs 'normal play'. In drawing attention to this interaction, we aim to show how it juxtaposes the rest of the data, where the unmarked children's encounters with the marked child, produce a very different effect through 'silence'.

Not Silent

> Elliot (a child without a diagnosis) is in the sandpit digging a deep hole and I am sitting nearby.
>
> Elliot: "Come and see how big my hole is."
>
> Me: "It's huge!"
>
> Kane (a child without a diagnosis) moves closer to take a look and stands in Elliot's freshly dug hole.
>
> Elliot: "Get out of it!" (loud and angry)
>
> Kane: "No, I'm not."
>
> Elliot: (to researcher) "He's in my hole……he's in my hole."
>
> Karen (researcher) does not respond verbally but gives Elliot a sad look.
>
> Kane: "I'm not getting out…..it's everyone's hole." (Kane is now stomping in the hole making the sides collapse inward, the big hole is getting smaller.)
>
> Elliot: "No, stop doing it.....I'm strong!" (standing his ground and looking into Kane's eyes)
>
> Kane: "I'm strong." (staring straight back at Elliot)
>
> They start to push each other. Kane uses a spade and pushes it into Elliot's chest.
>
> Elliot's twin sister Penny (a child without a diagnosis) moves in on the scene. She gives Kane a big shove in his chest and says: "Don't do that!"
>
> Kane falls backward onto the sand and out of the hole.
>
> Kane: "I'm going to play somewhere else!" (Looking angry and defeated.)
>
> Elliot: "Good!"
>
> Kane runs off and Elliot re-digs his hole.
>
> A teacher who had been sitting at the other end of the sandpit approached me and asked me why I had not intervened. I said that I thought the children could best resolve it themselves. She looked at me with surprise. (Watson, 2017, pp.152-153)

This scene of a child digging a hole in a sandpit would be considered a 'normal' activity in any preschool day. Sandpits adorn most, if not all, preschool playgrounds in Australia. Pedagogical, developmental and historical discourses inform early childhood practitioners of the value of 'sensory experiences' (Winderlich, 2012) and the potential of sensory learning for development made available in sandpit play. In addition, the sandpit provides a place for social interactions and social development as well as a space where fine and gross motor skills can potentially progress (Jarrett, French-Lee, Bulunuz, & Bulunuz, 2010). Sand pit play also encompasses rules about particular ways of playing and being in the sandpit, which might be problematic for some children. Sandpit play as a discursively constructed activity produces a code of conduct that individuals take up to manage the space and each other.

Elliot draws attention to the hole he has dug and enthusiastically asks the researcher to look at it. He positions himself as playing in the sanctioned way. His hole digging performance demonstrates his category membership with 'the normal' and as he draws adult attention to his achievement he reinforces

this membership. However, with the arrival of Kane, Elliot now needs to re-position himself to defend his category as 'normal'. Kane disrupts the acceptable way to play by standing in the hole and making movements to cave it in. Elliot responds by asking for my assistance to reconcile the situation.

Elliot uses the strategy of "use your words", an endorsed form of resolving conflict in the classroom, to tell Kane to get out of his hole. "Use your words" is a very familiar phrase encouraged by adults and children in many 'Western' early childhood settings to assist in resolving conflict (Blank & Schneider, 2011). Kane responds with another acceptable strategy by saying that: "it's everyone's hole". He refers to the norm, that the children are often reminded about: preschool equipment and toys 'belong' to everyone. This pedagogical expectation in the early childhood classroom is thought to inspire children to learn to share. According to some pedagogical frames, 'sharing with others' shows a developing theory of mind and growing moral awareness (Arthur, Powell, & Lin, 2014). Others argue that 'sharing with others' is an indicator or a milestone in social competency as it encourages young children to develop friendships (McDevitt & Ormrod, 2007). This pedagogical approach forms a part of the normal way of being in this early childhood classroom, and sets the rule: 'everyone is to share everything at preschool'.

Both children have drawn on these acceptable and sanctioned behavioural and pedagogical discourses in this 'standoff'. Elliot then comments on his physical strength: "No, stop doing it.....I'm strong!" to which Kane replies the same. The children's voices increase in volume and emotion, as they demonstrate power. They now take up masculine discourses (Blaise, 2005; Davies, 1989), arguably also acceptable in this context, and the 'standoff' continues by becoming more physical. Elliot's twin sister Penny moves in to provide a resolution. Penny, perhaps drawing on 'sisterly' protective discourses, is looking out for her brother. She is also conceivably drawing on a discourse that produces a particular code of conduct in the sandpit, where it is not acceptable to jump in to another person's hole or push someone using a spade.

Elliot at first tried to maintain his category membership by using various strategies to remain recognisable as 'normal', but as Kane became more aggressive (drawing on acceptable discourses of masculinity while also taking it to an unacceptable extent), Elliot might have appeared to run out of options, his only choice seem to be to retreat. Penny reclaimed the hole for Elliot by giving Kane a "big shove in his chest" and saying: "Don't do that!" Kane left the sandpit with the comment "I'm going to play somewhere else". His way of engaging in the sand was not tolerated, and Penny and Elliot let him know this. What is interesting here, as it will soon become apparent, was that Kane's behaviour was not ignored; it was confronted, spoken about, and dealt with. He left the sandpit. He had been put back into place to uphold the social order and a distinct code of conduct. Kane challenged the social order, but the children themselves eventually maintained it. Adult intervention was not necessary as the 'normal' with the support of Elliot and Penny did its regulatory work on Kane.

Silence: Moving Away

> On this morning, there is a lot activity in the sandpit. There are about ten children digging and building. As I start to observe, I notice Michael (a child with a diagnosis), on the edge of the sandpit with a teacher nearby. Anna, Michaela and Lucy (children without diagnoses) are sitting in the middle of the sandpit in a circle formation digging a deep hole. Michael, who has been digging on his own about a metre away, stands and moves over towards them and starts to stomp on the hole they have been digging. Nothing is said. The girls observe him while he destroys their hole, with their eyes wide and open mouthed. They wait. After about a minute Anna says: "Hey let's make a castle over here (she stands up and moves) ... over here". Anna beckons the others to follow as Michael has now destroyed the hole they had dug (Watson, 2017, p.155).

In the early childhood classroom authoritative regulatory discourses regarding the 'right way to play' are ubiquitous (Grieshaber & McArdle, 2010). Often intertwined with these regulations and rules are psychological discourses of social competency and social development, prescribing appropriate ways to play and interact. Anna, Lucy and Michaela seem to understand the sand pit 'etiquette' playing as the 'normal' sandpit player. In performing this position, one must share the space, must not ruin others' work in the sandpit, and generally cooperate with the other children and share. Michael might have a different perspective on sandpit play. Perhaps, he builds so he can destroy, practicing his 'trajectory' and 'vertical

schema', concepts known from developmental psychology (Atherton & Nutbrown, 2013). However, in this discursive context, where the imperative is to 'use words' and 'play co-operatively', Michael's way is not an 'acceptable' practice.

When Michael destroys the hole the others have been digging, they do not outwardly protest, they say nothing. It is the unsaid that makes exclusion visible. Their silence 'speaks'. It articulates and makes public their normal position in the discourse and their positioning of Michael as 'not normal', for whom the rules of play in the setting do not always apply, who can be exempted from the rules. Ferfolja (2008) acknowledges that normative discourses on some levels impose 'silences', which consequently marginalise those who are positioned outside the norm. The children, look at Michael silently, eyes wide, mouths open, referring to each other. They wait for a minute and then move away together. They observe him destroying the hole but do not engage with him. By moving away and disassociating themselves from Michael, they maintain their recognisability as 'normal' and their membership in the 'normal' category. At the same time their category boundary work reinforces Michael's positioning as 'not normal'.

The unmarked children here do not say anything to Michael, they silently move on. Foucault argues that "[p]eople know what they do; they frequently know why they do what they do; but what they don't know is what what they do does" (Dreyfus & Rabinow, 1982, p. 187). The children in their silence and actions 'do' something. Their actions exclude Michael subjecting him as the 'not normal' and not the same as them. They do not acknowledge his way of being, they reject his action as not a part of theirs and do not attempt to explicitly discipline him. They move away, which disassociates them from Michael's 'unruly' action that might also mark them as 'not normal'. This stands in contrast to the many other occasions where thee ethnographer observed children, boys as well as girls, explicitly regulating the other. They would loudly complain and ask for adult help when someone destroyed their sand creations, as Elliot did in the previous scenario. When Michael acted, different discourses are drawn on as the children make sense of his play. Avoiding Michael, leaving him to stomp in their hole without a protest, makes visible how the discourses that produce the marked child shape something that is unspeakable, a silence or a 'taboo' around the discursive subject. The unmarked children's 'silence' also (re)produces the category of the 'normal' for themselves that beckons them to move away. They position themselves by not participating in the situation created by the unruly behaviour of Michael, associated this time with his diagnosis. The unmarked children in their ignorance of the actions of the 'child with the diagnosis' declare their category membership in the 'normal', while at the same time indicating the unacceptability of the disruption to the social order of the sandpit caused by the marked child. In the previous scenario, the unruly behaviour of Kane was understood within the frame of 'normal behaviour' applicable for each child in the early childhood setting. In this scenario, 'acting normal' was a positioning available only for children who form the including group, the 'normal', positioning Michael as the 'not normal' in this setting.

Silence: Ignoring

In the following scenario, the 'child with the diagnosis' is loud and heard by children.

> Teacher Odette has been struggling with Sam (a child with a diagnosis) for about 15 minutes trying to keep him away from the door. She looks to another teacher Anne and says: "Just debating whether I should let him go?" As she speaks, the director Sue arrives on the scene, leaving her office possibly because of the noise Sam is making while crying and banging on the door. Sue picks up Sam off the floor near the door opening to the outside area and takes him back inside the room. Sam kicks and screams even more loudly. A group of children (children without a diagnosis) are sitting on the veranda nearby, eating their morning tea. Only two children of the group turn to look briefly at Sam and the director Sue. The rest of the children just continue not seeming to notice what is going on (Watson, 2017, p. 166).

When observing this scene the ethnographer asked herself: How did the children not respond to this child's crying and screaming? However, in thinking more about it, they did respond. The response was to silently ignore. The early childhood classroom promotes particular disciplinary practices, which work to 'civilise' (Leavitt & Power, 1997) children by regulating their behaviour and emotions. In particular, sounds and feelings are scrutinised and controlled by educators (Millei, 2005, p. 133). For example, there is 'inside voice' and 'outside voice' and there is 'quiet time'. These regulatory discourses normalise, discipline and

homogenise actions in the classroom (Davies, 1983). There are certain ways to 'be' and 'act' and being quiet inside is one of those. Sam's loud protest is ignored. The silence of the children suggest that they read Sam's actions as unacceptable for a 'normal' child as it clearly transgressed these civilizing rules and normalizing discourses. In silence, the children (without a diagnosis) distanced themselves from Sam's act and continued eating in a civilized manner their meal. Eating in silence and screaming re/produced the binaries of 'normal' and 'not normal'.

Sam might also be subjected in this context, by particular 'regimes of truth' produced by special education and psychological discourses. His 'characteristics', 'symptoms' and possible actions warranted by his diagnosis, make him who he is. They construct a way of 'knowing' him: 'a child with x diagnosis who is often loud or defies authority'. A diagnosis provides the means to identify and describe his "abnormality and the rationale for intervention when reality and normality fail to coincide" (Rose, 1999, p. 133). The unmarked children know Sam this way. According to Laws and Davies (2000), a person who has a marked difference (in this case a diagnosis) is often the target of pathologizing discourses from an early age. By constituting themselves through the 'othering' of 'the child with the diagnosis' (so to remain not pathological), they reject from themselves those possibilities that do not fit with the way they understand their 'I' to be. Sam's positioning as a child with some pathologies deviate from how they position themselves, as 'without'. As Davies (2006, p. 72) explains, individuals, in our case Sam, "can deviate but their deviation will give rise to category maintenance work". The very act of ignoring through which the unmarked children looked over Sam transgressing the rules, made their maintenance – keeping themselves within the category of 'not pathologized' - work visible. By seemingly not noticing, not talking about and not attending to the transgression, silence was created, which we will return to later.

Silence: Turning Away

> Hugo (a child with a diagnosis) approaches the small trestle table to have his fruit break. He sits down with his banana shaped container but as he cannot open it he hands it to the researcher without a word. The researcher opens it for him. As the other children (without a diagnosis) at the table continue to eat, Hugo turns himself around so that his back is now facing the children opposite and he begins to make loud roaring like noises. Sitting at the table with the pre-schoolers is a child (without a diagnosis) who is having an orientation visit with his parent. Hugo stands and walks toward the parent 'roaring' loudly at them with his face very close to their face. The parent, eyes wide and mouth open and then frowning, turns her body away from Hugo and looks around her. She does not respond to Hugo. The other children at the table look at Hugo with wide eyes and open mouths also. They continue to eat their fruit (Watson, 2017, p. 180).

At fruit break the children without a diagnosis regulated themselves sitting quietly and eating their fruit. Children in early childhood classrooms become familiar with the rules, routines and restrictions aimed at their bodies, as preschools are one of the first institutions outside the family "where children's bodies are constituted and regulated through institutionalised discourses" (Millei and Cliff, 2014, p. 245). Hugo 'roared'. Hugo's 'roaring' at the visiting parent was met with 'silence' from the parent and the children. The parent turned away her body and looked away possibly indicating her discomfort with the loud roaring and closeness of Hugo. The parent possibly mobilized a discourse around discipline or behaviourism, which suggests one should not reward undesirable behaviour with attention or just simply expressing puzzlement this way. Hugo could have been playing a particular game or creating a character using his imagination. He could have been attempting to invite the others to join his game or he may have been using his 'roar' as a welcome to the parent as if acting a lion or an invitation to play. The parent could have engaged in this game or asked: 'Are you a lion?' The parent could have told Hugo to stop or reminded him of table manners. Instead the parent looked around, perhaps looking for clues to understand what was going on, and in the silence of the table the clue was given. The unmarked children ignored Hugo and remained silent. The parent avoided eye contact with Hugo and ignored him too.

By drawing on Tomkin's definition, Skattebol (2010, p. 78) describes affect as "a tangible, embodied force that operates between people", and that works at a physiological level and "beyond consciousness" to organize intersubjective relations. Skattebol (2010, p. 78) continues by explaining that "[a]ffects are generative and contagious; they are innate activators themselves, for example, shame can produce a blush - the red heat that in turn produces more shame". The discomfort generated by Hugo's 'roar' and the

closeness of his body might have made the parent feel as if under 'attack'. The parent looked around possibly scanning the table and the playground for some help to make sense of Hugo's action. The children without a diagnosis acted in a required manner, within the rules, and ignored Hugo. Their actions did not only inscribe Hugo as 'unruly' but perhaps also made his unruliness acceptable. Hugo's 'unruliness' was tolerated. At this moment on the borderline of being 'unruly' or something else not yet comprehended or fully expressed, Hugo was constituted on the latter side. The silence and the tolerance positioned him on the "other side of the border" (Davies, 2006, p. 75). Perhaps feeling under attack due to the 'unruly' behaviour and physical proximity that was tolerated despite the discomfort it produced, the parent and unmarked children silently agreed to position Hugo as a potentially 'dangerous' subject – dangerous of invading other's space, potentially contacting others' bodies uninvited or being loud that violates others' peace, thus better 'turned away' from. The generative effect of of discomfort in this situation helped produce Hugo as 'dangerous'. There is 'danger' in his potential to disrupt the social order and there is 'danger' in becoming unrecognisable as the 'normal' if one engages with him.

The Elephant in the Room

We find the idiom 'the elephant in the room' helpful to discuss how the discourses and their effects produced something that was better ignored, moved or turned away from, or tolerated in silence in these early childhood classrooms. 'The elephant in the room' makes its presence felt by taking up space and being awkward. It is never talked about or addressed directly, but is nevertheless created by the shared obviousness. Acknowledging the marked child's behaviours in these mainstream classrooms became a taboo, which the unmarked children accept and uphold.

Douglas (1966) argues that a taboo is one way of dealing with difference. Avoiding the anomalous, she asserts, "affirms and strengthens the definitions to which they do not conform" (Douglas, 1966, p. 39). If a person has no place in the social system, they become regarded as a marginal being. The marginal being incites fear and precaution against its dangerousness that springs from the 'normal' as the marginal "cannot help his abnormal situation" (Douglas, 1966, p. 97). Silence, in its different forms, was enacted to tolerate the marginal, while at the same time it was performed as a precaution. Perhaps these actions were intended to include, however, the practices of ignoring, moving away and becoming complicit produced forms of exclusion that we have made visible here with our analysis. They created a shared 'taboo': 'the elephant in the room'.

Discussion

The implications of the perspectives offered here are many. By problematizing everyday practices and understandings, we, like many other Foucauldian researchers, seek to enable a 'practice of freedom', which means opening up possibilities for thinking and acting 'otherwise,' and the potential of pedagogy as discursive practice. The pedagogy of discursive practice draws on "generative philosophies and understandings that make possible … teachers' pedagogies of social justice [that] lie in their capacity to examine critically the social processes and discourses that shape their ways of teaching and their students' ways of learning" (Nayler, & Keddie, 2007, p. 212). Part of this pedagogy is giving up all references to things being 'normal' or 'natural' and taking seriously that everything (people, categories, classrooms, diagnoses, etc.) is continuously made and that we are all implicated in making them. As researchers, we are shaped by our own take up of the 'normal' and our own positioning in the re/production of the binaries in the 'inclusive' setting. Thus, we are cognizant about the ways in which our analysis further positions children with a diagnosis, despite our attempts to gaze on the 'normal'. Understanding how these practices are historically and culturally contingent allows researchers and practitioners to examine which practices seem to have taken hold, or seem to dominate in particular places, and what the effects of these are. For this work, we suggest to grapple with the following questions:

- How do the markings (with a diagnosis or without a diagnosis) and discourses I have taken up as my own compel me to think and act?

- What do these discourses compel me to do and feel and say, or remain silent about or ignore in the everyday flows in the classroom?

- In what way may I be implicated in continuing to categorize and position myself and others that get in the way of a practice that engages with difference differently?

Specifically, in terms of the suggestions around the idiom of 'the elephant' we have offered here, practitioners can ask themselves how they and the other human and non-human actors in their own contexts contribute to or disrupt the marginalization of marked children through the taboo producing practices that we have explored here. What do the active and sustained silences and ignoring around 'uncomfortable difference' achieve? We suggest that they achieve a separation and isolation that remains unaddressed, and therefore produces fear that further separates. Harwood (2010) in a similar way contends that pathologising discourses create isolation. She draws a connection to Foucault's discussions of asylums in Madness and Civilisation: A History of Insanity in the Age of Reason (1967), referring to the discursive power of the diagnosis and how it might move with the pathologised child, containing the child in a 'mobile asylum'. Here, we have offered a few different ways to illustrate how children without a diagnosis ignore and move away from the child with a diagnosis. Maintaining separation, these practices indeed seem to create a 'mobile asylum' in which the child is kept contained within the inclusive setting. Even those actions that might make 'good sense' in the case of another child (without a diagnosis), the actions of the child with a diagnosis are understood in terms of the diagnosis assigned to them by psychological and medical discourses. Children also learn how these children are "best contained". Children come to learn that difference is problematic and un- sanctioned ways of being and acting in early childhood classroom bring about feelings of discomfort. They also learn that one way of acting in the face of difference is to not ask questions or offer alternative positionings. This line of thought provokes us to think about what we could do to disrupt practice-as-usual? Are there ways of talking about, acknowledging and addressing difference in differently productive ways? Perhaps as teachers we could stop creating difference as problematic, and something that needs to be silenced, changed or fixed. We could interrupt our incessant speaking of 'otherness' and instead challenge 'sameness'. We could break the habit of overlooking the unfair encounters we witness between children and between adults and children, where some children are ignored, isolated or separated. We could learn to address the silences and 'the elephant in the room' and start discussing difference, and with that become curious and open to the uncertainty.

We realise that in this paper we offer many questions to explore in one's own practice. We believe in the power of new thought and in the possibilities that thinking anew, or thinking again, affords. Of course, collegial discussions around this, policy advocacy and so on are central to making change happen, yet these efforts are in vain if they are not infused with new insights on old practices.

Declarations

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Research Article

Promoting self-regulated learning in preschoolers

Lisa Jacob[1], Manuela Benick[2], Sandra Dörrenbächer[3], Franziska Perels[4]

Abstract: Self-regulated learning (SRL) is important for a person's school career and their later academic success, and it should therefore be fostered as early as possible. Nevertheless, research focusing on the promotion of SRL in preschoolers is limited. The present study aims to examine the efficacy of an SRL intervention based on a longitudinal control-group-design for preschoolers (direct-level intervention) and their kindergarten teachers (indirect-level intervention). The SRL intervention took place in either a) an autonomous learning environment, where SRL learning strategies were practiced with no special focus on the stimulation of communicative abilities or b) in a social-interactive learning environment, where SRL learning strategies were practiced while communicative abilities were stimulated. The sample consisted of 189 preschoolers (49.5% ♀, 50.5% ♂, mean age: 5.6 years, *SD* = .47 years) and 30 kindergarten teachers. SRL and general self-regulation ability (gSR) served as performance measures. The results of the paired t-tests revealed an increase in SRL and gSR for preschoolers irrespective of the condition, while a group-differential intervention benefit for preschoolers (i.e. direct-autonomous or direct-interactive intervention) could not be confirmed by the applied repeated measures ANOVA and contrast analyses. Further, we did not find any substantial benefit from teacher intervention (i.e. indirect intervention) analysed by non-parametric Wilcoxon test. This unexpected result is discussed in light of methodical considerations. Nevertheless, the study provides important implications for future intervention studies.

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Introduction

Self-regulated learning (SRL) is defined as the ability to learn through autonomous and self-directed application of strategies (Sitzmann & Ely, 2011). This definition implies that SRL is a) autonomous because the learner is able to *select* adequate learning strategies independently and b) self-directed because the learner is able to *apply* the selected learning strategies independently. It is regarded as a superordinate ability which is important for (elementary school) curriculum and academic performance (Blair & Razza, 2007). SRL need to be delimited from a general self-regulation ability (gSR) which refers to general regulation processes in order to achieve goals by the regulating actions, thinking processes and feelings (Carver & Scheier, 2011). There is empirical support for the effectiveness of SRL interventions across different age groups: pupils from elementary schools (Dignath, Buettner, & Langfeldt, 2008; Leidinger & Perels, 2012) and secondary schools (Glaser & Brunstein, 2007; Souvignier & Moklesgerami, 2006; Torrance, Fidalgo, & García, 2007; Wagner, Dörrenbächer, & Perels, 2014) as well as university students (Dörrenbächer & Perels, 2016; Nückles, Hübner, & Renkl, 2009; Shi, Frederiksen, & Muis, 2013). Only a few

[1] Saarland University, Department of Educational Science, 66123 Saarbrücken, Germany, lisa.jacob@uni-saarland.de, https://orcid.org/0000-0003-3251-2257

[2] Saarland University, Department of Educational Science, 66123 Saarbrücken, Germany, manuela.benick@uni-saarland.de, https://orcid.org/0000-0002-7040-9448

[3] Saarland University, Department of Educational Science, 66123 Saarbrücken, Germany, s.doerrenbaecher@googlemail.com, https://orcid.org/0000-0003-4054-5016

[4] Saarland University, Department of Educational Science, 66123 Saarbrücken, Germany, f.perels@mx.uni-saarland.de, https://orcid.org/0000-0002-8594-1031

studies so far have already considered preschoolers as addressees of SRL intervention research (e.g. Dörr & Perels, 2019b; Perels, Merget-Kullmann, Wende, Schmitz, & Buchbinder, 2009). More research is therefore needed, because preschoolers are in a particularly sensitive stage for the acquisition of SRL. SRL should thus be encouraged as early as possible to establish favourable learning habits (e.g. planning of the learning actions by selecting and reflecting adequate learning strategies) and avoid dysfunctional ones (e.g. chaotic learning actions without checking the usefulness of applied learning strategies) (Landmann, Perels, Otto, Schnick-Vollmer, & Schmitz, 2015). Therefore, the present study aims to construct and evaluate an SRL intervention especially for preschool children.

Self-regulated Learning and General Self-Regulation Ability

As mentioned above, a distinction must be made between SRL and gSR (Schunk, 2008). GSR can be defined as the process of purposefully directing a person's actions, thoughts and feelings towards a goal (Carver & Scheier, 2011). This implies that gSR enables the individual to provide an adjustment in all of their life areas (Williford, Whittaker, Vitiello, & Downer, 2013), even apart the special context of learning. While gSR describes general regulation processes, SRL represents an application-oriented concept of especially school and academic contexts. Following Bronson (2000), the development of gSR proceeds in stages in which children learn to mentally organize informational input from their living environment in order to achieve goals (Fox & Riconscente, 2008). Increasingly improved attention and memory abilities enable children to handle limited cognitive capacities more efficiently (Wigfield, Klauda, & Cambria, 2011). For the development of SRL, especially metacognitive processes[1] are highly relevant as they are helpful to adapt the learning process continuously. They depend on neural maturation processes (Lyons & Ghetti, 2010).

Zimmerman's social cognitive model (2000) of self-regulation includes assumptions about how the process of achieving goals can be subdivided in different phases. This social-cognitive model is often transferred to learning and, therefore, it is the theoretical framework for SRL. Following the cyclical model, the learning process follows three different phases: the forethought phase, performance phase and self-reflection phase. Different specific learning strategies are assigned to these phases. For preschoolers, we propose an adapted version of Zimmerman's (2000) model which contains SRL learning strategies appropriate to the stage of development (Dörr & Perels, 2019b; see figure 1, Jacob, Dörrenbächer, & Perels, 2019). The SRL learning strategies which should be considered favourably in the intervention for preschoolers are: using prior knowledge, definition of goals, self-efficacy, keeping breaks and self-motivation, dealing with deflectors, monitoring, causal attribution and reflection.

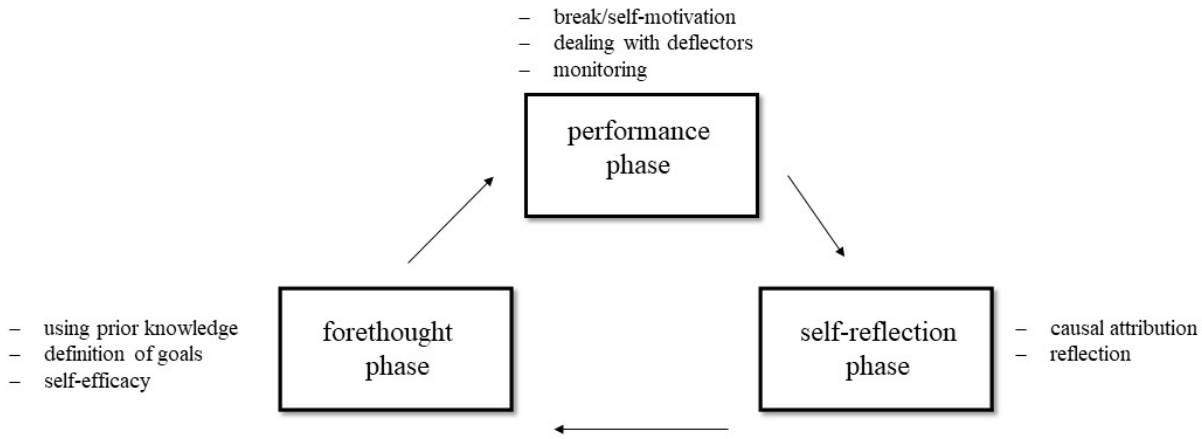

Figure 1. Zimmerman's (2000) process model of SRL, adapted for preschoolers (Jacob et al., 2019)

[1] Metacognition describes the availability of 'meta-information' about many different types of cognitive processes (Martinez, 2006).

Importance of Self-regulated Learning Interventions for Preschoolers

In the German school system, preschoolers usually encompass 5 to 6-year-old-children which are in their last year of kindergarten. The entrance age of kindergarten is usually 3 years of age. The mission of German preschool is to prepare children for the transition of elementary school in which they usually enter with 6 years of age. But there is no standardised curriculum for preschoolers. The kind of preparation for elementary school depends on the respective kindergarten institution. Importantly for the purpose of our study, preschoolers are in a sensitive developmental period concerning the acquisition of SRL. In this period, there appears to be a general shift from an emotion-driven regulation to a more cognitive regulation where complex learning processes such as SRL can be built upon (Zelazo, 2015). Moreover, a qualitative shift from an external regulation to a more internally guided self-regulation style can be observed (see Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016). It has been demonstrated that preschool children have an elementary metacognitive understanding of their own learning processes (Lockl, Händel, Haberkorn, & Weinert, 2016). Preschoolers are capable of goal setting and adjustment of thinking, and acting towards predefined goals (Blaye & Chevalier, 2011; Hendry, Jones, & Charman, 2016), which represent important abilities for the forethought phase and performance phase of SRL. In addition, preschoolers show inhibitory control (Carlson, 2005; Lewis, Reeve, Kelly, & Johnson, 2017) and are capable of focusing their attention (Bronson, 2000; Lewis et al., 2017). Both abilities are essential for the performance phase of SRL. Lastly, preschoolers are able to reflect their own learning process (Zelazo, 2015) – an ability which is needed during the self-reflection phase of SRL. Importantly, environmental factors such as socioeconomic status can influence general child development and the development of self-regulation ability (Blair & Raver, 2015; Dolean, Melby-Lervåg, Tincas, Damsa, & Lervåg, 2019; Seidler & Ritchie, 2018; Ursache & Noble, 2016). An overarching goal in preschool is to facilitate the transition to school by providing basic social and, importantly, learning skills (e.g. Chan, 2012). Early promotion of SRL also appears advantageous because of the high neuro-cognitive plasticity in early childhood (Leisman, Mualem, & Mughrabi, 2018). Empirical findings support the assumption that SRL and associated skills are trainable in preschool (Whitebread et al., 2005).

Fostering Self-regulated Learning in Preschoolers

For preschool age, some studies explicitly consider the SRL of young children. These include the study of Whitebread et al. (2005), in which the authors focused on 'independent learning', which has a strong overlap with SRL, in early years and analysed the pedagogical practices that foster this ability. Furthermore, Perels et al. (2009) focused on SRL in preschoolers. They used a two-level intervention approach. One level included the kindergarten teachers which were assigned to either an intervention group or a control group. The intervention was theoretically based on the process model of self-regulation (Schmitz & Wiese, 2006), which is an adaptation of the Zimmerman (2000) model. It consisted of five intervention sessions (getting to know, pre-action phase of SRL, action phase of SRL, post-action phase of SRL, summary) in which they were taught to a) apply SRL strategies for their own learning process to be able to act as a role model and b) to support SRL in preschoolers. On the second level, preschoolers' progress in SRL was assessed before and after the teachers' intervention. The authors found an intervention benefit for kindergarten teachers as well as preschoolers. In addition, Venitz and Perels (2018) applied a two level approach to foster SRL in preschoolers. On the one level, the authors trained reference persons to a) apply SRL strategies for their own learning processes and b) to support SRL in preschool children. Altogether, the intervention consisted of three sessions (referring to the three phases of SRL). On the second level, the authors examined if the preschoolers had a benefit of the reference person's intervention. It was found that the intervention was successful on the level of preschoolers but not successful on the level of the reference persons. In a further study by Dörr and Perels (2019a), the authors aimed to improve metacognitive abilities in preschoolers and kindergarten teachers. Such metacognitive abilities are seen as important prerequisites for the acquisition of SRL (Dinsmore, Alexander, & Loughlin, 2008). The researchers used a two-level intervention approach and found an improvement in specific metacognitive 'control activities' at the child level. In a second study, Dörr and Perels (2019b) examined the efficacy of a combination of an indirect SRL intervention (fostering reference persons) and a direct SRL intervention

(fostering preschoolers) and could not find a significant intervention benefit concerning preschoolers' SRL performance.

In general, intervention studies for preschoolers in the context of self-regulation differ concerning a) the measurement of intervention success, either measuring benefits only at the child-level (Schmitt, McClelland, Tominey, & Acock, 2015) or via external ratings (Dörr & Perels, 2019a); b) the type of fostering through direct interventions at the child level (Barnett et al., 2008; Schmitt et al., 2015) or through indirect interventions which focus on the promotion of potential multipliers, such as kindergarten teachers (see also next section; Bradley, Atkinson, Tomasino, Rees & Galvin, 2009; Ford, McDougall, & Evans, 2009; Venitz & Perels, 2019); and c) the general stimulation of self-regulation (Raver et al., 2011), compared to specific self-regulation strategies/aspects such as self-reflection (Espinet, Anderson, & Zelazo, 2013; Flook, Goldberg, Pinger, & Davidson, 2015) or metacognition (Dörr & Perels, 2019a). However, most of the literature in this age group has tapped into gSR, and less so on SRL (e.g. Espinet et al., 2013; Flook et al., 2015; Raver et al., 2011). Indeed, gSR can be well trained at preschool age, which manifests itself in positive effects in various life areas (Perry, Hutchinson, Yee, & Määttä, 2018) and leads to positive adaptability in school lessons (McClelland & Cameron, 2011). However, given the positive results in SRL intervention research, it seems promising to make further efforts to develop SRL interventions for preschoolers. The current study aims to develop and evaluate an intervention design that addresses the gap in the literature as follows: a) obtaining child as well as external rating-measures, b) combining a direct with an indirect intervention approach, and c) targeting both general self-regulation ability (gSR) and specific self-regulated learning strategies (SRL).

Fostering Self-regulated Learning in Kindergarten Teachers

When comparing direct interventions on the child level and indirect interventions on the teacher level (with evaluation on the level of the students), direct interventions in school context have been shown to be more effective (Dignath et al., 2008; Otto, 2007). However, the additional application of indirect interventions can increase intervention effectiveness (Landmann et al., 2015) what is supported by empirical findings from studies that used a two-level intervention approach to foster SRL in preschoolers (Perels et al., 2009). In addition, there are some further empirical and theoretical reasons which speak for involving kindergarten teachers to foster SRL in children. First, they play an important role due to the large amount of time they spent with preschoolers (Bodrova & Leong, 2001). Second, they have the professional task of accompanying and boosting the positive development of the children (Barnett, 2008) which should be considered in practice-oriented research. Third, mutual interaction processes between kindergarten teachers and preschoolers verifiably influence developmental processes and, respectively the acquisition of SRL, by creating a stimulating learning environment via their role model function (Bandura, 1986; Bronson, 2000) and the use of the metacognitive dialogues in which children learn to perceive and represent their learning by means of requests and informative feedback (Pramling, 1986). As a consequence, for the current study, kindergarten teachers should be involved in the SRL intervention by teaching them to support preschoolers in selecting and applying SRL learning strategies. In the present study, we promote both children (i.e. direct intervention) as well as their kindergarten teachers (i.e. indirect intervention).

The Influence of Communicative Processes on Self-regulation and Self-regulated Learning

The development of gSR takes place through the communicative interaction of the child and his/her environment (Bronson, 2000). Here, self-talk plays a prominent role (Vygotsky, 1962) and supports the planning, initiation and monitoring of actions (Winsler, Diaz, & Montero, 1997). Self-talk can appear a) as social speech in which children communicate their thinking processes to the environment or b) as private speech in which children communicate thinking processes to themselves. With the increasing internalisation of cognitive processes, private speech transforms to inner speech while preschool age (Bono & Bizri, 2014; Winsler, De León, Wallace, Carlton, & Willson-Quayle, 2003). As the development of self-regulation ability is not terminated in preschool age, it is reasonable to conclude that fostering gSR, or respectively SRL, in preschoolers is also possible by encouraging social-interactive practicing in which instruction for social and private speech is given. Consequently, a social-interactive learning environment

represents a reasonable frame for a SRL intervention for preschoolers. Autonomous practicing within an autonomous learning environment stands opposed to this. Because of the relevance of speech for self-regulation ability, studies of fostering gSR have used action accompanying language (Camp, Blom, Hebert, & van Doorninck, 1977; Gaskins, Satlow, Pressley, & Meltzer, 2007; Meichenbaum & Goodman, 1971; Salmon, O'Kearney, Reese, & Fortune, 2016). These studies have mainly built upon the learning principle of Meichenbaum and Goodman (1971). This principle postulates that adult models execute actions and verbalise aloud in a first step. In a second step, children execute the observed actions and verbalise in parallel, during intervention, children are fostered to internalise increasingly their verbalisations. In the current study, we place the SRL intervention in two different learning environments, namely a) an autonomous environment with no special focus on speech and b) a social-interactive environment with speech stimulation, following the learning principle of Meichenbaum and Goodman (1971).

The Present Study

In summary, the present study addresses the development and evaluation of an intervention for preschool children, theoretically based on the adapted SRL model of Zimmerman (2000). A direct intervention on the child-level is combined with an indirect intervention on the kindergarten-teacher-level. An SRL intervention in an autonomous learning environment (i.e. lower demands on communicative skills, e.g. preschoolers were not requested to communicate their thinking processes while doing single exercises) is compared to a social-interactive learning environment (i.e. higher demands on communicative skills; e.g. preschoolers constantly had to communicate their thinking processes to the peers while pair or group exercises). We measure any intervention benefit by using an external rating as well as a direct child-appropriate measurement tool. We also compare benefits on general self-regulation abilities (gSR) with benefits on specific self-regulated learning strategies (SRL).

Research Aims and Hypotheses

Due to a) empirical evidence for the general trainability of SRL (Dörr & Perels, 2019a; Perels et al., 2009; Whitebread et al., 2005) and b) and the existence of important developmental prerequisites in preschool age (Bronson, 2000; Lockl et al., 2016; Zelazo, 2015), the main aim of the present study is the evaluation of an SRL intervention for preschoolers.

Preschoolers' level: Because of the fundamental role of speech and communication in gSR and SRL (see the section 'Relevance of speech processes for self-regulation and SRL'), we compare the SRL intervention in two different learning environments, namely the autonomous and the social-interactive learning environments, and propose the following hypotheses:

1) The SRL intervention group (both in an autonomous and a social-interactive learning environment) shows better results in SRL and gSR at posttest *after* the intervention compared to the pretest.

2) The SRL intervention group (both in an autonomous and a social-interactive learning environment) shows a larger improvement in SRL and gSR than the active control group.

3) The SRL intervention group in a social-interactive learning environment stimulating communicative skills shows a stronger improvement in SRL and gSR than the SRL intervention group practicing in an autonomous learning environment.

Teachers' level: Due to the important role of kindergarten teachers in influencing preschoolers' development via their function as role models (Bandura, 1986) and in designing the critical learning environment (Barnett, 2008; Bodrova & Leong, 2001; Bronson, 2000), the evaluation of the SRL intervention on kindergarten teacher level is also of interest, thus we hypothesise that:

4) Kindergarten teachers from the SRL intervention group (in both autonomous and social-interactive learning environments) show better results in SRL self-report at posttest *after* the intervention compared to the pretest. Furthermore, those of the intervention group show better results than those of the control group.

Method

Participants

The child sample consisted of N = 215 preschoolers from 18 German kindergartens. 215 preschoolers participated in the pretest, whereas 189 preschoolers participated in pretest and posttest, hence representing an effective sample size. To ensure the likelihood of achieving any benefit from the intervention, the inclusion criterion was that children had to participate at least in three out of nine SRL intervention sessions2 between pre- and posttest. The children were 5 to 6 years old (M = 5.60, SD = .51). Females numbered 106 children, and 108 children were male3. All children had normal or corrected-to-normal vision and no hearing impairment. Based on parents' statements, none of the children had a known learning disability or suffered from developmental delay. Ethical standards of research were respected. The participation in our study was voluntarily for all persons involved and we aimed at transparency in research design and methods and informed kindergarten teachers and parents about the goals and research methods of our study. The preschoolers' parents gave their written consent for participation. Data protection and safety was assured by the department. Personal data of the participants were protected by anonymization.

At the pretest, demographic information as well as control measures were collected, such as the socioeconomic status (SeS) using the book question following Bos et al. (2003) and speech competency using the 'Recognizing Terms Test' (Ricken, 2007) and the 'Passive Vocabulary Test' (Ricken, 2007). Some of those measures revealed significant baseline differences between the intervention conditions (see Table 1) and were therefore included as covariates in the statistical analyses.

Table 1. Characteristics of preschoolers by intervention condition

	Autonomous SRL intervention (autSRL) *M* (*SD*)	Social-interactive SRL intervention (intSRL) *M* (*SD*)	Active control group (CG) *M* (*SD*)	ANOVA[4]
Age	71.24 (4.83)	71.23 (5.84)	75.83 (4.83)	$F(2, 155) = 13.53$, $p < .001$
SeS/Book question	2.31 (.82)	2.40 (.78)	2.51 (.66)	$F(2, 210) = 1.27$, $p = .283$
RT	7.78 (2.26)	7.75 (2.36)	8.82 (2.01)	$F(2, 156) = 4.20$, $p = .017$
PV	10.68 (2.70)	11.55 (2.41)	12.21 (2.05)	$F(2,172) = 5.91$, $p = .003$

Note. RT = Recognising Terms, PV = Passive Vocabulary

Kindergartens were assigned randomly to the intervention conditions.

The Kindergarten teacher sample consisted of $N = 81$ kindergarten teachers of the same 18 German kindergartens from where the preschool sample was recruited. All kindergarten teachers finished three years of vocational training as required to work as a kindergarten teacher in the relevant region of Germany. In the pretest 76 kindergarten teachers participated, whereas 36 kindergarten teachers participated in the posttest. The effective sample consisted of $n = 30$ kindergarten teachers of which pretest *and* posttest data were available.

[2] The decision for this number as criteria was data-driven. We tried to find a balance between the participation at as many sessions as possible and a as low as possible reduction of the sample.

[3] Due to accidental data loss, gender information cannot be declared in 13 cases.

[4] The ANOVA includes 'group' as factor and age, SeS, RT and PV as dependent variables.

Design and Procedure

On the level of preschoolers, the study was realised as a pretest-intervention-posttest-design with two intervention conditions and one active control group[5]. Pretest data were collected by two trained experimenters who participated in a multi-hour course in which a) theoretical aspects of the applied measurement instruments were explained and b) the practical application of the measurement instruments was exercised with psychology students. Further the trainers received test manuals to guarantee a standardised test instruction. At pretest, all children were tested individually, and the measurement was split into two testing occasions each to avoid overstressing the preschoolers. Each session lasted approximately 20 minutes. Given that the survey of control measures was no longer necessary at posttest, the posttest measurement covered only one session of approximately 20 minutes. The intervention was implemented in a group setting and instructed by two trainers using standardised intervention manuals. In this manual, the procedure of each intervention session was noted as well as concrete formulations which had to be used by the trainers when explaining SRL learning strategies and SRL exercises to the children. Importantly, there are two different learning environments for the SRL intervention: One group trained in an autonomous learning setting ('autSRL intervention'), whereas the second group trained in a social-interactive learning setting ('intSRL intervention'). A third group served as an active control group (CG), only performing SRL case vignettes. The study design for the intervention at child level is illustrated in Figure 2.

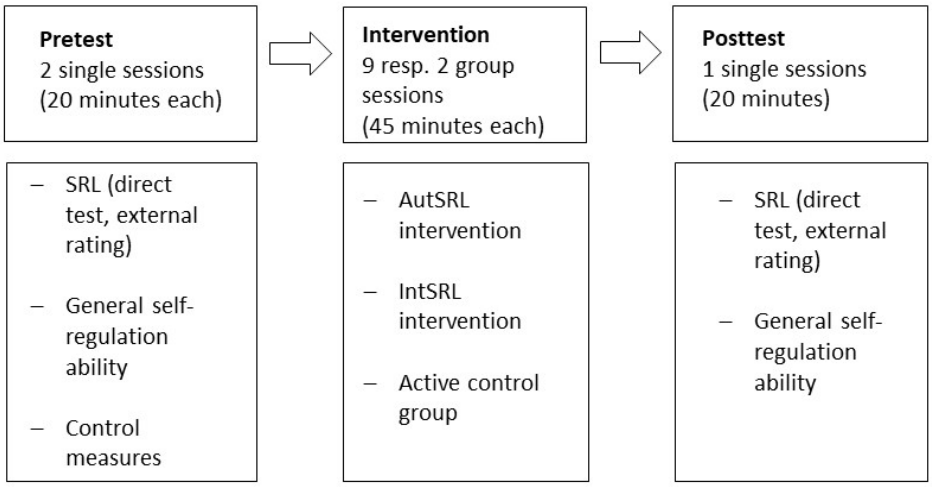

Figure 2. Study design on level of preschoolers

On the teacher level, the study was realised as a pretest-intervention-posttest-design with two intervention conditions ('autSRL intervention', 'intSRL intervention') and a passive control group (CG). The pretest consisted of an SRL self-report filled in by the kindergarten teachers. The intervention consisted of an SRL workshop and the concerted application of workshop transfer materials in the regular kindergarten programme by the kindergarten teachers in parallel with the preschooler intervention period. The workshop took approximately two hours and was headed by two trained referents in kindergarten facilities. The control group did not receive any SRL input. The posttest (including self-report measurements similar to pretest) at teacher level followed after the intervention period at child level had terminated. The study design for the intervention at teacher level is illustrated in Figure 3.

[5] There was no passive control group because we decided for a more conservative comparison with a stronger, active control group. Further, within the German kindergarten system, it would be hard to implement a business as usual group because the preschool programs of the kindergartens vary (in Germany we do not have a standardised preschool curriculum) and are not always comparable to each other.

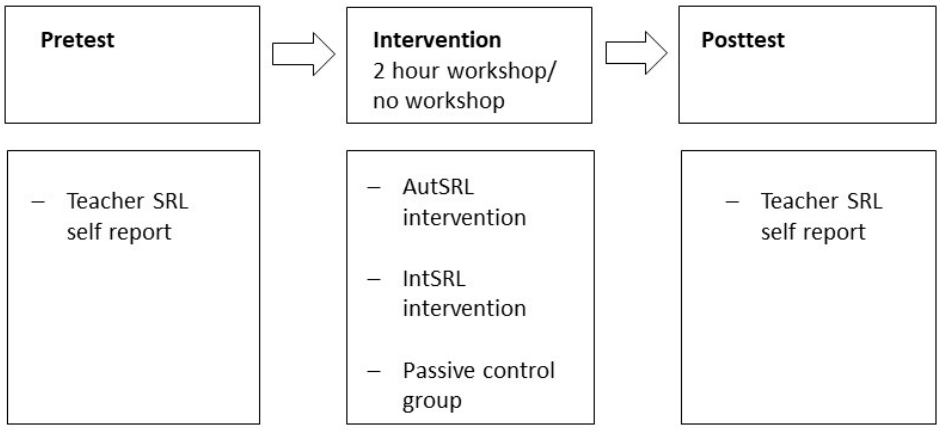

Figure 3. Study design on level of kindergarten teachers

Measures

To evaluate the efficacy of the SRL intervention at the child level, SRL was measured on child-level and by external ratings before and after the intervention. In addition, gSR was measured using an established measurement instrument.

To evaluate the efficacy of the SRL intervention at the teacher level, SRL was measured by self-report directly before and after the intervention.

Measurement at the child level: Pre – and posttest measurement.

Self-regulated learning at the child level: SRL Test. In this study, a quantitative measurement tool to assess SRL in preschoolers was applied. The tool was newly developed and first validated and optimised in a study by Jacob et al. (2019). The SRL Test is a form of multiple choice quiz and consists of 11 items with dichotomous response format (good idea vs. bad idea). Every item is presented visually in a story book, supported by colourful drawings. Children reply to the items by tapping a happy (good idea) or unhappy face (bad idea), as portrayed in the story book. Each item asks for knowledge of SRL learning strategies. The items are embedded in the narrative of the character little lion 'Lennie' of preschool age, who has the overarching goal of finding a present for his friend. On his way to goal achievement, he meets different challenges which are manageable by using certain learning strategies. An example item is shown in Figure 4. The range of total performance ranges from -11 (all items were answered incorrectly) to +11 (all items were answered correctly). Following Jacob et al. (2019), the test tool shows satisfactory test quality criterions: a) an internal consistency of α =.72, b) significant validity determined by cross validation (with external SRL rating: r = .20, p = .03 and a direct executive functions measure on child-level: r =.18, p =.02) and c) high objectivity due to a standardised test instruction (Jacob et al., 2019). In the present study, the internal consistency was α = .65.

Lennie´s friend Ellie the duck is coming to school soon and Lennie wants to give her something special. But what would she be happy about? Lennie thinks.

F1 How can Lennie find a great gift for Ellie?

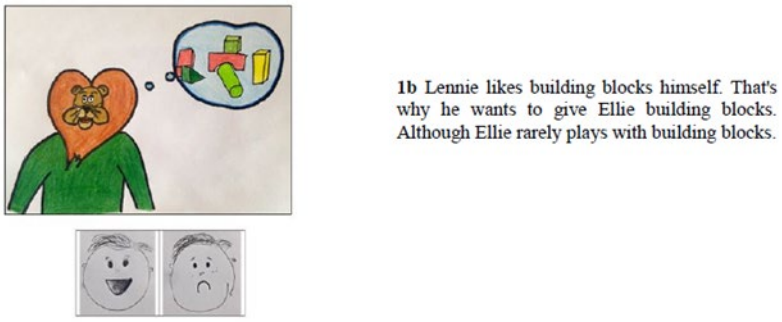

Figure 4. Example item of the SRL Test

Self-regulated learning at the child level: External SRL rating. The external SRL rating scale was filled out by the kindergarten teachers. On the one hand, the item pool consists of a selection of items used in two previous studies examining SRL in children (Otto, 2007; Perels et al., 2009). On the other hand, it consists of items from two established measurement tools: the Children's Independent Learning Development Checklist (CHILD 3-5) (Whitebread et al., 2009) and the Child Behavioural Rating Scale (Rowley, 2015). Item selection is based on content considerations and the results from the item analysis of a former version of the SRL rating scale, used in Venitz and Perels (2018). All items of the composed measurement tool were rated on a four-point Likert scale ranging from 1 (never) to 4 (always). The range of total performance is between 35 – 140. The external SRL rating scale contains 35 items, which are grouped into three scales and nine subscales, operationalising SRL learning strategies. The structure and reliabilities (internal consistency) of the external SRL rating scale are shown in Table 2.

Table 2. Structure and reliabilities of the external SRL rating

SRL phase	Subscale	Example item	Number of items	Reliability
Forethought phase	Definition of goals and planning	'The child sets realistic goals.'	7	.88
	Using prior knowledge	'The child can apply previously learned strategies.'	2	.76
	Planning and organisation	'The child does not complete tasks, not even after receiving clues.'	3	.68
	Self-efficacy	'The child enjoys solving problems.'	7	.69
Performance phase	Breaks and self-motivation	'The child takes a break to relax during longer tasks.'	1	-[1]
	Keeping up	'The child can withstand difficulties.'	4	.78
	Dealing with deflectors	'The child is easily distracted.'	5	.68
	Monitoring	'The child can actively influence his/her learning outcome.'	3	.70
Self-reflection phase	Reflection	'At the end of a task, the child checks whether the result makes sense.'	3	.73
Overall			35	.80

Note. [1] The SRL learning strategy 'Breaks and self-motivation' is represented by only one item, which is why no reliability can be reported.

General self-regulation ability at the child level: Head-Toes-Knees-Shoulders Task. The German version of the Head-Toes-Knees-Shoulders-Task (HTKS) (Cameron et al., 2008) was applied to measure gSR. The task is divided into three sections. In section one, preschoolers learn up to two instructions ('Touch your head/toes.') and comply with the request. In addition, they are invited to name the body part they touch. In section two, children are instructed to perform in the 'opposite' manner to the previously learned instruction (to touch their head when they are instructed to 'Touch your toes' and name the body part they

touch and vice versa). In section three, two further instructions are added ('Touch your knees/shoulders.') and a child's first task is to train these naturally by complying with the request and naming the respective body part. Subsequently, they must switch rules again and perform the 'opposite' action to all four learned instructions. The task consists of twenty trials. Action performance and naming of the touched body part are rated separately and form a total score. The range of total performance is between 0 and 80 (0 = incorrect response, 1 = initially incorrect response that was spontaneously corrected, 2 = correct response). The HTKS shows good psychometric quality, which is reflected by its construct validity and very strong to excellent examiner reliability (κ = .90 -.98, Connor et al., 2010; McClelland et al., 2014; α = .92; Cameron et al., 2008). In our sample, we found an internal consistency of α = .95.

Measurement at child level: Control measurement.

In addition, the measures used to evaluate the intervention outcome (SRL, gSR), the socioeconomic status and speech competence of the preschoolers were measured as control variables.

Socioeconomic status: Book question. In the style of Bos et al. (2003), we assessed the socioeconomic status of the children by inquiring as to the domestic book inventory. Therefore, children were asked how many books can be found in their homes. To answer, they had to tap on one of three bookshelves, as shown in Figure 5.

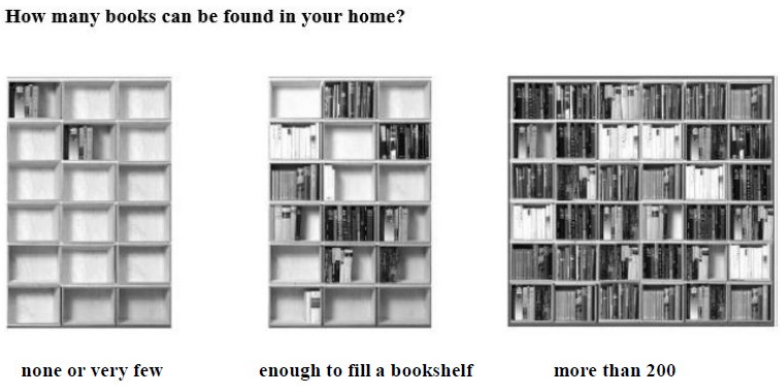

Figure 5. Book question

The total range was between 1 and 3 (1 = none or very few, 2 = enough to fill a bookshelf, 3 = more than 200).

Speech competence: Recognising Terms Test and Passive Vocabulary Test. Speech competence was assessed by measuring two facets: speech production and speech comprehension.

Speech production was operationalised by the Recognizing Terms Test (in German: 'Begriffe Erkennen Test', BE) which is a subtest of the German intelligence test battery for preschool age (age range: 4.0 – 6.11), namely the Hannover-Wechsler-Intelligenztest III (HAWIVA-III) (Ricken, 2007). The children's task is to generate words that fit the description of the test leader (e.g. 'Guess what I´m thinking of: It's an animal that makes meow. '). The initial 15 items are ordered in increasing difficulty. If a child answers incorrectly five times, the test is terminated. Because of the ceiling effects in a pilot study, the first three items were removed for the current study. The final instrument consists of 12 items. The range of total performance is from 0 to 12 (0 = incorrect response, 1 = correct response; M = 8.15, SD = 2.26). The BE Test turned out to be valid and showed sufficient retest reliability (r_{tt} =.86; Ricken, 2007). In our sample, we found a split-half reliability of r = .59.

Speech comprehension was measured by the Passive Vocabulary Test (in German; 'Passiver Wortschatz Test', PW) which is also a subtest of HAWIVA-III (Ricken, 2007). It consists of 25 stimulus cards (items). Each stimulus card shows four different images. The children are tasked with pointing at the image which fits the test leaders' description. The description contents single elements of the images (e.g. 'Show me the curly tail.' Correct image: pig). The initial 25 items are ordered in increasing difficulty. If a child

incorrectly answers five times, the test is terminated early. Because of time-economic reasons, the first four items were deleted in the version of the test used in the current study. Nineteen items remained, for which the first items served as an example item and were not concluded in the total test score. The range of total performance is between 0 and 18 points (0 = incorrect response, 1 = correct response; *M* = 11.52, *SD* =2.45). The PW is a valid test with a sufficient retest reliability (r_{tt} = .82; Ricken, 2007). In our sample, we found a split-half reliability of *r* = .55.

Measurement at child level: Intervention measurement.

Case vignettes for preschoolers (manipulation check). The case vignettes were used as manipulation checks for preschoolers. In the case vignettes, the protagonist 'Mulle the Mole' was faced with problems in connection with the SRL learning strategy taught in the respective intervention sessions 2 to 7. For each problem, the children were offered four possible solutions (two targets, two distractors). The children had to evaluate the quality of the solutions by drawing a happy or unhappy face ('good idea', 'bad idea') at the end of the intervention sessions. The evaluation was realised by calculating the total scores over all case vignettes. The possible performance range is between -28 (all items were answered incorrectly) and 28 points (all items were answered correctly).

Measurement at teacher level.

Self-regulated learning in kindergarten teachers (teacher SRL self-report). The questionnaire was filled out by the kindergarten teachers. It was partly constructed from questionnaires of previous projects, whereby the items were partly adopted and modified. The questionnaires of the projects SELE-F (Leidinger, 2014) and SELVES (Otto, 2007), projects to promote SRL in primary schools, and 'Krixel' (Merget-Kullmann & Wende, 2004; see also Perels et al., 2009) and 'Kiga I' (Venitz & Perels, 2018), a study in preschool, were used. In addition, items were constructed newly. All items were rated on a four-point Likert scale that ranges from 1 to 4 (not true/ rather not true/ rather true/ true). The teacher SRL self-report contains 75 items (range of total performance is 75 – 300) which are grouped into two subscales: the subscale 'SRL behaviour' which captures how self-regulated teachers behave concerning different learning strategies and the subscale 'SRL mediation', which captures how SRL strategy knowledge is actively passed on to the preschoolers. The structure and reliabilities of the teacher SRL self-report are shown in Table 3.

Table 3. Structure and reliabilities of the teacher SRL self-report

Subscale	Example items	Number of items	reliability
SRL behaviour	'I have clear goals for my work.' 'I always think carefully about what I want to do when I'm at work.'	43	.86
SRL mediation	'I'll show the kids how to divide bigger goals into partial goals.' 'If a child does not succeed in a difficult activity, then we think together how it could proceed.'	32	.85
Overall		75	.93

Assessment of the application of transfer materials (manipulation check). The manipulation check was used to check if kindergarten teachers applied the transfer materials to their kindergarten routines. They should evaluate the transfer material. They stated a) how often they used it on a three-point Likert scale (0 = not at all/1 = 1x/ 2 = more than 1x) and b) how helpful it was on a four-point Likert scale (0 = not helpful/ 1= rather not helpful/ 2 = rather helpful/ 3 =helpful). For descriptive evaluation, mean scores were calculated.

The Intervention

The SRL intervention aims at the promotion of SRL strategies based on Zimmerman´s (2000) model of SRL (see the section 'Self-regulated learning and general self-regulation ability').

SRL intervention for preschoolers. At child level, the intervention consisted of nine sessions of 45 minutes each. The group size was between 8 and 15 children. In the first session, preschoolers and trainers got to know each other and the story of 'Mulle the Mole' was introduced. The story was extended over all subsequent sessions. In sessions two to eight, the individual SRL learning strategies were taught and rehearsed. The ninth and last session served to repeat the SRL learning strategies. An overview of the SRL learning content of the individual session is shown in table 4.

Table 4. Overview of SRL learning content and assignment to the SRL phases

Session	Learning content	SRL learning strategy	SRL phase
1	Getting to know & introduction	-	-
2	'We set ourselves goals and use our knowledge!'	Definition of goals, planning, Using prior knowledge	Forethought
3	'We believe in ourselves!'	Self-efficacy	Forethought
4	'We're sticking to the point!'	Breaks & Self-motivation	Performance
5	'We keep disturbers away!'	Dealing with deflectors	Performance
6	'We're looking over our own shoulders!'	Monitoring	Performance
7	'We give ourselves feedback!'	Reflection	Self-Reflection
8	Repetition	All	All

All intervention sessions followed the same structure. At first, the group performed a welcoming ritual. The learning strategy from the previous session was then recapped with the children. Subsequently, the narrative part introduced the relevant learning strategy of the current session. In the frame story, 'Mulle the Mole's' goal is to give a bouquet of flowers to his mum (forethought phase). For this purpose, Mulle digs a tunnel under a fence to reach a flower meadow on the other side (performance phase). Mulle reflects his action after he completes the bouquet of flowers (self-reflection phase).

In every session, a sequence of the frame story was about Mulle, who applied an SRL learning strategy to reach the overarching goal (bouquet of flowers). Subsequently, the SRL strategy was practiced by the children. The wording of the frame story differed between the two intervention conditions. A 'phase model' was used for visualisation during the reading of the frame history (see figure 6).

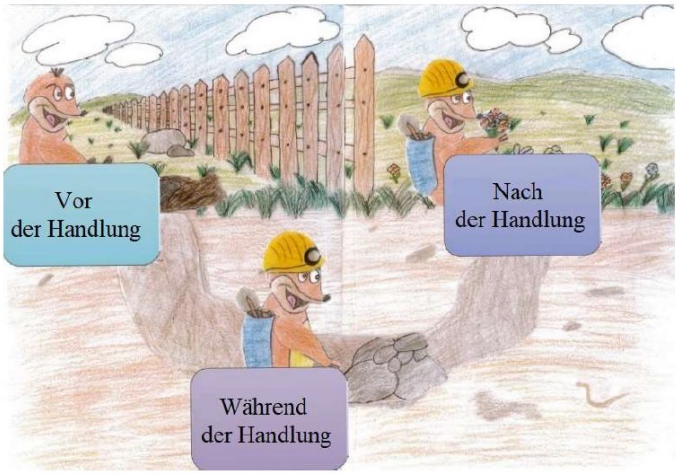

Figure 6. Phase model used for visualisation of the frame story

After the narrative part, the SRL learning strategy used by Mulle was repeated and practiced via child-appropriate exercises. These exercises differed between the two intervention conditions and focused either on autonomous or social-interactive execution. Finally, a manipulation check via case vignettes was conducted. The children received 'Mulle stickers' as a reward. The stickers showed Mulle applying the SRL learning strategy of the session. The stickers were clued on their own phase models. The session was terminated with a goodbye ritual.

Manipulation of the SRL intervention for preschoolers. Differences between the 'autSRL intervention' and the ' intSRL intervention' exist a) in the frame story. The 'autSRL intervention' included

little spoken language, whereas the 'intSRL intervention' included a considerable amount of speech. This was realised by using verbatim speech and through the specification of guiding principles and key questions, as used by Meichenbaum and Goodman (1971). Furthermore, differences between the 'autSRL intervention' and the 'intSRL intervention' exist in b) SRL strategy exercises. In the autonomous setting, children were instructed by the trainers and subsequently performed the exercise independently. In the social-interactive setting, the execution of the SRL learning strategy was demonstrated by two trainers and subsequently practiced in peer interaction between the children. The children asked each other key questions or verbalised guiding principles, following Meichenbaum and Goodman (1971). Table 5 presents the differences in two exemplary exercises between both SRL intervention conditions in the two sessions.

Table 5. Differences two exemplary exercises between both SRL intervention conditions

Session	SRL learning strategy	exercise in autSRL intervention	exercise in intSRL intervention
6	Monitoring	Flower game version A: A picture with a bouquet of flowers is shown; child completes parkour and collects the flowers needed for the bouquet	Flower game version B: Only the quizmaster (peer) knows the number and colour of flowers which are required; the child has to verbally interact with the quiz master to master the parkour
8	Attribution	Puppet show version A: Children see two puppet shows in which something goes wrong; they have to choose one of two shields which should be held up high: a) 'Unlucky Mulle'(external attribution) or b) 'Self-Mulle'(internal attribution)	Puppet show version B: Children see two puppet shows in which something goes wrong; they must explain if the mistake has to be attributed externally or internally; then children play the second story in which something goes wrong in groups of two

Active control group: Preschoolers. The 'intervention' in the active control group consisted of two sessions within which the children worked on the case vignettes which served as manipulation checks in the SRL intervention conditions. This means that they were taught no SRL learning strategies.

SRL intervention for kindergarten teachers. At the level of kindergarten teachers, the interventions consisted of an SRL workshop and transfer materials. The interactive workshop was held shortly prior to the child intervention. Content wise, the workshop comprised a theoretical introduction to SRL, experiences of the participants and the presentation of child-centred learning strategies. In addition, the teachers were introduced to the transfer material for each of the strategies, which was to be used in everyday kindergarten life.

Manipulation of SRL intervention for kindergarten teachers. Differences between the 'autSRL intervention' and the 'intSRL intervention' at the level of kindergarten teachers exist in a) linguistic orientation: Instructions and transfer materials for the kindergarten routine in the 'intSRL intervention' focused on verbalisation, and b) the role of speech in SRL was solely taught in the 'intSRL intervention'. In both intervention groups, short questionnaires which captured the frequency and benefit of the transfer materials were used as 'manipulation checks'.

Control group: Kindergarten teachers. There was no (workshop) intervention in the control group.

Statistical Procedure

To test hypothesis 1, that is, whether preschool children would show a general improvement after an SRL intervention from pre- to post-test, the pretest scores of each child group (autSRL intervention, intSRL intervention, active control group) were compared to the posttest scores by using paired t-tests. The achieved scores in the SRL test, the external SRL rating (overall, subscales) and the HTKS, as a measure of gSR, served as dependent variables.

Regarding hypotheses 2 and 3, we analysed whether we would find group-differential improvement from pretest to posttest in the children's score in the SRL test, the external SRL rating (overall, subscales) and the HTKS. In the repeated measures ANOVAs, measurement time (pretest/posttest) was the repeated measures factor and group membership (autSRL intervention, intSRL intervention, active control group)

was the between-subjects factor. We controlled for age, speech production, speech comprehension and socioeconomic status as covariates of no further interest. We further calculated directed orthogonal contrast analyses to specify any group differences: a first set of contrasts tested whether both intervention groups (autSRL intervention and intSRL intervention) would show a larger improvement than the active control group on our SRL outcome measures. A second set of contrasts tested whether the intSRL intervention group would improve significantly more than the autSRL intervention group given a potential advantage for an environment that also promotes communicative skills. As dependent variables, we used the difference-values (score posttest – score pretest). We controlled for age, speech production, speech comprehension and socioeconomic status. In addition, we compared scores in the manipulation checks between all child groups using univariate ANOVAS to examine whether the intervention per se was successfully manipulated.

Regarding hypothesis 4, to test the effectiveness of the teacher-level intervention (i.e. indirect intervention) at the teacher level, the pretest scores of each teacher group (autSRL intervention, intSRL intervention, active control group) were compared to the posttest scores by using non-parametric Wilcoxon-Tests due to small sample sizes. The score of the teacher SRL self-report (overall, subscales) served as dependent variables. In addition, we compared scores in the manipulation checks between the teacher groups on the descriptive level to examine whether the intervention was successful.

Structure of the data. Initially, the examined data is of hierarchical structure. We have data on three levels: preschoolers, kindergarten teachers and kindergartens as institutions. A statistical analysis with the aid of multilevel analysis (see Snijders, 2011) was not feasible because preschoolers could not be matched 1:1 to a specific kindergarten teacher. In German kindergarten routines, preschoolers interact with several kindergarten teachers throughout the day. On the next higher level, however, preschoolers could be clearly assigned to kindergartens. We therefore analysed in exploratory post-hoc analyses whether membership to a certain kindergarten had an impact, and we found small Intra-Class-Correlations (ICC) (see Castro, 2002) for the dependent variables (SRL test: ICC = 0.02, HTKS: ICC = 0.04, external SRL rating: ICC = 0.07). This means that the influence of kindergarten institutions on preschoolers' performance accounts for only 2% to 7% of variance. Based on these statistical findings, we argue that the hierarchical structure of the data on the level of kindergartens could be neglected in the present case.

Correction of multiple comparisons. To avoid false-positive results, a Bonferroni-adjusted significance level of .006 was applied for all statistical analyses on the level of the nine subscales of the external SRL rating scale (Armstrong, 2014).

Results

Measurement at Child level: Manipulation Check of the Self-regulated Learning Intervention

Preschoolers of the 'autSRL intervention' group achieved on average M = 7.45 points (SD = 6.68). Preschoolers of the 'intSRL intervention' group achieved on average M = 5.33 points (SD = 5.54). Preschoolers of the active control group achieved on average M = 6.38 points (SD = 4.50). The difference between the three groups did not reach significance (F (2, 84) = .67, p = .514).

Measurement at Child Level: Consideration of Control Variables

The preschoolers' socioeconomic status (SeS), their age, their speech production competency and their speech comprehension competency served, if required (i.e. in the case of substantial baseline differences between groups), as control variables for the following analyses. Table 6 shows the correlations between these potential control variables and the dependent variables, as well as the correlations of dependent variables among themselves.

Table 6. Correlations between potential control variables and dependent variables, and dependent variables among themselves

Variable	1	2	3	4	5	6
1. SeS						
2. Age	.05					
3. Speech Prod.	.27**	.11				
4. Speech Compr.	.25**	.13	.41**			
5. SRL Test	.26**	.15	.24**	.19*		
6. SRL rating	.07	-.14	.17*	.05	.12	
7. HTKS	.08	.03	.31**	.24**	.17*	.17*

Note. SES = socioeconomic status, speech prod. = speech production, speech compr. = speech comprehension, SRL Test = Self-Regulated Learning Test, SRL rating = Self-regulated Learning rating, HTKS = Head-Toes-Knees-Shoulders Task; ** indicates p<.001, * indicates p <.05

Measurement at Child Level: General Improvement from Pre- to Posttest

The descriptive statistics for the pretest and posttest scores for the three dependent variables (SRL Test, external SRL rating, HTKS) are provided in Table 7.

In the 'autSRL intervention' group, paired t-tests resulted in statistically significant differences between pretest- and posttest-score for the following dependent variables: SRL test, t (61) = -11.04, p < .001, d = .18, external SRL rating subscale 'using prior knowledge', t (48) = -4.46, p < .001, d = .09, and HTKS, t (44) = 2.43, p = .019, d = .05.

In the 'intSRL intervention' group, paired t-tests resulted in statistically significant differences between pretest- and posttest-score for the SRL test, t (63) = -9.57, p <.001, d = .15.

In the active control group, paired t-tests resulted in statistically significant differences between pretest- and posttest-score for the following dependent variables: SRL test, t (49) = -9.86, p <.001, d = .20, external SRL rating overall, t (46) = -4.84, p <.001, external SRL rating subscales 'definition of goals', t (46) = -4.84, p<.001, d = .10, 'using prior knowledge', t (46) = -6.04, p <.001, d = .13, 'monitoring', t (43) = -3.82, p <.001, d = .09, reflection, t (42) = -4.32, p<.001, d = .10, and HTKS, t (46) = -4.03, p<.001, d = .09.

Table 7. Descriptive statistics of SRL Test, external SRL rating and HTKS

	autSRL intervention		intSRL intervention		active control group	
	pre M (*SD*)	*post M (SD)*	*pre M* (*SD*)	*post M (SD)*	*pre M* (*SD*)	*post M (SD)*
SRL Test	**-1.25 (5.55)**	**7.34 (3.64)**	**- .44 (4.81)**	**7.37 (3.74)**	**1.27 (3.58)**	**7.96 (2.83)**
SRL rating overall						
GO	.33 (1.04)	.02 (.90)	.15 (1.07)	- .12 (1.11)	**- .47 (.65)**	**.08 (1.00)**
PK	.21 (.96)	- .12 (.99)	.13 (1.22)	- .11 (1.23)	**- .29 (.75)**	**.20 (.78)**
PL	**.08 (1.13)**	**- .29 (1.06)**	**.23 (1.03)**	**.07 (1.04)**	- .31 (.73)	.22 (.84)
SE	.26 (1.07)	.08 (.90)	- .08 (.93)	- .02 (1.07)	- .16 (.97)	- .06 (1.04)
B	.24 (.95)	.01 (.99)	.18 (1.12)	.11 (1.10)	- .40 (.80)	- .11 (.94)
KU	.18 (1.06)	.01 (1.01)	- .08 (.93)	- .08 (1.10)	- .08 (.87)	.05 (.91)
DD	.23 (1.16)	- .03 (.97)	.08 (.92)	- .07 (1.02)	- .29 (.86)	.09 (1.02)
M	.32 (1.17)	- .07 (1.03)	.01 (.83)	.01 (.99)	- .40 (.79)	.07 (.99)
R	.16 (.99)	.05 (1.01)	.21 (1.09)	- .17 (1.18)	**- .34 (.84)**	**.07 (.94)**
	.10 (1.05)	- .16 (1.10)	.15 (1.16)	- .05 (1.09)	**- .24 (.74)**	**.20 (.78)**
HTKS	**55.94 (21.78)**	**67.41 (16.93)**	58.29 (19.17)	64.67 (19.81)	**64.39 (15.88)**	**71.35 (14.02)**

Note. GO = definition of goals, PK = using prior knowledge, PL = planning and organisation, SE = self-efficacy, B = breaks and self-motivation, KU = keeping up, DD = dealing with deflectors, M = monitoring, R = reflection; statistically significant differences between pre- and posttest scores indicated by the reported paired t-tests are written in bold

Measurement at Child level: Group-differential Improvement from Pre- to Posttest

A repeated measures ANOVA determined that groups did not differ substantially concerning their improvement from pre- to posttest in the SRL Test score between measurements, F(2, 123) = .84, p = .43.

However, a repeated measures ANOVA determined that groups differed statistically significantly

concerning their learning growth in the external SRL rating score (overall) between measurements, $F(2, 108) = 6.76$, $p = .002$, partial $\eta^2 = .11$.

More specifically, regarding the subscales of the external SRL rating, a repeated measures ANOVA at the univariate level determined that groups differed significantly concerning their improvement in the subscale scores 'Definition of goals and planning', $F(2, 70) = 6.16$, $p = .003$, partial $\eta^2 = .15$, 'Using prior knowledge', $F(2, 70) = 6.15$, $p = .003$, partial $\eta^2 = .15$, 'Keeping up', $F(2, 70) = 3.24$, $p = .045$, partial $\eta^2 = .09$, 'Monitoring', $F(2, 70) = 5.40$, $p = .007$, partial $\eta^2 = .13$ and 'Reflection', $F(2, 70) = 6.56$, $p = .002$, partial $\eta^2 = .16$. The results did not reveal substantial differences between groups concerning their learning growth in the remaining four subscales scores, namely 'Planning and Organisation', $F(2, 70) = .65$, $p = .52$, Self-efficacy', $F(2, 70) = 1.47$, $p = .24$, 'Breaks and self-motivation', $F(2, 70) = .15$, $p = .86$, and 'Dealing with deflectors', $F(2, 70) = 1.28$, $p = .29$.

A repeated measures ANOVA determined that neither group differed concerning their learning growth in the HTKS score between measurements, $F(2, 78) = .43$, $p = .65$.

The results of the repeated measures ANOVAs are displayed in table 8.

Table 8. Summary of the results of repeated measures ANOVAs to compare the three experimental groups (autSRL, intSRL, active control group)

	Group Differences
SRL Test	nonsig.
SRL rating overall	sig.
definition of goals	sig.
using prior knowledge	sig.
planning and organisation	nonsig.
self-efficacy	nonsig.
breaks and self-motivation	nonsig.
keeping up	nonsig.
dealing with deflectors	nonsig.
monitoring	sig.
reflection	sig.
HTKS	nonsig.

Group-differential improvement in detail. For the external SRL rating (overall), contrast analyses showed that the intervention groups (autSRL intervention: $M = -.17$, $SD = 1.12$, intSRL intervention: $M = -.18$, $SD = .98$) differed statistically from the active control group ($M = .57$, $SD = .82$) yet pointed in the opposite direction, with a contrast value of -1.51 ($SE = .35$), $p < .001$. In addition, there was no statistical difference between both intervention groups, contrast value: -.01 ($SE = .21$), $p = .97$.

For the subscale score 'Definition of goals', contrast analyses showed that the intervention groups (autSRL intervention: $M = -.21$, $SD = .91$, intSRL intervention: $M = -.18$, $SD = .72$) differed statistically from the active control group ($M = .44$, $SD = .61$), again with a negative contrast value of -1.27 ($SE = .27$), $p < .001$. In addition, there was no statistical difference between both intervention groups, contrast value: .03 ($SE = .20$), $p = .90$).

For the subscale score 'Using prior knowledge', contrast analyses revealed that the intervention groups (autSRL intervention: $M = -.35$, $SD = .92$, intSRL intervention: $M = -.29$, $SD = .81$) differed statistically from the active control group ($M = .52$, $SD = .59$), with an oppositely directed contrast value of -1.69 ($SE = .26$), $p < .001$. In addition, there was no statistical difference between both intervention groups, contrast value: .06 ($SE = .19$), $p = .74$.

For the subscale 'Keeping up', contrast analyses demonstrated that the intervention groups (autSRL intervention: $M = -.20$, $SD = 1.95$, intSRL intervention: $M = -.05$, $SD = 1.64$) differed statistically from the active control group ($M = .52$, $SD = 1.63$) with a negative contrast value of -1.29 ($SE = .65$), $p = .05$. In addition, there was no statistical difference between both intervention groups, contrast value: .15 ($SE = .39$), $p = .70$.

For the subscale score 'Monitoring', contrast analyses showed that the intervention groups (autSRL intervention: $M = -.12$, $SD = .80$, intSRL intervention: $M = -.21$, $SD = .89$) differed statistically from the active

control group (M = .40, SD = .70), with a negative contrast value of -1.14 (SE = .30), p <.001. In addition, there was no statistical difference between both intervention groups, contrast value: -.09 (SE = .19), p =.65.

For the subscale score 'Reflection', contrast analyses indicated that the intervention groups (autSRL intervention: M = -.12, SD = .90, intSRL intervention: M = -.18, SD = .73) differed statistically from the active control group (M = .38, SD = .57), also with a negative contrast value of -1.06 (SE = .29), p <.001. In addition, there was no statistical difference between both intervention group, (contrast value: -.06 (SE = .18), p =.75.

The results concerning differences in learning growth in the external SRL rating score between the three groups are illustrated in Figure 7.

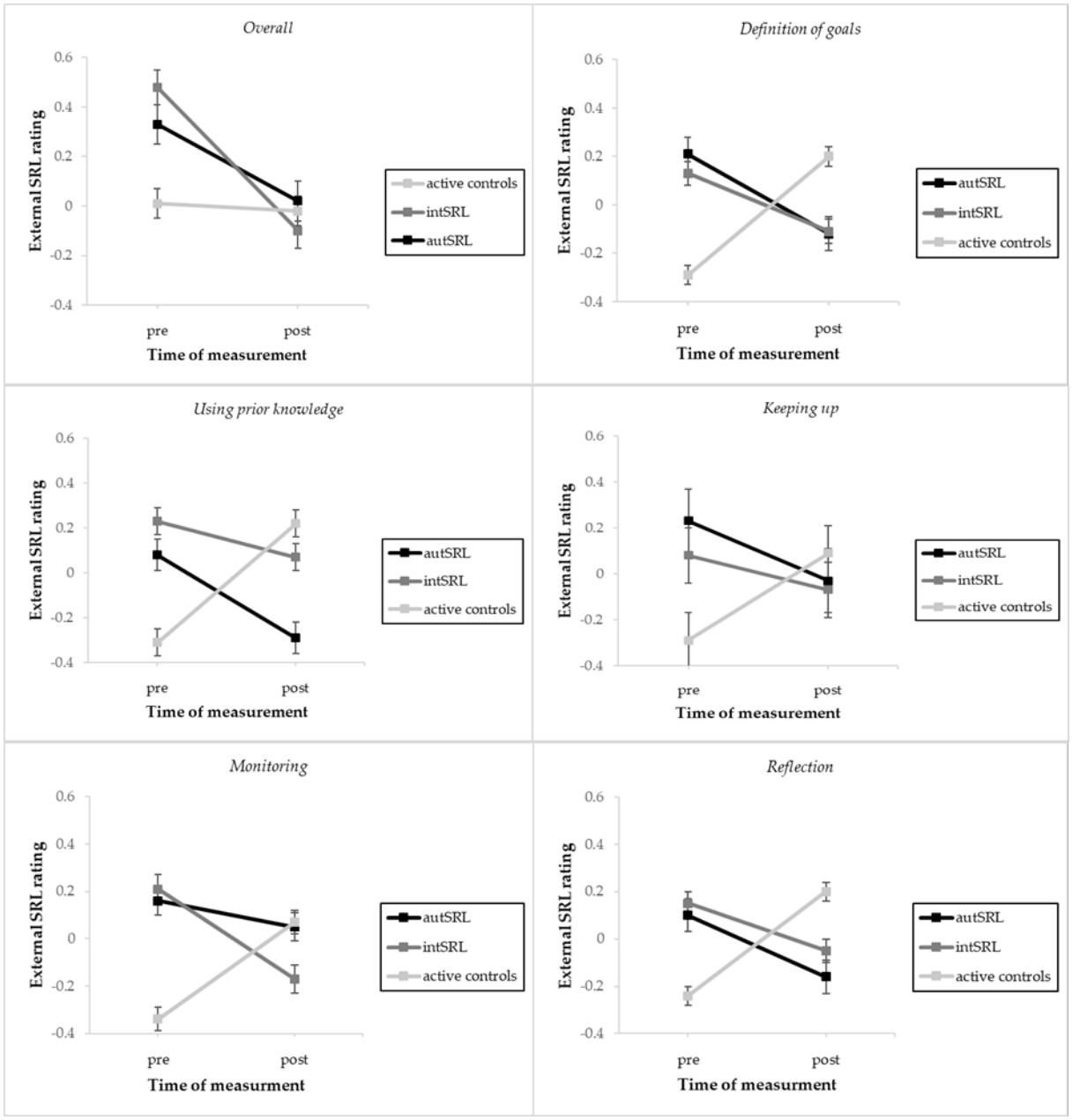

Figure 7. Differences in changes from pre- to posttest between groups for the external SRL rating score (overall, subscales)

Measurement at Teacher Level: Manipulation Check of SRL Intervention

Kindergarten teachers of the 'autSRL intervention' group (n = 7) reported a frequency of use of the

transfer material of *M* =.8 points, *SD* = .58, and a helpfulness of transfer material of *M* = 2.1 points, *SD* = .16. One Kindergarten teacher of the 'intSRL intervention' group stated a frequency of use of the transfer materials of *M* = 1.13 over all material that was handed over.

Measurement at Teacher Level: General Improvement from Pre- to Posttest

To avoid a further reduction of sample size due to listwise exclusion of cases, missing values were replaced by using 'participant mean substitution'. This method turned out to be adequate in minor item-level missingness (Parent, 2013). The descriptive statistics for the pretest- and posttest-scores for teacher SRL self-report score (overall) as well as the subscales scores 'SRL behaviour' and 'SRL mediation' are shown in Table 9.

Table 9. Descriptive statistics of the Kindergarten teacher SRL self-report

	autSRL Intervention		intSRL Intervention		Active Control Group	
	pre M (*SD*)	*post M (SD)*	*pre M* (*SD*)	*post M (SD)*	*pre M* (*SD*)	*post M (SD)*
SRL self-report	221.11 (20.79)	218.30 (15.65)	218.56 (8.93)	225.64 (12.97)	226.40 (17.10)	228.44 (16.46)
SRL behaviour	124.75 (11.64)	123.75 (8.17)	124.23 (5.55)	127.98 (9.42)	132.52 (9.78)	134.01 (11.22)
SRL mediation	96.36 (10.01)	94.55 (8.59)	94.34 (5.78)	97.66 (6.06)	101.39 (8.65)	101.83 (7.65)

The Wilcoxon tests revealed no significant differences between pretest and posttest scores for the teacher SRL self-report (overall) in the 'autSRL intervention' (n = 8, Z = -.68, p =.50), in the 'intSRL intervention' (n = 8, Z = -1.26, p =.21) and in the 'passive control group' (n = 14, Z = -.56, p =.58). Furthermore, the Wilcoxon tests resulted in no pairwise differences between pretest and posttest score for the two subscales in the 'autSRL intervention' ('SRL behaviour': Z = -.14, p = .89; 'SRL mediation': Z = -.98, p = .33), in the 'intSRL intervention' ('SRL behaviour': Z = -.71, p = .48; 'SRL mediation': Z = -1.86, p = .60) and in the 'passive control group' ('SRL behaviour': Z = -.51, p = .61; 'SRL mediation': Z = -1.25, p = .21).

Conclusion and Discussion

The study aimed to evaluate the efficacy of an SRL intervention for preschool children and their kindergarten teachers. For both target groups, two intervention groups and a control group were compared. The results of the longitudinal analyses showed an increase in SRL and gSR across all conditions of preschoolers. However, the used manipulation checks indicated no effects of the SRL intervention in general, pointing to general maturational processes rather than an intervention-specific boost. Surprisingly, we found significant differences between conditions in favour of the active control group. For kindergarten teachers, we found no significant differences between groups at all.

Lacking Intervention-induced Benefit in Preschoolers: Advantage of the Active Control Group

An increase in SRL and gSR over time was revealed in all tested group conditions at the child level, whereas an intervention-specific benefit could not be obtained. Nor were there differences between our two intervention groups (i.e. 'autSRL' and 'intSRL'). Vice versa, the children of the active control group only were rated even better in SRL by their kindergarten teachers in comparison to the SRL intervention groups. In contrast, we found no differences in performance between groups in the (objective) SRL Test and the HTKS which measured gSR. This result goes contrary to our hypotheses. One explanation could concern the measurement instruments. In contrast to our study, Perels et al. (2009) fostered SRL successfully in kindergarten teachers and preschoolers. They used interview data in preschoolers and questionnaire data in kindergarten teachers to examine intervention efficacy. In addition, Dörr and Perels (2019b) reported a successful intervention to foster metacognitive skills as an important prerequisite of SRL.

As practiced in multiple research groups that deal with the assessment of young children (e.g. Bünger, Urfer-Maurer, & Grob, 2019; Phillips & Lonigan, 2010), we chose a multi-method approach to evaluate the effectiveness of the intervention of preschoolers. The SRL test implies that the SRL interventions did not work. This test showed a deficient internal consistency in the current study, which

implies that its validity was restricted. Consequently, it is questionable whether the SRL test data are appropriate to detect an intervention benefit. Furthermore, the data of the external SRL rating indicated that the active control group was superior to both intervention groups. Generally, the use of external (SRL) ratings rated by kindergarten teachers which work closely with the preschoolers involves risks. First, it offers empirical evidence for a limited accuracy of teacher ratings concerning the cognitive and socioemotional abilities of their students (An, Curby, & Brock, 2018; Mashburn & Henry, 2004). Individual characteristics, such as work experience or self-efficacy, have an impact on the teacher ratings of young children (Furnari, Whittaker, Kinzie, & DeCoster, 2017; Mashburn, Hamre, Downer, & Pianta, 2006). Second, reactivity effects (Foroughi, Monfort, Paczynski, McKnight, & Greenwood, 2016) of the active control group could have emerged. In the run up of the intervention, kindergarten teachers were informed that their preschoolers served as the control group. Perhaps the teachers rated them particularly mild to avoid presenting a poor picture of their preschoolers. Third, it is reasonable to believe that kindergarten teachers of the intervention groups were sensitised for SRL after completing the workshop. This could have led to a stricter rating of the SRL ability of the preschoolers in posttest in contrast to their SRL rating in pretest, which appears in the data as a decrease in SRL (see Figure 7). Inversely, kindergarten teachers which were part of the active control group were not sensitised and showed, therefore, more consistency in their 'rating severity'. Despite a possible sensitisation, we had important reasons for relying on the SRL rating by the kindergarten teachers, such as missing instruments at the child level which allow for cross-validation of the developed SRL test and restricted time for capturing various other variables directly on child level.

Another critical aspect which could have led to the missing intervention benefit is the implementation of the active control group. Lipsey (1990) emphasised the role of a weakest possible control condition to achieve design sensitivity, which serves as precondition to detect benefits in intervention studies. Even though we did not explain and practice SRL learning strategies with the preschoolers of the active control group, we exposed them to those as part of our manipulation check. Potentially, the specific and compact presentation of SRL positive and SRL negative learning processes may have suggested implicit conclusions and learning effects (Christiansen, 2019; Goujon, Didierjean, & Thorpe, 2015; Perruchet & Pacton, 2006).

A further critical aspect is that the time interval between intervention and posttest was possibly too small to detect an intervention benefit. The learning-inhibiting effect of intervention activities is known as the mathematanical effect (Clark, 1990). This effect appears if known problem-solving strategies are in cognitive conflict with new learned strategies. To overcome the inhibition, it takes time, during which new learned learning strategies prove to be useful. In respect of preschoolers, who do not dispose of sophisticated learning strategies, more time, as well as the exercising of possibilities and success experiences, may be needed to allow intuitive or more impulsive problem-solving behaviour to pass.

Lastly, the lack of an intervention benefit of kindergarten teachers, which is discussed below, could have resulted in too little support in SRL during the kindergarten routine. This could have disrupted the consolidation of SRL strategies which preschoolers learned in the intervention sessions.

Lack of an Intervention Benefit in Kindergarten Teachers

On the level of kindergarten teachers, a passive control group instead of an active was realised to compare it with the intervention groups. However, an intervention benefit could also not be proven statistically. The three groups did not differ concerning the SRL self-report. In particular, the poor results of the manipulation check can be regarded as an indicator for the missing implementation of the transfer materials. This could have provoked not enough occupation with the topic of SRL and, in turn, missing indirect support of preschoolers' SRL skills by their kindergarten teachers. This support would have been important to consolidate SRL knowledge in daily kindergarten life. Another opposite explanation could be that the SRL workshop was useful for the teachers and helped them to generate knowledge about SRL. The sensitisation for SRL could have covered intervention benefit due to a more negative self-assessment in posttest (similar to the explanation in the section above). The inaccuracy of kindergarten teacher self-report

of SRL was also considered as critical in the intervention study of Venitz and Perels (2019).

Limitations and Outlook

The present study has several different limitations. First, the experimental randomisation of preschoolers to intervention groups was not possible. For practical reasons, we decided to randomise the assignment of kindergartens to intervention groups. As described above, the influence of kindergarten institutions on preschoolers' performance was relatively small.

Second, the selection of kindergartens was based on geographical position. We were not able to consider variables such as pedagogical orientation, size of kindergarten or allocation of staff. Our findings are therefore representative for a certain region in Germany but do not allow for generalisation.

Third, to ensure acceptable testing economics, we assessed only a few control variables. For example, we used only one item, the book question, to measure the socioeconomic status. Beyond that, to address the question of topicality in times when people also read e-books, it could more valid to use multiple informants. Furthermore, speech competence was measured by assessing only two facets of speech: namely speech production and speech comprehension.

Fourth, we did not collect detailed information concerning the kindergarten teacher sample for data protection directive reasons. But detailed information like, for example, professional experience could have been helpful for the interpretation of our findings.

Fifth, because of time-economic reasons, we had to focus on a manageable number of measurement instruments to evaluate the SRL intervention. gSR was only assessed by the HTKS task which displays only one possible perspective on self-regulation. In contrast to the social-cognitive perspective (Bandura, 1986) on self-regulation, there also exists an developmental psychological perspective on an self-regulation which refers to regulation of emotion as characteristic of temperament (Rothbart & Ahadi, 1994). The latter perspective could not be considered within our study but could also have an impact on learning. Although we did not find the effect we expected, the study provides a starting point for future studies and is of practical relevance for researchers. In contrast to other age groups, preschool age has not been the focus of research in the field of SRL. As described in the section 'Importance of SRL interventions for preschoolers', there are multiple arguments to consider with regards to young children. Future research could address the development and evaluation of adequate measurement instruments which are adequate for evaluating SRL interventions. Our SRL test represents an initial attempt to do so (see Jacob et al., 2019). The collection of multiple sources of information to evaluate SRL interventions should definitely be continued (Desoete, 2008). Further, we recommend to apply all measurement instruments in pretest- and posttest by means of two experimenters (as we did) and to collect data which allows for calculating an interrater reliability. This would have been an important quality criterion for the current study and could have increased the validity of our measures. In regard to cross-validation, external raters should accompany the preschoolers in everyday kindergarten life to provide more objective ratings than can be achieved by employing only kindergarten teachers that work directly with the children (An et al., 2018; Mashburn et al., 2006). For the intervention evaluation on the teacher level, it would also be advisable to rely on further data sources than only those from self-reports (Schunk, 2008).

On the level of the study design, future studies should implement a third follow-up measure which is temporally further apart from the intervention. This would offer more space for possible long-term learning effects, such as during the transition to primary school. Furthermore, an additional *passive* control group would increase design sensitivity and could help us to understand if manipulation checks that include SRL strategies could have led to the implicit conclusions of the preschoolers.

Besides the practical relevance for researchers in the field of SRL, the study also reveals an important outcome for educators. Dealing the topic of SRL in preschool children stresses the meaning of preschool education, especially in Germany and other countries in which no standardised curriculum is implemented so far. Additionally, the fundamental role of kindergarten teachers for a successful transition into school becomes apparent (Barnett, 2008). In this context, possible effects on the professional training of teachers

are conceivable. Further, the assessment of SRL in preschool teachers can serve as basis for the application of SRL in kindergarten context which is of relevance when considering the model function of kindergarten teachers for preschoolers (Bandura, 1986). Further, the assessment of SRL in preschoolers could allow for the development of adaptive SRL intervention programs.

Summary and Conclusion

To summarise, it must be noted that in light of the statistical results, our applied SRL intervention for preschoolers was not efficient. We found that the active group was superior based on external SRL ratings by their kindergarten teachers. In addition, we found no indices for the effectiveness of the applied SRL intervention for kindergarten teachers, which we hypothesised would support the preschoolers' learning process. We discussed the multiple methodological aspects and reactivity effects that could have led to this result. Nevertheless, preschool age represents an important period in which to implement (SRL) learning support. Research in this field should therefore be expanded to enable the methodological difficulties which complicate the evaluation of SRL interventions for preschoolers to be addressed.

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Research Article

Effects of a parent training using telehealth: Equity and access to early intervention for rural families

Deborah L. Rooks-Ellis[1], Sarah K. Howorth[2], Susane Boulette[3], Megan Kunze[4], Ella Sulinski[5]

Abstract: Children living in geographically rural areas may have limited access to early, intensive evidence-based interventions suggesting children residing in these areas are less likely to experience positive outcomes than their urban-dwelling peers. Telehealth offers an option to rural families seeking early intervention by using communication technologies where providers are able to consult and deliver services in real-time over geographical distances. To our knowledge, no other study has examined the implementation of P-ESDM in rural natural environments within the framework of the state's early intervention program. Using a multiple baseline design across participants, the current study investigated the effects of the parent-Early Start Denver Model implemented within a rural northeastern state's existing IDEA Part C early intervention program. Parents demonstrated increased fidelity to intervention strategies and reported satisfaction with the program's ease of implementation and observed child gains. Statistically significant pre-to post- change in children's ASD symptomatology were reported for the domains of communication, social reciprocity and repetitive and restricted behaviors. Support for parent-mediated interventions, the importance of fidelity of implementation for sustainability of intervention strategies, and the need to explore telehealth as a viable service delivery option to improve developmental trajectories for toddlers with autism are discussed.

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Introduction

Autism spectrum disorder (ASD) is an early emerging neurodevelopmental disorder defined by delays in social-communication (i.e., social-emotional reciprocity, nonverbal communication, and social relationships) and the presence of restricted and repetitive behaviors, interests, or activities, (i.e., stereotyped or repetitive motor movements, use of objects, or speech; inflexibility; restricted interests or focus; or hyper- or hypo-reactivity to sensory input) (American Psychiatric Association [APA], 2013). The prevalence of ASD has steadily risen to the current rate of 1 in 54 children in the U.S. (Maenner et al., 2020). In the past decade, the age for a reliable diagnosis of ASD has decreased to as early as 14-months with the recommended age for early diagnosis at 18-months (Hyman, Levy, & Myers, 2020; Pierce et al., 2019). Early diagnosis has led to an increased demand for developmental and behavioral early intervention. The supply of services has not kept up with this demand, forcing families to wait for these intervention services (Hyman et al., 2020; Smith-Young, Chafe, & Audas, 2020).

Early Intervention for ASD Population

The benefits of early intervention are long established in research (Chawarska, Macari, Volkmar, Kim, & Shic, 2014; Estes et al., 2014; Hyman et al., 2020). Interventions initiated before age three have a greater and more positive impact on development than interventions that began after age five (Kasari,

[1] University of Maine, School of Learning and Teaching, Orono, ME, USA, e-mail deborah.l.rooks@maine.edu, ORCID: https://orcid.org/0000-0002-4317-1593
[2] University of Maine, School of Learning and Teaching,, Orono, ME, USA, e-mail: sarah.howorth@maine.edu, ORCID: https://orcid.org/0000-0002-4292-301X
[3] Maine Department of Education, Maine Child Development Services, Augusta, ME, USA, e-mail: sue.boulette@gmail.com, ORCID: https://orcid.org/0000-0003-4566-7995
[4] University of Oregon, Department of Special Education and Clinical Sciences, Eugene, OR, USA, e-mail: mkunze@uoregon.edu, ORCID: https://orcid.org/0000-0002-4449-2719
[5] University of Maine, School of Social Work, Orono, ME, USA, e-mail: ella.sulinski@maine.edu, ORCID: https://orcid.org/0000-0002-1830-5609

Gulsrud, Freeman, Paparella, & Hellemann, 2012; Kasari, Gulsrud, Wong, Kwon, & Locke, 2010). Specifically, children with autism who receive early, intensive interventions demonstrate improvements in social-communication and adaptive skills with decreased engagement in restricted and repetitive behaviors; often demonstrating improvements in adaptive functioning throughout childhood and later in life (Lin & Koegel, 2018; Reichow, Hume, Barton, & Boyd, 2018; Shire, Gulsrud, & Kasari, 2016). The positive outcomes associated with early intervention have been attributed to systematically implemented evidence-based interventions (Wong et al., 2015). Evaluation of intervention effectiveness as measured by fidelity (Caron, Bérubé, & Paquet, 2017), and assessment of these interventions for usability and acceptability (e.g., measurement of social validity, generalization to other caregivers, and maintenance over time), as well as flexibility (e.g., planning for uniqueness of individualized behavior targets), continue to raise the bar; ideally resulting in established, high-quality intervention packages to better target ASD symptomatology and serve young children and families (Matson & Goldin, 2014; Matson & Konst, 2013; Matson & Rieske, 2014; Rivard et al., 2017; Zwaigenbaum et al., 2015).

Parent-Mediated Early Intervention

Parent-mediated interventions are defined as "technique-focused interventions where the parent is the agent of change and the child is the direct beneficiary of treatment" (Bearss, Burrell, Stewart, & Scahill, 2015; Bearss et al., 2018). Parent-mediated interventions can positively impact child outcomes, which speaks to the importance of individualized, evidence-based early intervention by parents as mediators and adequate interventionist coaching (Beaudoin, Sébire, & Couture, 2019; Fettig & Ostrosky, 2011). Recent studies have suggested that when parents are actively engaged in the treatment process and are coached to incorporate specific behavioral and developmental strategies into daily routines and family activities, then positive outcomes are achieved for young children with ASD (McIntyre & Zemantic, 2017). Likewise, researchers have demonstrated parent involvement helps to facilitate generalization across environments, thereby providing the "real life" intensity of services necessary for significant changes in many toddlers with ASD (Brian, Smith, Zwaigenbaum, & Bryson, 2017; McIntyre & Zemantic, 2017; Wallace & Rogers, 2010).

Telehealth (i.e., two-way computer-based videoconferencing) research when used with families of children with ASD is increasing. For example, functional communication training (Wacker et al., 2013, Wainer & Ingersoll, 2015), pivotal response training (Nefdt, Koegel, Singer, & Gerber, 2010), and behavioral consultation (Simacek, Dimian, & McComas, 2017) have been successfully delivered using telehealth with this population. This transference of intervention skills through coaching of parents via telehealth has become more prominent (Ashburner, Vickerstaff, Beetge, & Copley, 2016). In fact, telehealth has shown to be a successful means of training educators and caregivers in both school and early intervention settings to conduct functional assessments, create individualized behavior plans and innovative classroom management techniques (Neely, Rispoli, Gerow, & Hong, 2016). Similarly, it has been demonstrated that fidelity of parent-mediated intervention has been at higher levels when compared to similar interventions delivered face to face (McDuffie et al., 2016). More recently, telehealth has been used to train parents of young children with autism to implement early intervention strategies in their home using the parent-implemented Early Start Denver Model (P-ESDM), which employs the science of applied behavior analysis and developmental, relationship-based intervention (Rogers, Dawson, & Vismara, 2012; Vismara et al., 2018). Parents reported positivity toward the use of technology and telehealth as a means to learn parent-led intervention skills, and findings demonstrated emerging support for P-ESDM (Rogers, et al., 2012; Vismara et al., 2018).

Access for Families in Rural Areas

Children living in geographically rural areas may have limited access to early, intensive evidence-based interventions suggesting children residing in these areas are less likely to experience positive outcomes than their urban-dwelling peers (Mello, Goldman, Urbano, & Hodapp, 2016). Access to trained providers is also identified as a barrier for rural families as they are often made to wait their turn for services or face additional costs to travel long distances to obtain necessary services widening the equity gap due

to geographical location (Martinez et al., 2018).

Telehealth offers an option to rural families seeking early intervention by using communication technologies where providers are able to consult and deliver services in real-time over geographical distances. Telehealth integrates principles of adult learning within the multimedia environment to increase parents' understanding, retention, and use of early intervention (Baggett et al., 2010). Increasing the availability of evidence-based interventions through telehealth may be a valid solution to closing the gap between service demand and availability in rural and underserved areas.

Current Study

The current study investigated the effects of the P-ESDM as implemented by an early interventionist present within the state's existing Individuals with Disabilities Education Act (IDEA, 2004) Part C early intervention program. The study examined the feasibility of parent implementation of P-ESDM via telehealth to allow for statewide implementation of P-ESDM across a rural northeastern state to improve outcomes for young children with ASD and their families. Additionally, researchers sought to understand the pre to post change in child's ASD symptomatology and the usability of the telehealth presentation for families, specifically for families residing in rural and underserved areas. To our knowledge, no other study has examined the implementation of P-ESDM in rural natural environments within the framework of the state's early intervention program. Specifically, the research questions for this study were:

Research Question 1: Is there a functional relationship between parents' fidelity of implementation of P-ESDM intervention strategies and their participation in P-ESDM parent training via telehealth?

Research Question 2: What changes in children's ASD symptoms do parents report? And

Research Question 3: How do parents residing in rural areas describe the usability and acceptability of P-ESDM via telehealth?

Method

Participants and Setting

Family participants. Family participants were recruited through the state's existing IDEA Part C early intervention program with a specific focus on recruiting families from rural and underserved areas. Families represented seven of the state's nine IDEA Part C early intervention program sites. Inclusionary criteria for the parent-child dyads were as follows: (a) child was enrolled in the state's early intervention program as defined by IDEA (b) child had high risk (i.e., M-CHAT scores, sibling with ASD, informed clinical opinion) or an existing diagnosis of ASD by a licensed psychologist or physician, (c) parents provided informed consent for at least one primary parent and child to participate in study activities, (d) participating parent was able to participate in all sessions, and (e) parent had access to technology to support Zoom® video conferencing (e.g., internet, smart phone, computer, laptop, tablet).

A total of ten parent-child dyads participated in the study. Children ranged in age from 25 to 33 months at the start of the study, with a mean age of 29.3 months. None of the children were receiving services outside of the parent-implemented intervention during the course of this study. Parent participants were female (9/10, 90%) and male (1/10, 10%) and reported as Caucasian (8/10, 80%), Hispanic (1/10, 10%), and Native American (1/10, 10%), with 60% (6/10) having completed high school or some college, and 40% (4/10) having earned a college degree. Participants were employed part-to-full time (6/10, 60%), others reported not being employed outside of the home (3/6, 30%), and one parent chose not to respond (1/10, 10%). Six parents (60%) reported high internet usage (e.g., more than 5 hours/day) and four parents (40%) reported low internet usage (e.g., less than 5 hours/day). Income was reported as $50,000/year or higher by 60% (6/10) participants, with 40% (4/10) having earned less than $50,000/year. Using the U.S. Census Bureau's measure of population size and density to define rural, 100% of participating families lived in rural settings.

Setting. Assessment and intervention activities were conducted in family participants' homes in person during baseline, and via internet-based telehealth during intervention. Family demographic information is included in Table 1.

Table 1. Child and family characteristics

Baseline characteristics	N=10
Child's age at enrollment (months)	*M=29.3* (SD=2.36)
Child's gender	
Male	6
Female	4
Child's ethnicity	
Hispanic	1
American Indian or Alaska Native	1
Caucasian	8
Parent's gender	
Male	1
Female	9
Parent's age	
25-34	6
35-44	3
55+	1
Geographic setting	
Rural	10
Family income	
Less than $50,000	4
More than $50,000	6
Parent's education	
High school	1
Some college	5
College degree	3
Graduate degree	1
Parent's employment	
Not employed outside of the home	3
Part- or full-time employment	6
Parent's internet use	
Low internet use	4
High internet use	6

Experimental Design

Research activities and training protocols were approved by the university's institutional review board (IRB). This study used a concurrent multiple baseline across participants design to evaluate the effects of a parent-implemented intervention for toddlers with ASD in terms of three dependent variables: (a) fidelity of parents' implementation of intervention strategies, (b) pre to post change in children's ASD symptomatology, and (c) parent description of the usability and acceptability of P-ESDM via telehealth. Each family served as its own control. To meet the quality indicators and standards of single-case experimental research, a minimum of three data points in the baseline phase were collected on parent fidelity and a decision to move to the next phase was based on the stability of the data (Horner et al., 2005; What Works Clearinghouse, 2020).

Independent Variable (IV)

P-ESDM intervention. In our rural northeastern state, parents and families of young children with autism are offered the Early Start Denver Model (Rogers & Dawson, 2010) as an option for IDEA Part C early intervention services. For this reason, the P-ESDM was chosen as the intervention for this study because it follows the same science of applied behavior analysis and developmental, relationship-based intervention of the ESDM. The family-centered approach of P-ESDM aligns with the state's primary service provider model in which one member of the multidisciplinary team is selected to be the family's primary contact for early intervention services. Likewise, our state faces persistent personnel shortages in early childhood intervention, often cited as a barrier to accessing high quality services for families living in rural

and remote areas (Martinez et al., 2018). For this reason, telehealth was chosen as the means for implementation of P-ESDM.

During the 12-weeks of P-ESDM intervention, parents were taught how to use the 10 topics of P-ESDM to target multiple skills within their child's daily routines and activities to strengthen and support their child's development. Examples of family routines and activities included reading a book together, eating breakfast, diaper changing, and family outings. P-ESDM topics included attention and motivation, sensory social routines, joint activity routines, nonverbal communication, imitation, joint attention, speech development, functional and symbolic play skills, and the teaching techniques of applied behavior analysis (see Table 2 for P-ESDM topics and strategies). Intervention sessions were scheduled at a time convenient for the family and conformed to the detailed parent training manual, curriculum, and parent fidelity of implementation measures (Rogers et al., 2012).

Table 2. P-ESDM topics and strategies (Adapted from Rogers et al., 2012)

Topic	Goal	Strategy
Step into the spotlight: Capturing your child's attention	Increase child's attention on parent for learning	Identify and follow the child's interests, reduce outside distractions that interfere with child's ability to attend and participate in learning opportunities
Find the smile: Fun with sensory social routines	Increase child's positive affect and social communication behaviors using songs, social games, and social exchanges	Introduce and build a repertoire of sensory social routines to optimize child's energy level for learning
It takes two: Building back and forth interactions	Increase opportunities for child learning within daily activities and routines	Build joint activities and take turns with the child, use simple words, create new learning opportunities with additional materials, actions, and steps to the play, end the activity together and transition to the next activity
Talking bodies: The importance of nonverbal communication	Increase child's nonverbal communication skills for promoting speech and language	Add gestures, facial expressions, and simple language to family activities and routines. Identify communicative opportunities in which the child's body language can be used to express feelings and interests
Do what I do: Helping your child learn by imitating	Increase child's imitation of sounds, gestures, facial expressions, actions and words	Imitate child's play, sounds/ vocalizations, and movements and encourage imitation back from child inside toy play, songs, social games, and other daily activities
Let's get technical: How children learn	Teach the basic strategies of applied behavior analysis for enhancing child learning	Identify and use antecedent-behavior-consequence teaching principles for understanding child behavior and teaching new skills
The joint attention triangle: Sharing interests with others	Increase child's interest to share objects and activities with others	Give, show, and point to objects and pictures for sharing enjoyment
It's playtime	Increase learning opportunities in parent–child toy play and support constructive, varied, and independent toy play.	Use play to build and practice skills, including social skills, and to create new ways to play with toys independently and with others
Let's pretend	Develop child's pretend play that is spontaneous, creative, and flexible	Use imitation to teach symbolic play actions to make scenes from life activities
Moving into speech	Increase child's use and understanding of speech through active engagement with people, their facial expressions, and their gestures	Develop vocal games to increase child's sounds and build up child's vocabulary with more opportunities for listening and responding to language

During the first 90-minute videoconferencing P-ESDM session, parents shared which P-ESDM topics seemed more or less relevant to their learning needs and strategies of interest that they may have read about in the parent manual. Sessions 2-12 followed a similar format and began with a brief check in. Parents shared their experience and an example of using the P-ESDM topic inside an activity or routine with their

child. Next, the parent and the interventionist reflected about how the topic was used to support the child's development and explored ways to expand or improve the activity to increase the child's engagement and learning or to augment the child's behavior. Then a new topic was introduced, and the interventionist coached the parent through several activities with the child. Parents used Bluetooth ear buds during this part of the session so as to not distract the child with the interventionist's voice. Each session ended with the parent selecting activities and routines in which to use the new topic. After each session, parents were provided with an electronic handout of the goals and strategies taught during the session and the parent-selected activities to try with their child.

Interventionist Training

Sessions were delivered by a certified P-ESDM interventionist with a master's degree and 20-years of experience in the field of early intervention. The interventionist was trained to implement P-ESDM by observing live and video-recorded intervention sessions, implementing intervention sessions, comparing self-completed fidelity checklists with trainer-completed fidelity checklists, and participating in reflection and problem-solving discussions. Before participating in the study, the interventionist achieved a fidelity rating of at least 85% or above on three video submissions as measured by the P-ESDM fidelity checklist.

Dependent Variables (DVs)

The study conducted observation coding and analyses. Primary outcome measures included parent and interventionist fidelity with a secondary outcome of pre-to post change in their child's autism symptoms as a result of parent-implementation.

Parent Fidelity of Implementation

Intervention sessions were provided with and recorded using the Zoom® video conferencing system. Recordings were observed by the interventionist following each session to measure parent fidelity using the P-ESDM Parent Fidelity Rating System. This is a Likert-type rating scale with scores ranging from level 1 (e.g. poor or unacceptable) to level 5 (e.g. best possible example) across 13 adult behaviors related to (a) management of child attention, (b) quality of behavioral teaching, (c) instructional techniques and application, (d) child affect and arousal, (e) management of unwanted behavior, (f) dyadic engagement, (g) child motivation for participating in the activity, (h) adult use of positive affect, (i) adult sensitivity and responsivity to child's communicative cues, (j) multiple and varied communicative opportunities, (k) appropriateness of adult's language for the child's language level, (l) joint activity structure and elaboration, (m) transitions between activities, and (n) child engagement during unstructured times.

Interventionist Fidelity of Implementation

To evaluate the quality of implementation, the interventionist's fidelity was examined using the P-ESDM Coaching Fidelity Rating System, a Likert-type rating scale with scores ranging from 1 (i.e., no competence) to level 5 (i.e., high competence) across the teaching behaviors. Fidelity was defined as no scores under 2 and a mean score of 80% or above on three consecutive coded sessions. The following activities were assessed (a) greeting and check-in, (b) warm up activity, (c) introduction of the topic, (d) coaching on the topic, (e) coaching activity 2, and (f) closing. Coaching fidelity of these behaviors were examined (g) collaborative, (h) reflective, (i) nonjudgmental, (j) conversational and reciprocal, (k) ethical conduct, (l) organization and management, and (m) managing conflict and implementation difficulties. Inter-rater agreement was defined as raters' scores falling within 1 point on the Likert-type rating scale for each item.

Reliability. Inter-observer agreement was established prior to fidelity scoring and maintained throughout the study. Two master's level and certified ESDM therapists independently rated 100% of baseline session video recordings, 30% of randomly selected intervention video recordings, and 100% of maintenance and generalization video recordings. An agreement was defined as both raters' scores being within 1-point on the Likert-type scale for each item. Inter-rater agreement was defined as raters' scores

falling within 1 point on the Likert-type rating scale for each item. The goal for achievement of fidelity was 80%. Inter-observer ratings in this study were 95% for parent fidelity and 94% for interventionist fidelity. See Table 3 for P-ESDM fidelity scoring instructions.

Table 3. P-ESDM fidelity rating instructions (Adapted from Rogers et al., 2012)

	Instructions to Raters
1	If rating from a video recording, watch the recording in a confidential setting with minimal distractions.
2	Review the child's objectives prior to coding. Keep them available to check as needed.
3	Read the language defining each behavior and anchor every score.
4	Take brief notes during the session you are observing in order to remember examples of behavior.
5	When rating, be aware of rater biases.
6	Observe each activity one time through without stopping. Make notes and replay as needed.
7	When a coaching problem has occurred, decide what the main difficulty is and code the item most closely related to the problem accordingly.
8	If you are caught between two codes, then give the higher code.
9	One is considered to have achieved fidelity to the model if they have no scores under 2 and a mean score of 80% or above on three consecutively coded sessions.

Autism Impact Measure

Severity of children's ASD symptoms was measured using the Autism Impact Measure, a 41-item parent-report measure of core autism symptoms (see Table 7 for AIM items). Developed using a large sample of 440 children and adolescents with ASD, test-retest reliability ranged from .65 to .85 for the frequency subdomains and .53 to .78 for the impact subdomains (Kanne et al., 2014). Given these sound psychometric properties, the Autism Impact Measure was selected for the ability to track short-term improvement across clinically relevant ASD symptom domains. Items were rated on the following corresponding 5-point scales for frequency of symptom occurrence (1=never, 5=always) and symptom-related impact on daily functioning (1=not at all, 5=severe). Positively phrased frequency items 28-41 were reverse scored to ensure that all items reflected frequency of problematic behavior for analysis (Kanne et al., 2014, p. 173).

Social validity: Telehealth usability and acceptability questionnaire. Parents completed a program developed electronic questionnaire following the intervention phase to characterize the intervention's utility, acceptability and feasibility. Parents responded to 17 Likert-type 6-point scale questions about the usability and acceptability of the telehealth format, 18 Likert-type 6-point scale questions about their level of satisfaction with the interventionist's coaching, and three open-ended questions about the coaching process. Example Likert-type scale items (with response anchors of strongly agree, somewhat agree, somewhat disagree, and strongly disagree) included "I felt supported by the telehealth intervention and therapist coaching in spite of distance."; "Telehealth saves me time traveling for services."; "The discussion and problem solving with the coach were helpful for reaching goals.", "I think the visits provided by telehealth are the same as in-person visits.", and "I was able to use the telehealth intervention to increase my child's participation in activities and play." Open-ended questions included "What did you like best about the telehealth parent coaching?" and "What did you like least?"

Procedure

Project staff met with interested families, explained the project, and obtained informed consent from the parents. A routines-based interview (McWilliam, 2010) was completed to gather information about the family's priorities and concerns and information about their typical routines and activities.

Baseline Phase

Baseline sessions were conducted in-person. The camera setting of an iPad was used to video-record a minimum of three 10-minute play sessions between the child and parent. The iPad was set up on a table or shelf to minimize distractions. Parents were asked to interact with their child as they typically would during everyday activities, with no attempt to influence parents' behaviors. Examples of parent-child activities observed included playing with preferred toys, building with blocks, eating a snack among others. Parent fidelity of implementation of intervention strategies was measured using the P-ESDM

Parent Fidelity Rating System (Rogers et al., 2012) by the interventionist, and no parent coaching occurred during baseline sessions. Parents were provided a copy of the parent manual, Early Start for Your Child with Autism: Using Everyday Activities to Help Kids Connect, Communicate, and Learn (Rogers et al., 2012). Additionally, the interventionist and parent worked together to set up and test-run the technology that would be used for the intervention sessions (e.g., ear buds for coaching, video-conferencing system on smart phone, tablet, or computer). Parents were provided training as needed to operate the Bluetooth ear buds and the Zoom® video conferencing system.

P-ESDM Intervention Phase

Each 90-minute intervention session followed the format of the manualized P-ESDM intervention. Sessions were video recorded using the Zoom® video conferencing system. Parent fidelity was measured during the warm-up activity for previously taught strategies and during the coaching activity for new strategies. Parents were encouraged to use the strategies in their everyday activities with their child; however, there were no specific requirements given to parents about the frequency and duration that parents should use to implement the intervention strategies. Parents completed the telehealth usability and acceptability questionnaire following the intervention phase.

Maintenance Phase

The interventionist observed the family interacting with their child as they typically would during activities and play two weeks after intervention sessions were completed as a maintenance measure of the parent's fidelity of intervention strategies. Parent fidelity of implementation of intervention strategies was measured using the P-ESDM Parent Fidelity Rating System by the interventionist, but no parent coaching occurred during these sessions. This 90-minute telehealth session was video recorded.

Generalization Phase

Two weeks following the maintenance session, parents were invited to submit a 10-20- minute video recording to measure generalization of parent fidelity of implementation of intervention strategies. Parent fidelity of implementation of intervention strategies was measured using the P-ESDM Parent Fidelity Rating System by the interventionist, but no parent coaching occurred during these sessions.

Data Analysis

The functional relationship between the P-ESDM via telehealth intervention and dependent variable of parent fidelity of intervention strategies was analyzed through visual inspection and descriptive statistics of graphed data. The level, trend, variability of data across phases, and single case measures of effect for each participant provided the context for the analysis (Kratochwill et al., 2010).

Data on dependent measures was analyzed using nonoverlap of all pairs (NAP), TAU-U, and percent non overlapping data (PND). NAP is a nonparametric measure of effect for measuring nonoverlap or between two phases. It does not include adjustment for data trends in baseline (Scruggs & Mastropieri, 1998). TAU-U is a nonparametric measure to measure data overlap between phases. It allows for analysis adjustment for baseline trends and is a measure that can distinguish how much of the nonoverlap was an improvement over baseline. It is a way to determine whether or not improvement was due to the intervention versus chance (Parker, Vannest, & Davis, 2011). The PND was calculated using the following formula: the number of intervention data points that surpassed the highest baseline data point divided by the total number of intervention data points, then multiplied by 100 (Scruggs, Mastropieri, & Casto, 1987). Scruggs and Mastropieri (2001) suggested interpretational guidelines of PND when used to evaluate the effectiveness of the intervention. Using their guidelines, authors evaluated PND greater than 90% as a highly effective intervention, PND greater than 70% and less than 90% as an effective intervention, PND greater than 50% and less than 70% as questionable effectiveness, and PND less that 50% was considered unreliable effectiveness for interventions.

Statistical analyses of the pre-post Autism Impact Measure responses were performed using SPSS Statistics version 25. Positively phrased frequency items were reverse scored, so that "all items reflected

frequency of problematic behavior" (Kanne et al., 2014, p. 173). In addition to descriptive statistics, the Wilcoxon Signed-rank test was conducted. The Wilcoxon is a non-parametric statistical hypothesis test used to compare two repeated measurements on a single sample to determine if mean ranks differ. This non-parametric test was chosen because 1) the pre-post responses were measured at the ordinal level using Likert scale questions, 2) the responses consisted of related pairs, and 3) given the sample size, the population was not assumed to be a normal distribution.

Results

Parent Fidelity

Parents' fidelity of implementation of P-ESDM are reported in Figure 1 (see Appendix A) and Tables 4 and 5. The intervention was delivered in one group of four families and two groups of three families. Group 1 included families identified as F1, F2, F3 and F4, group 2 included families identified as F5, F6, and F7, and group 3 included families identified as F8, F9, and F10.

Data collected during the first three weeks indicated that the four families' fidelity of implementation of the P-ESDM intervention strategies (F1, F2, F3, F4) ranged from 40% to 65% during baseline. Figure 1 shows a graphical display of these data. After a stable baseline, Family 1 showed minimal change and a moderate amount of variability in implementation fidelity data beginning in session three of the intervention. Maintenance data for Family 1 does indicate an increase in fidelity compared to baseline levels, however a functional relationship was not established due to the lack of immediacy of change. For family F1, the implementation of P-ESDM intervention resulted in a marked increased parent fidelity after the sixth intervention session (baseline M = 60%, intervention M = 68%). Single case design (SCD) measures of effect indicate that the intervention had a moderate effect: PND & NAP = 83%; TAU = 0.67, z = 1.73, p = .08. The trend for intervention data was stable. These gains were maintained at an even higher rate (maintenance = 82%) when measured two weeks after completion of the P-ESDM intervention.

However, after a baseline with a decreasing trend, the fidelity of parent implementation of the P-ESDM intervention increased immediately and markedly for Family 2 after the introduction of the telehealth P-ESDM intervention. A functional relationship was established due to the immediacy of change. Family F2 had a decreasing trend during baseline fidelity collection (M = 43%) that increased when the P-ESDM intervention was introduced (M = 72%). Yet, SCD measures of effect indicate that the intervention demonstrated a large effect: PND & NAP = 100%; TAU = 1.0, z = 1.73, p = .009. Although intervention data was variable, this change in level was maintained, and then generalized at levels above those of baseline, demonstrating a therapeutic effect. These gains were maintained at an even higher rate (maintenance = 87%) when measured two weeks after completion of the P-ESDM intervention via telehealth. At generalization 8 weeks following the maintenance session, the parent fidelity for family F2 continued to be above the intervention mean (generalization = 80%).

Likewise, family F3 had a stable, but decreasing trend during baseline fidelity collection (M=39%) that increased markedly, although not until the second session of the P-ESDM intervention (M=70%) limiting the interpretation of a functional relationship and the immediacy of effect of the treatment. Yet, SCD measures of effect indicate that the intervention demonstrated a large effect: PND = 92%, NAP = 96%, TAU = 1.0, z = 2.60, p = .009. Intervention data was relatively stable, and gains were maintained at a rate higher than baseline levels (maintenance = 83%) when measured two weeks after completion of the P-ESDM intervention.

Family F4 had a decreasing trend during baseline fidelity collection (M = 74%) that increased only after the third intervention session (M = 78%) limiting the interpretation of a functional relationship and the immediacy of effect of the treatment. Similarly, SCD measures of effect indicate that the intervention demonstrated a questionable effect: PND = 41%, NAP = 63%, TAU = 0.33, z = .866, p = .39. However, when parent fidelity was collected at maintenance, there was an increased fidelity score (maintenance = 93%). At generalization eight weeks following the maintenance session, the parent fidelity for family F4 continued

to be above the intervention mean (generalization = 85%) but did overlap with much of the intervention data.

The following three families' data (F5, F6, and F7) across four weeks of baseline indicate similar results and their fidelity of implementation of the P-ESDM intervention strategies ranged from 48% to 63% during baseline. All three of these families also demonstrated an increase in P-ESDM fidelity of implementation. After a baseline with a decreasing trend for family F5, the implementation of P-ESDM intervention resulted in a marked increased parent fidelity, but only after the fourth intervention session (baseline M = 57%, intervention M = 67%) limiting the interpretation of a functional relationship and the immediacy of effect of the treatment. Yet, SCD measures of effect indicate that the intervention had a moderate effect, PND = 75%, NAP = 83%, TAU = 0.67, z = 1.73, p = .08 and intervention data indicate an increasing trend. These gains were maintained (maintenance M = 65%) when measured two weeks after completion of the P-ESDM intervention.

Family F6 had a stable baseline (M = 63%) that increased immediately, then markedly after the fourth intervention session to a Mean of 81% demonstrating a weak effect based on visual analysis alone. Yet, SCD measures of effect indicate that the intervention had a large effect, PND & NAP = 100%; TAU=1.0, z = 2.60, p = .009, and intervention data were relatively stable. These gains were maintained at a higher rate of fidelity (maintenance = 97%) when measured two weeks after completion of the P-ESDM intervention.

Family F7 had an increasing baseline, and the fidelity of implementation of P-ESDM increased during intervention sessions (baseline M = 48%, intervention M = 73%) limiting the interpretation of a functional relationship and the immediacy of effect of the treatment. Yet, SCD measures of effect indicate that the intervention had a large effect, PND & NAP = 100%, TAU = 0.91, z = 2.38, p = .0172). These gains were maintained at an even higher rate of fidelity (maintenance = 80%) when measured two weeks after completion of the P-ESDM coaching via telehealth intervention. At generalization eight weeks following the maintenance session, the parent fidelity for family F7 continued to be above the intervention mean (generalization = 82%).

Baseline was conducted across five weeks for the final three families (F8, F9, and F10). The fidelity of implementation of the P-ESDM intervention strategies for these three families ranged from 50% to 55% during baseline. All three of these families demonstrated increased parent fidelity of implementation of P-ESDM after the introduction of the intervention.

For family F8, after a variable baseline, the implementation of P-ESDM intervention resulted in a marked and immediate increased parent fidelity (baseline M = 55%, intervention M = 74%) with a relatively stable trend, indicating therapeutic effects. Yet, SCD measures of effect indicate that the intervention had the following effects: PND = 67% (questionable effect), NAP = 93% (large effect); TAU = 0.83, z = 1.17, p = .03 (large effect). Therapeutic gains were maintained at a higher rate of fidelity (maintenance = 83%) when measured two weeks after completion of the P-ESDM intervention.

After a stable baseline (M = 50%), the data for family F9 increased immediately with a variable trend during intervention (M = 67%) indicating small therapeutic effects. Yet, SCD measures of effect indicate that the intervention had the following effect: PND = 83% (moderate effect), NAP= 93% (large effect); TAU = 0.88, z = 2.30, p = .02 (large effect). Therapeutic gains were maintained at a higher rate of fidelity (maintenance = 78%) when measured two weeks after completion of the P-ESDM intervention and at generalization 8 weeks following the maintenance session (generalization M = 92%).

Lastly, family F10 had a stable baseline (M = 54%) that also increased, but not until the fourth session of intervention to a mean of 70% with moderate variability, limiting the interpretation of a functional relationship and the immediacy of effect of the treatment. Yet, SCD measures of effect indicate that the intervention had the following effect: PND = 83% (moderate effect), NAP = 96% (large effect); TAU = 0.92, z = 2.38, p = .017 (large effect). Gains in mean fidelity ratings were maintained at a higher rate of fidelity (maintenance M = 85%) when measured two weeks after completion of the P-ESDM intervention, and at generalization 8 weeks later the parent fidelity for family F10 continued to be above the intervention mean

(generalization M = 90%). Table 4 displays the single case design measure of effect for parent fidelity and mean coaching fidelity. Table 5 displays the mean baseline versus intervention parent fidelity.

Table 4. Parent fidelity single case design measure of effect and coaching fidelity

Family	Baseline to Intervention PND	Baseline to Intervention NAP	TAU-U Baseline to Intervention	Mean Coaching Fidelity
F1	83% Moderate Effect	83% Moderate Effect	0.67 z =1.73 p =.08	92%
F2	100% Large Effect	100% Large Effect	1.0 z = 1.73 *p =.009	90%
F3	92% Large Effect	96% Large Effect	1.0 z = 2.60 *p =.009	90%
F4	41% Questionable Effect	63% Questionable Effect	.33 z =.866 p =.39	92%
F5	75% Moderate Effect	83% Moderate Effect	.67 z = 1.73 p =.08	88%
F6	100% Large Effect	100% Large Effect	1.0 z = 2.60 *p=.009	91%
F7	100% Large Effect	100% Large Effect	.91 z = 2.38 *p=.017	93%
F8	67% Questionable Effect	93% Large Effect	0.83 z = 1.17 *p =.03	93%
F9	83% Moderate Effect	93% Large Effect	0.88 z = 2.30 *p= .02	91%
F10	83% Moderate Effect	96% Large Effect	0.92 z = 2.38 *p=.017	90%

Table 5. Mean baseline as compared to intervention parent fidelity

Family	Mean Baseline Fidelity	Mean Intervention Fidelity	Maintenance Fidelity	Generalization Fidelity
F1	60%	68%	82%	NA
F2	43%	72%	87%	80%
F3	39%	70%	83%	NA
F4	74%	78%	93%	85%
F5	57%	67%	65%	NA
F6	63%	81%	97%	NA
F7	48%	73%	80%	82%
F8	55%	74%	83%	NA
F9	50%	67%	78%	92%
F10	54%	70%	85%	90%
AVERAGE	54%	72%	83.30%	85.80%

Telehealth Usability and Acceptability

Parents rated the 17 items on the program developed Telehealth Usability and Acceptability Questionnaire with strongly agree, agree and somewhat agree. Parents felt well supported by the telehealth intervention and coaching process with 88.89% (8/9) strongly agreeing and 11.11% (1/9) agreeing with the statement. Parents selected strongly agree with 100% (9/9) being satisfied with the telehealth intervention. Parents felt the intervention increased their child's participation in activities and play with 100% (9/9) reporting as strongly agree. Additionally, parents reported that the intervention was effective in helping the parent create solutions for their child with 88.89% (8/9) strongly agreeing and 11.11% (1/9) agreeing

with the statement. Overall, parents reported they would use the telehealth services again with 77.78% (7/9) strongly agreeing and 22.22% (2/9) agreeing with this statement.

Parents responded to three open-ended questions. One parent summed up their experience with the P-ESDM intervention via telehealth intervention by responding, "It helped me gain so much insight and knowledge about how to effectively play and interact with my child. I loved the book that was provided to me and found it an extremely helpful resource.". Another parent indicated the intervention's impact by responding,

> I felt I was learning and using skills that were making a difference in my life as a ...parent giving me confidence that I could give our little one a real chance to be happy and healthy and to have the best shot at a full and rewarding life. Being the person doing the work, studying and applying the knowledge makes this a life changer not just a program that is carried out by someone else and ends and is forgotten. Any child and parent willing to commit to this program would have long term benefits. It's a life solution not just a short-term intervention.

Families reported that the intervention conducted in their homes was convenient, and commented positively on the interventionist's insight, input, support and suggestions provided during videoconferencing, "The guidance (of the interventionist) helped me expand my tools to help me help my child.".

Autism Impact Measure

Pre-to-post change in autism symptomatology for child participants was examined. A Wilcoxon Signed-rank test revealed a statistically significant reduction in frequency of reported problematic behaviors after participating in the P-ESDM intervention, z = 2.35, p = .019, with a large effect size (r = .53). The median frequency score decreased from pre-intervention (Mdn = 91.0, SD = 20.30) to post-intervention (Mdn = 75.5, SD = 11.44), indicating a positive change. Additionally, the Wilcoxon Signed-rank test revealed a statistically significant reduction of the impact of problematic behaviors on everyday activities after participating in the P-ESDM intervention, z = 2.55, p = .011, with a large effect size (r = .57). The median impact score decreased from pre-intervention (Mdn = 67.0, SD = 21.51) to post-intervention (Mdn = 54.4, SD = 12.09). To further answer the research questions, the difference between means was examined for each item. We report on statistically significant items below. Because of the small sample, we use Hedges' g to report the effect size. See Table 6 for statistically significant items and Appendix B for items, means, standard deviations, difference between means and p values.

Table 6. Statistically significant items and difference between means of the autism impact measure

Item#	Item	Pre-Intervention		Post-Intervention				
		M	SD	*M*	SD	*M* difference	*p*	*g*
Frequency Items								
5	Used someone else's hand to point, touch or perform a task	2.60	1.65	1.70	.823	0.90	*.041	.69
14	Experienced problems in communicating with others	4.30	.949	2.80	.789	1.50	*.004	1.72
22	Resisted changes in routines	2.50	1.58	1.40	.966	1.10	*.014	.84
26	Experienced problems in social interactions	3.10	1.37	2.50	1.18	.60	*.034	.47
^30	Shared his enjoyment or excitement with others	1.60	1.07	2.50	1.43	.90	*.034	.71
^33	Used a social smile to greet people or respond to them	1.60	1.07	2.70	1.57	1.10	*.026	.82
^34	Used gestures to communicate	2.30	1.16	3.80	1.23	1.50	*.006	1.25
^36	Seemed interested in other children his age	2.33	1.58	3.20	1.75	.87	*.008	.52
Impact Items								
7	Had certain rituals or routines that have to be followed	2.00	1.41	1.40	.843	.60	*.034	.52
18	Experienced problems in communicating with others	4.00	1.25	2.70	.823	2.30	*.010	1.23
22	Resisted changes in routines	2.40	1.43	1.50	1.08	.900	*.024	.71
^41	Made eye contact with others	1.60	.966	2.70	1.25	1.10	*.026	.98

^ denotes reverse scored items

Social reciprocity. A statistically significant difference between means was found for several items in the social reciprocity domain. Following the intervention, parents reported their child shared enjoyment or excitement with others (pre- M = 1.60, SD = 1.07; post- M = 2.50, SD = 1.43, p=.034), used a social smile to greet or respond to people (pre- M =1.60, SD = 1.07; post- M = 2.70, SD = 1.57, p = .026), used gestures to communicate (pre- M = 2.30, SD = 1.16; post- M = 3.80, SD = 1.23, p = .006), and seemed interested in other children of a similar age (pre- M = 2.33, SD =1.58; post- M = 3.20, SD = 1.75, p = .008). Children also had problems with social interactions less frequently (pre- M = 3.10, SD = 1.37; post- M = 2.50, SD = 1.18, p = .034).

Communication and language. A statistically significant difference between means was found for two language and communication items, indicating positive change in children's communication behaviors. Parents reported their child used someone else's hand to point, touch or perform a task less frequently following the intervention (pre- M = 2.60, SD = 1.65; post- M = 1.70, SD = .823, p = .041). Children experienced problems in communicating with others less frequently (pre- M = 4.30, SD = .949; post- M = 2.80, SD = .789, p = .004) and with less impact on their daily functioning (pre- M = 4.00, SD = 1.25; post- M = 2.70, SD = .823, p = .010).

Repetitive behaviors and restricted interests. Parents reported their child was less resistant to change in routines (pre- M = 2.50, SD = 1.58; post- M = 1.40, SD = .966, p = .014) and that change in routines had less impact on their child's daily functioning (pre- M = 2.40, SD = 1.43; post- M = 1.50, SD = .900, p = .024). In addition, a child's certain rituals or routines were reported to have less impact on their child's daily functioning (pre- M = 2.00, SD = 1.41; post- M = 1.40, SD = .843, p = .034).

Conclusion and Discussion

The current study investigated the effects of the P-ESDM as implemented by an early interventionist present within the state's existing IDEA Part C early intervention program. Telehealth technology was used to coach parents to conduct the intervention procedures, and all families demonstrated an increased level of implementation fidelity of the P-ESDM intervention as compared to baseline levels. The study demonstrated that positive outcomes for very young children with ASD can be achieved when parents are trained to use this naturalistic developmental behavioral intervention within and across family routines and activities. The results are among the first to demonstrate the feasibility of statewide implementation of P-ESDM in natural environments within the framework of a state's early intervention program.

The results of the current study are promising. First, the results extend support for parent-mediated early intervention for toddlers with autism. Next, the results align with previous research about P-ESDM and highlight that this low dosage intervention may be adequate to sustain intervention effects. Next, a functional relationship existed between parent fidelity of P-ESDM intervention strategies and parent participation in P-ESDM training, expanding the literature on the use of telehealth to deliver early intervention services for families, specifically in rural and underserved areas.

Parent-mediated early intervention

Parent-mediated interventions develop a parent's capacity to implement evidence-based strategies with their child. In fact, these interventions are based on the assumption that parents will implement the target strategies within their daily routines and activities with their child; thereby increasing the opportunities provided to the child to interact and engage with peers, others, and the environment (Siller & Morgan, 2018). In the current study, parents reported statistically significant positive change in their child's autism symptoms, specifically in the domains of communication, social reciprocity and repetitive behaviors and restricted interests. These results are in agreement with the hypothesis that early intervention for toddlers at risk or diagnosed with ASD may "remit or reduce the expression of symptoms" (Webb, Jones, Kelly & Dawson, 2014). This is promising given that even moderate and non-significant gain in ASD symptom severity post-intervention have resulted in a significant reduction of symptom severity

one year (Green et al., 2017) and two years (Estes et al., 2014) following the conclusion of the intervention.

Increased Fidelity of P-EDSM

Maintenance is often noted to be lacking in studies of parent-mediated interventions, limiting the ability to determine sustained implementation or potential outcomes (Fettig, Barton, Carter, & Eisenhower, 2016; Roberts & Kaiser, 2011). In this study, parent fidelity of implementation was shown to increase during the generalization and maintenance phases; a possible assurance that parents' sustained implementation may likely impact the child's developmental trajectory and targeted communication and social behaviors over time. This "real life" intensity of services is necessary for significant change in toddlers with ASD, and these results are congruent with other researchers who have demonstrated that parent involvement helps to facilitate generalization across environments (Brian et al., 2017; McIntyre & Zemantic, 2017; Wallace & Rogers, 2010).

Telehealth

A functional relationship between the P-ESDM via telehealth intervention and parent fidelity of intervention strategies was demonstrated. This result is consistent with literature that telehealth can be used as a mechanism to deliver naturalistic developmental behavioral interventions and achieve positive child outcomes (McIntyre & Zemantic, 2017; Wainer & Ingersoll, 2015). In rural areas, equity and access to early intervention and parent coaching services can be a challenge (Olsen, Fiechtl, & Rule, 2012). The results of this study are encouraging in that they show that parents can be coached to implement evidence-based practices at a high level of fidelity using telehealth. Providing intervention using telehealth as a service delivery model may alleviate higher costs of services associated with travel time, distance between families, and provider shortages (Little, Wallisch, Pope, & Dunn, 2018; Olsen et al., 2012). Findings from this study suggest the use of telehealth coaching may be an equitable response to a family's limited access to professional support due to rural location. Likewise, social validity is imperative when determining the feasibility and utility of the parent training. Parents in this study expressed high satisfaction with the telehealth delivery of the P-ESDM and the intervention procedures.

Limitations

The study had several limitations. First, cellular and broadband access were a challenge in very rural areas. This did not prevent family participation, but two parents did note that an intermittent connection interfered with the video stream and the ability to clearly hear and see the interventionist. Next, the fidelity of implementation measure was coded by two providers who were trained and certified to implement ESDM procedures; however, this was not a blind review, which could have hindered the validity of their coding. Although we report large effect sizes, the analysis to examine pre to post change in autism symptomatology was limited to a non-parametric test, and we did not control for other outcomes such as age or gender. Likewise, the sample was not highly diversified, limiting generalization of the results to the participants of the study. It is also important to note that the AIM is a parent report measure, and as such is subject to potential informant bias.

Applied research is difficult to control for all potential confounding variables. Generally, all families in this study did demonstrate an increased level of fidelity in implementing the P-ESDM intervention compared to baseline levels. However, due to increasing and decreasing trends in the baseline data of many families, and the lack of immediate effect of the intervention, more research is needed to determine the functional relationship of the delivery of parent coaching via telehealth on the increase in parent fidelity to rule out maturity and test-retest effects.

Future Research

Increasing the availability of evidence-based interventions through telehealth may be a valid solution to closing the gap between service demand and availability in rural and underserved areas. Other

studies have demonstrated effective results with telehealth as a service delivery model for behavioral consultation services as compared with on-site coaching (Suess, Wacker, Schwartz, Lustig, & Detrick, 2016; Wacker et al., 2013). More research examining the comparative effectiveness of P-ESDM versus other models is needed.

In this study, parent fidelity increased during maintenance and generalization, and positive long-term effects of parent-mediated interventions have been reported to be sustained up to 6 years following the end of the intervention (Green et al., 2017; Pickles et al., 2016). Continued research is needed to examine long-term effects of parent fidelity to support increased improvement of autism symptoms and the developmental trajectories for toddlers with autism.

Intervention that builds parent capacity and supports children's development and learning through the use of evidence-based practices in everyday activities can lead to positive parent and child outcomes. In the current study, the interventionist was nationally certified to implement P-ESDM. More research is needed to examine P-ESDM and other parent-mediated interventions implemented by primary service providers who receive state-level training and support but may not be nationally certified by the agency representing the intervention.

Declarations

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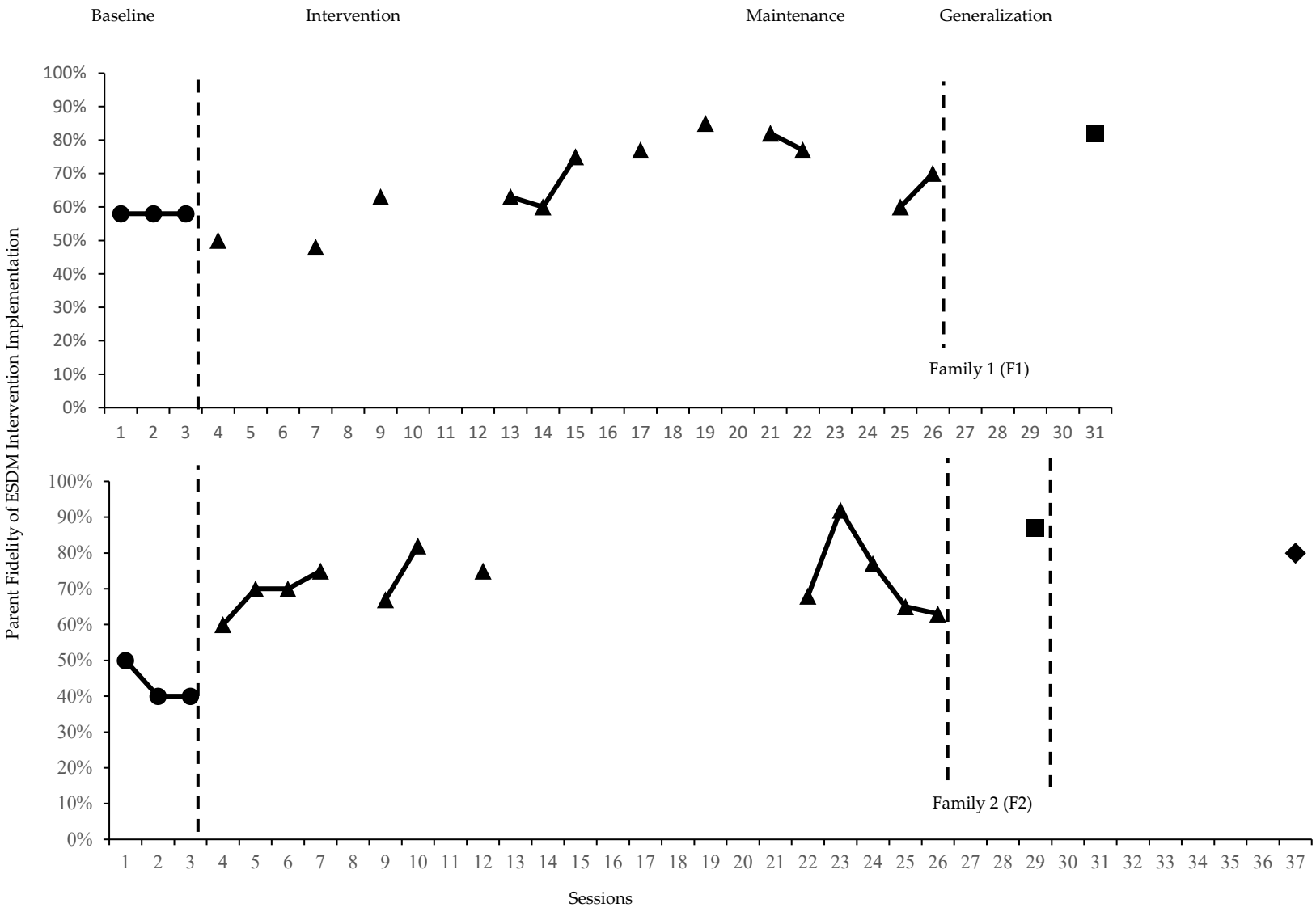
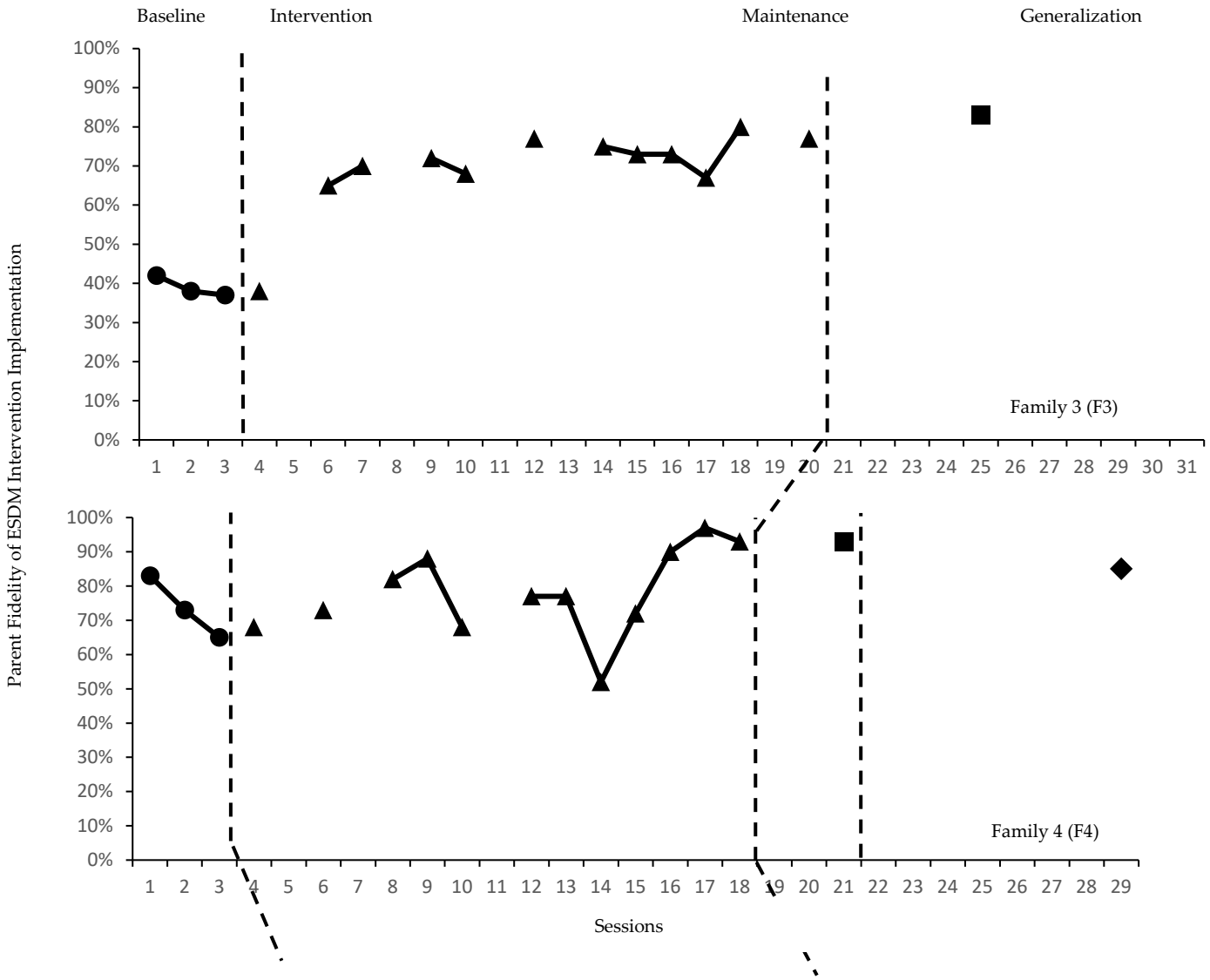
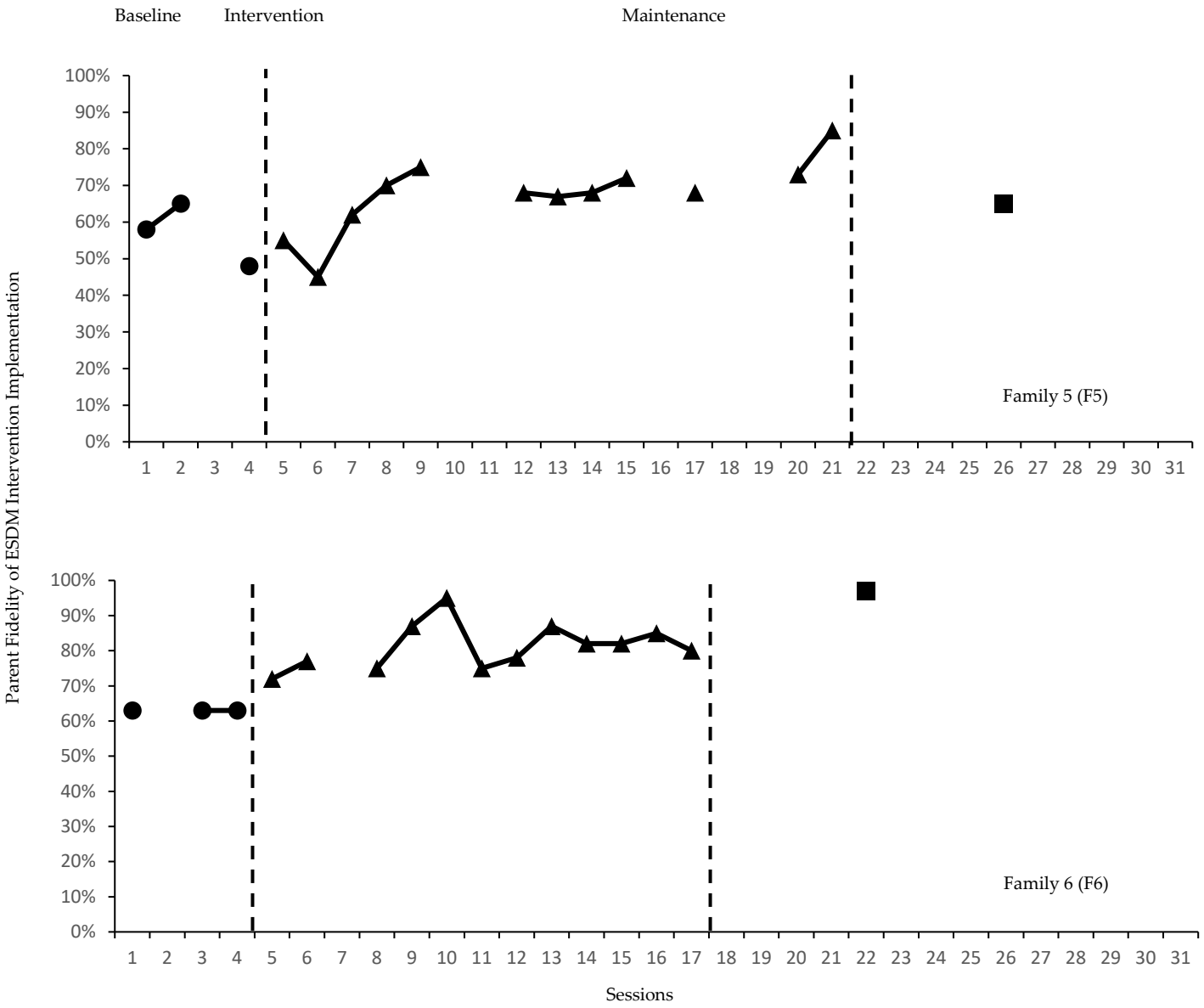
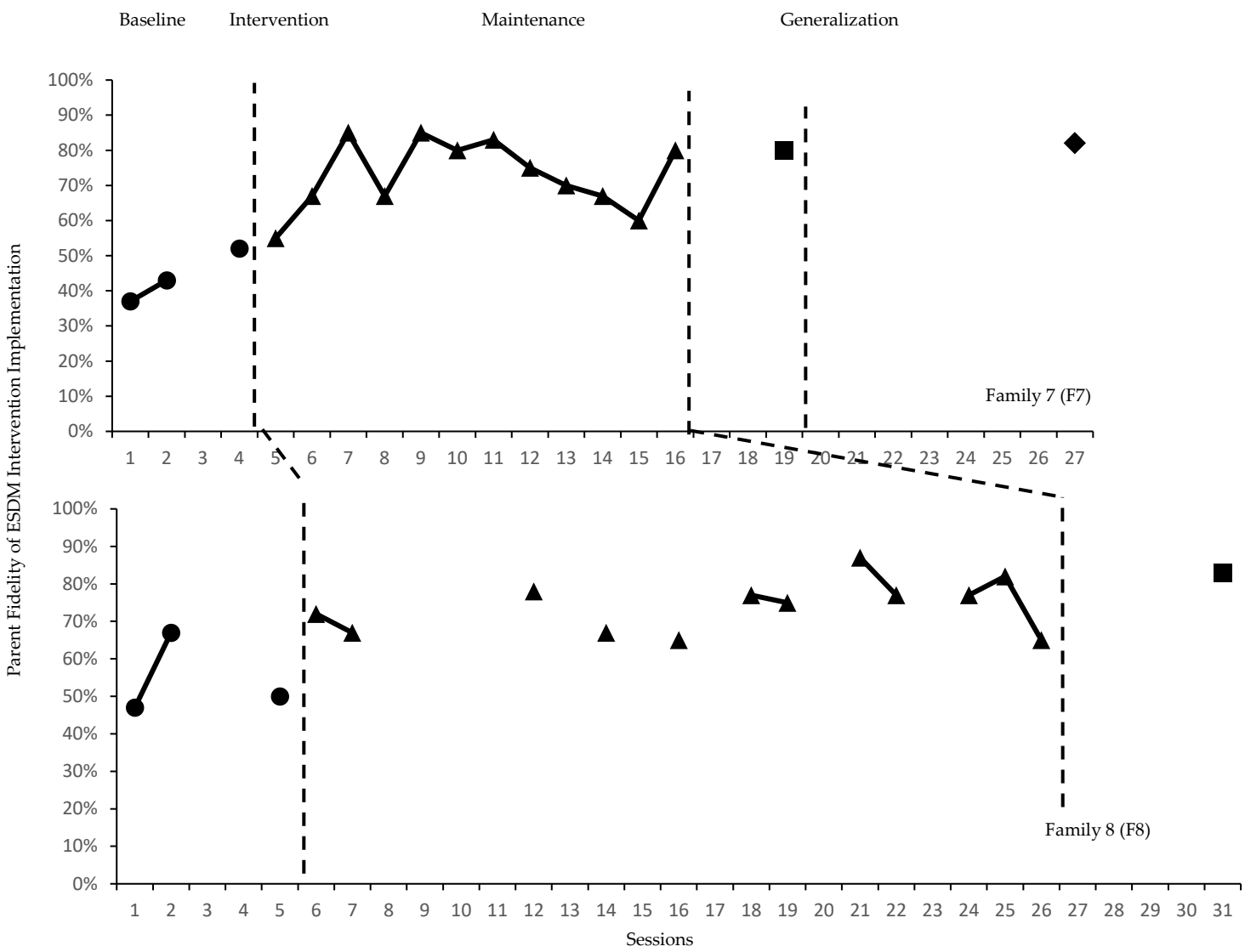
Appendix A

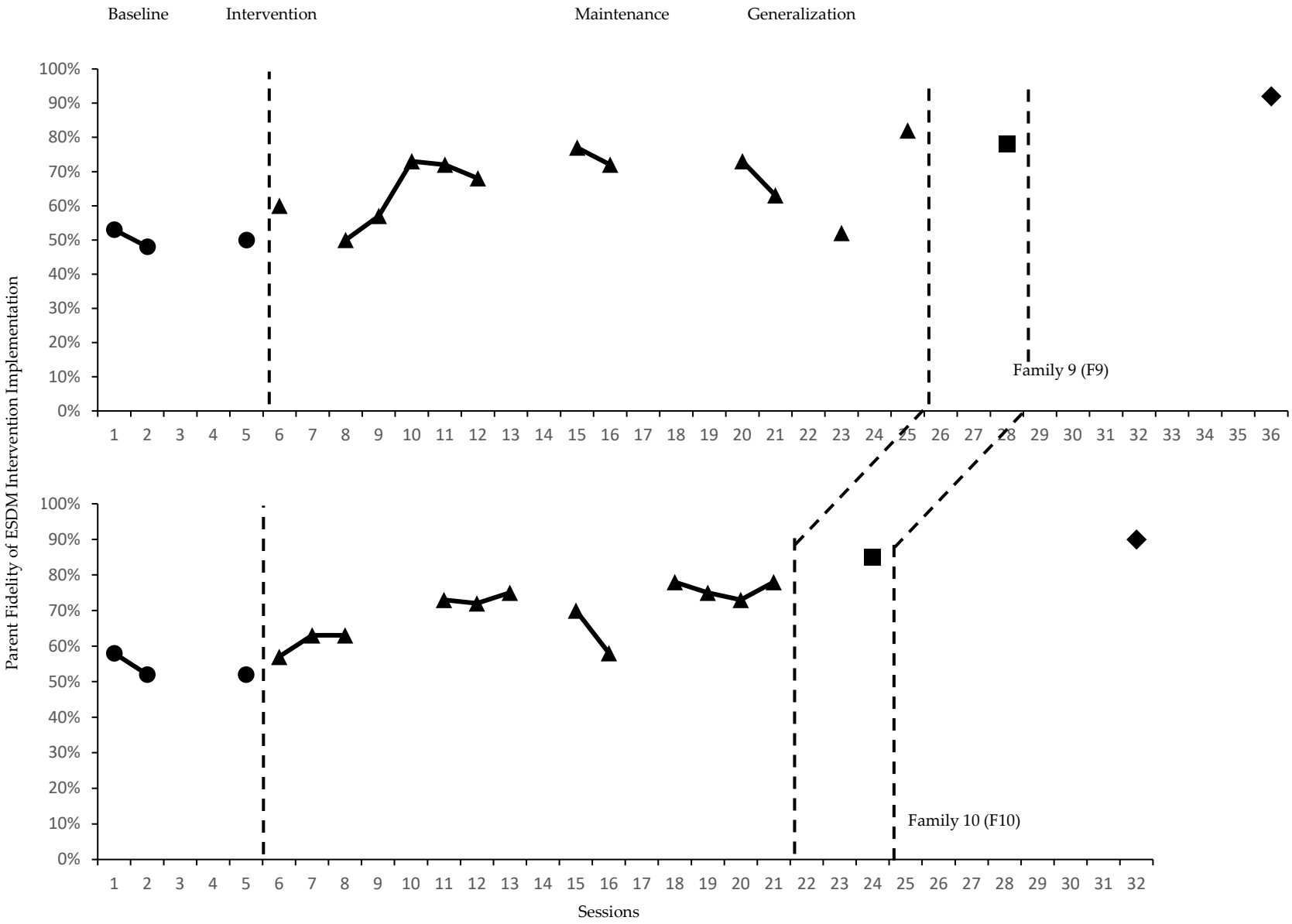
Figure 1. Parent Fidelity of Implementation of P-ESDM




Baseline
Intervention
Maintenance
Generalization
Parent Fidelity of ESDM Intervention Implementation
Family 3 (F3)
Family 4 (F4)
Sessions


Baseline
Intervention
Maintenance
Parent Fidelity of ESDM Intervention Implementation
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Family 5 (F5)
Family 6 (F6)
Sessions


Baseline
Intervention
Maintenance
Generalization
Parent Fidelity of ESDM Intervention Implementation
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
Family 7 (F7)
Family 8 (F8)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Sessions


Baseline
Intervention
Maintenance
Generalization
Parent Fidelity of ESDM Intervention Implementation
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Family 9 (F9)
Family 10 (F10)
Sessions

Appendix B

Items and Difference Between Means of the Autism Impact Measure

Item #	Item	Pre-Intervention		Post-Intervention			
		M	SD	*M*	SD	*M* difference	*p*
Frequency Items							
1	Shown fascination with parts of objects rather than the whole toy	3.10	1.10	3.20	1.40	0.10	.276
2	Been fascinated with looking at, feeling, touching, and licking certain objects	3.10	1.66	2.70	1.57	0.40	.194
3	Lined things up	2.00	1.70	2.60	1.65	0.60	.273
4	Responded oddly or inappropriately to others	2.00	1.33	1.70	1.06	0.30	.453
5	Used someone else's hand to point, touch or perform a task	2.60	1.65	1.70	.823	0.90	*.041
6	Had speech problems or been hard to understand	4.00	1.41	2.75	1.26	1.25	.083
7	Had certain rituals or routines that have to be followed	2.20	1.48	1.70	1.06	0.50	.160
8	Used odd or unusual pitch, volume or tone when talking	1.70	1.16	2.10	1.37	0.40	.496
9	Withdrawn from playing with children of the same age	2.60	1.67	2.67	1.51	0.07	.854
10	Repeated actions over and over	2.40	1.26	2.10	1.29	.30	.317
11	Had a strong interest in collecting things	1.80	1.46	1.10	.316	0.70	.102
12	Shown repetitive hand or finger movements	2.90	1.37	2.00	1.33	0.90	.121
13	Shown strong attachments to unusual toys or objects	1.00	.000	1.10	.316	0.10	.317
14	Experienced problems with repetitive behaviors or restricted interests	1.80	1.14	1.60	1.07	0.20	.414
15	Avoided certain sounds, textures or smells to an unusual extent	2.00	1.49	2.10	1.60	0.10	.891
16	Appeared aloof, distant or detached	2.60	1.07	1.90	.876	.70	.068
17	Had repetitive movements with his/her whole body	2.50	1.58	1.60	.843	.90	.059
18	Experienced problems in communicating with others (verbally and/or nonverbally)	4.30	.949	2.80	.789	1.50	*.004
19	Approached others in odd or in an inappropriate way	1.60	1.07	1.30	.675	0.30	.257
20	Shown a preoccupation with one subject or area of interest	1.60	1.07	1.30	.675	0.30	.450
21	Had difficulty showing or accepting affection	1.40	.699	1.20	.422	0.20	.414
22	Resisted changes in routines	2.50	1.58	1.40	.966	1.10	*.014
23	Had problems with pronouns	3.66	2.31	3.00	1.63	.66	1.00
24	Used repetitive or odd phrases	1.50	1.22	1.56	1.13	.06	1.00
25	Echoed words or phrases	1.86	1.36	2.10	1.66	.24	.705
26	Experienced problems in social interactions	3.10	1.37	2.50	1.18	.60	*.034
27	Used a private or made up language	2.40	1.90	1.80	1.03	.60	.180
^28	Played with same age friends	2.33	1.51	2.60	1.67	.27	1.00
^29	Held back and forth conversations	3.00	.817	3.67	.577	.67	.157
^30	Shared his enjoyment or excitement with others	1.60	1.07	2.50	1.43	.90	*.034
^31	Played cooperatively with groups of children	2.80	2.05	3.75	1.50	.95	1.80
^32	Responded positively to other children's approaches	2.11	1.69	2.20	1.56	.09	.480

^33	Used a social smile to greet people or respond to them	1.60	1.07	2.70	1.57	1.10	*.026
^34	Used gestures to communicate	2.30	1.16	3.80	1.23	1.50	*.006
^35	Comforted others when they were upset	3.60	1.43	4.67	.707	1.07	.058
^36	Seemed interested in other children his age	2.33	1.58	3.20	1.75	.87	*.008
^37	Played using his imagination	2.80	1.55	3.20	1.48	.40	.391
^38	Used social chit chat	3.50	1.73	5.00	.000	1.50	.317
^39	Used a number of different facial expressions	2.10	1.45	3.00	1.49	.90	.084
^40	Brought things to others just to share his interest	2.70	1.70	3.40	1.26	.70	.229
^41	Made eye contact with others	2.00	.942	2.50	1.08	.50	.276
Impact Items							
1	Fascination with parts of objects rather than the whole toy	2.10	.876	1.90	.994	.20	.516
2	Fascination with looking at, feeling, touching, and licking objects	2.40	1.35	1.60	.843	.08	.071
3	Lined things up	1.40	.966	1.20	.421	.20	.317
4	Responded oddly to others	1.80	1.48	1.50	1.08	.30	.461
5	Used someone else's hand to point, touch or perform a task	1.80	1.03	1.40	.843	.40	.157
6	Had speech problems or been hard to understand	3.50	1.73	2.75	1.26	.75	.317
7	Had certain rituals or routines that have to be followed	2.00	1.41	1.40	.843	.60	*.034
8	Used odd or unusual pitch, volume or tone when talking	1.80	1.32	1.40	.699	.40	.357
9	Withdrawn from playing with children of the same age	2.40	1.95	2.50	1.76	.10	.317
10	Repeated actions over and over	2.10	.994	1.50	.850	.60	.063
11	Had a strong interest in collecting things	1.50	1.08	1.00	.000	.50	.180
12	Shown repetitive hand or finger movements	1.30	.949	1.00	.000	.30	.317
13	Shown strong attachments to unusual toys or objects	1.00	.000	1.10	.316	.10	.317
14	Experienced problems with repetitive or restricted behaviors	1.60	.843	1.40	.699	.20	.157
15	Avoided certain sounds, textures or smells	1.80	1.32	2.00	1.63	.20	.655
16	Appeared aloof, distant or detached	2.30	1.16	1.60	.843	.70	.066
17	Had repetitive movements with his whole body	1.70	1.06	1.10	.316	.60	.109
18	Experienced problems in communicating with others	4.00	1.25	2.70	.823	2.30	*.010
19	Approached others in odd or in an inappropriate way	1.60	1.07	1.20	.632	.40	.102
20	Shown a preoccupation with one subject or area of interest	1.40	.699	1.20	.421	.20	.414
21	Had difficulty showing or accepting affection	1.2	.422	1.00	.000	.20	.157
22	Resisted changes in routines	2.40	1.43	1.50	1.08	.90	*.024
23	Had problems with pronouns	1.33	.577	1.75	1.50	.42	.317
24	Used repetitive or odd phrases	1.00	.000	1.22	.441	.22	.317
25	Echoed words or phrases	1.25	.463	1.20	.632	.05	1.0
26	Experienced problems in social interactions	2.70	1.49	2.60	1.07	.10	.792
27	Used a private or made up language	1.70	1.16	1.11	.333	.59	.276

^28	Played with same age friends	1.28	.756	2.00	1.73	.72	.655
^29	Held back and forth conversations	1.50	1.00	2.00	1.00	.50	.317
^30	Shared his enjoyment or excitement with others	1.44	.881	1.50	1.08	.06	.655
^31	Played cooperatively with groups of children	2.20	1.79	2.75	2.06	.55	1.0
^32	Responded positively to other children's approaches	1.70	1.49	2.40	1.71	.70	.109
^33	Used a social smile to greet people or respond to them	1.00	.000	1.70	1.34	.70	.109
^34	Used gestures to communicate	2.00	1.33	3.20	1.81	1.20	.092
^35	Comforted others when they were upset	1.00	.000	1.20	.422	.20	.157
^36	Seemed interested in other children his age	1.90	1.20	2.11	1.54	.21	.461
^37	Played using his imagination	1.10	.316	1.80	1.40	.70	.141
^38	Used social chit chat	1.00	.000	2.33	1.53	1.33	.180
^39	Used a number of different facial expressions	1.10	.316	2.00	1.15	.90	.059
^40	Brought things to others just to share his interest	1.80	1.32	1.50	.850	.30	.496
^41	Made eye contact with others	1.60	.966	2.70	1.25	1.10	*.026

^ denotes reverse scored items

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Research Article

Navigating the process of building parent-teacher partnerships: Experiences of early childhood pre-service teachers

Rachel Boit[1]

Abstract: This study utilized the qualitative phenomenological approach to explore pre-service teachers' experiences in their engagement with parents of young children as they practiced building partnerships with parents. Pre-service teachers (N=50) were each assigned a preschool child with whom they interacted together with the child's parents and teacher; completing a semester-long assignment created within a family, schools and community course for students in an early childhood teacher preparation program. Pre-service teachers' responses to a survey and their final written reflections were analyzed using the process of axial and open coding. Results indicated the importance of communication and understanding different dynamics and challenges in parent-teacher partnerships. Therefore, educators should continuously strive to equip pre-service teachers with the skills they will need to succeed as they work with schools, the community and especially in their work with parents.

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Keywords
Parent engagement; Pre-service teachers; Teacher preparation; Early childhood; Parent-teacher partnerships

Introduction

Schools continuously seek to improve children's academic success and overall development. Research points to the strong association between engaging parents and children's success in school (de Bruïne et al., 2014; D'Haem & Griswold, 2017; Epstein, 1994; Gilroy, 2018; Pemberton & Miller, 2015; Tekin, 2011). Additionally, it is well documented that the home is a great socializing agent where the child is shaped by parental attitudes towards learning, and that parents' support plays a pivotal role in children's future school success (Harris & Goodall, 2008). Therefore, children who receive support with their academic work at home tend to do well in school and their parents are more inclined to communicate with teachers and seek ways to better support their child at home.

Educators understand the critical role that parents play in their children's education (Mitsch, Branch, & Weglarz-Ward, 2020) and this calls for continued efforts to build strong home-school partnerships (Buchanan & Buchanan, 2019). Developing productive relationships with families is part of a teacher's professional role (de Bruïne et al., 2014), thus as teacher candidates embark on their professional journey, having knowledge on how to establish strong parent-teacher partnerships is critical. When pre-service teachers communicate with families, they are more likely to make informed decisions on parent engagement as well as become more aware of different family circumstances that can impact the process of building teacher-parent partnerships (Mitsch et al., 2020).

Moreover, as scholars continue to argue that developing productive relationships with families is part of a teacher's professional role, they also acknowledge that creating parent-teacher partnerships is challenging for teachers (de Bruïne et al., 2014). Further, it is worth noting that in most teacher education programs little attention is paid to preparing prospective teachers for forming these partnerships (Buchanan & Buchanan, 2019; de Bruïne et al., 2014; Evans, 2013; Mitsch et al., 2020). Therefore, despite increased attention to family engagement in teacher education, teachers continue to feel unprepared since

[1] University of North Carolina Greensboro, Department of Human Development and Family Studies, Greensboro, United States, rjboit@uncg.edu, ORCID: https://orcid.org/0000-0002-8775-2189

parent-teacher partnerships are not adequately addressed in ways that prepare them to work with families (Brown, Harris, Jacobson, & Trotti, 2014). Literature addressing how teacher candidates are prepared to work with parents is scarce (Evans, 2013; Miller, Coleman, & Mitchell, 2018) and few have focused on pre-service teachers in early childhood programs. Moreover, although some studies continue to point to the important role that communication plays in parent-teacher partnerships (Buchanan & Buchanan, 2019), few have focused on real-life experiences that offer teacher candidates opportunities to work directly with parents. Through incorporating an assignment in a child, family and community course, the current study sought to explore the experiences of pre-service teachers (enrolled in an early childhood program) in their communication with parents and their overall experiences about what it takes to form parent-teacher partnerships.

Home-School Partnership Framework

There is no one single formula or blueprint that creates a successful home-school partnership. However, there are models that provide guidelines on how to establish programs that actively involve families in their children's education (Olsen & Fuller, 2008). One such model is Epstein's (1995, 2001, 2011) framework that describes the home, school and community as overlapping spheres of influence where members collaborate to support children's learning and development. This model indicates that children do not learn and grow in the context of home alone or school alone but in three influential contexts- home, school and community (Olsen & Fuller, 2008). The Family-School-Community Partnership Framework (Epstein 1995, 2011; Epstein et al., 2018) is described as a comprehensive approach that highlights the importance of the three entities working together to support children's development and education (Epstein, 1995). Although this framework has been used extensively, previous studies have acknowledged the mixed messages that this model seems to portray. For example, de Bruïne et al. (2014) and Kroeger & Lash (2011) talk about dominant power relations where school is seen as the major force transmitting the dominant culture, thus placing teachers in a position to speak while parents listen. In hindsight, pre-service teachers will most likely encounter these relations during their field experience; therefore, during teacher preparation, it is necessary that pre-service teachers become aware of the bi-directional relationship that leads to collaboration as opposed to a power dynamic. Despite few identified weaknesses, this framework is merited for guiding family-school partnerships. Within this model, six types of family involvement are necessary for successful family-school partnerships. They are parenting, communicating, volunteering, learning at home, decision-making, and collaborating with the community (Epstein, 1995).

Parenting involves schools and communities working together to assist families with parenting and child rearing skills to support children's development and education. Parents and teachers support children's development by sharing information related to the child's development both at home and school. Both teachers and parents use this information to guide the child's learning. In communicating, schools and communities work to promote effective communication between families and teachers about children's educational progress (Coleman, 2013; Epstein, 1995). Communication between teachers and parents is not only vital for building relationships between schools and families, but also in creating a school community where families are incorporated into their children's learning (Bartels & Eskow, 2010; Graham-Clay, 2005; Henderson & Mapp, 2002). Specifically, Henderson and Mapp (2002) highlight that when teachers and parents have strong partnerships it improves student achievement. Successful communication between teachers and families may therefore help improve the quality of the school and programing, thus providing more opportunities for educational success (Henderson & Mapp, 2002; Li et al., 2019). Although communication is important, unfortunately teachers are not always equipped with the training and tools needed to successfully implement effective communication practices that build strong partnerships (Bartels & Eskow, 2010; Henderson & Mapp, 2002). In addition, most pre-service teachers continue to indicate a need in more preparation on ways to communicate with parents (Buchanan & Buchanan, 2019; de Bruïne et al., 2014; de Bruïne et al., 2018; Evans, 2013; Miller et al., 2018). Teacher preparation programs are therefore essential in equipping pre-service teachers with the competencies they will need to effectively engage in communication with families.

Volunteering is another key factor in parent involvement. It involves schools and communities

working to recruit family assistance in support of children's education and parents are welcome to help with activities in the classroom, (Coleman, 2013; Epstein, 1995). When parents feel welcome by the school, they are more likely to volunteer in their children's classrooms. Learning at home is another type of involvement where schools and communities engage families in their children's learning experiences (Coleman, 2013; Epstein, 1995). However, since each family's situation is different, the way in which parents get involved in their children's schoolwork at home may vary. Thus, teachers' knowledge of circumstances that families face fosters an understanding of how to form supportive partnerships that are informed by different family contexts. Schools and communities should also involve families in making decisions about school operations (Epstein 1995); this allows them to become leaders and representatives for educational decision making and advocating for their children (Coleman, 2013). When parents understand that their voices are valued, they will be more open to participating in their children's schools. This is an easier way for teachers to tap into parent's knowledge of their role in school and their understanding of school policies, thus aiding in establishing reciprocal relationships bound by respect for everyone's opinion as opposed to power dynamics that always seem to exist between parents and teachers or school administrators.

The final form of family involvement that Epstein discusses is collaborating with the community. This type of involvement calls for schools and communities to coordinate families' access to community services to promote the total wellbeing of children. In this model, Epstein (1995, 2011) highlights the importance of family, school and community working together to support children's development and success in education. Most often, pre-service teachers have minimal knowledge of community services available for families in their neighborhood. Helping pre-service teachers identify these services is beneficial when they must refer families. For teachers of young children especially, having this information is important as they seek to work successfully with parents; all these begin at teacher preparation.

Engaging Parents in Schools

Education policies continue to push for mandates related to parent engagement in their programs (de Bruïne et al., 2014; Fields-Smith, 2005). In the United States of America (U.S.A.), for instance, family engagement is federally mandated under Title I of Every Student Succeeds Act of 2015 and calls for the establishment of parent partnerships with schools for the betterment of student achievement (Ford, Vakil & Boit, 2016; Grant & Ray, 2010). Furthermore, Goals 2000: Educate America Act of 1994 brought the importance of parent involvement to the forefront of school improvement initiatives by mandating that every school promote partnerships that increase parent engagement and participation to support the social, emotional, and academic growth of children. Additionally, the No Child Left Behind Act of 2001 required schools to organize and implement programs to engage families in their children's education in ways that help students improve skills and gain higher learning achievements (de Bruïne et al., 2014; Evans, 2013; Kroeger & Lash, 2011).

Rigorous standards for teacher preparation programs, licensure/certification and professional practice also ensure that teachers at all levels recognize that effective teaching depends upon partnerships with children's families (Mitsch et. al, 2020). For example, in its standards for teacher preparation, the National Association for the Education of Young Children (NAEYC) specifies that "Educators know about, understand and value the importance and complex characteristics of children's families and communities" (NAEYC, 2011, p. 30). These legislative mandates clearly point to the importance of teachers promoting parent involvement in early school experiences and this emphasis needs to be an intentional component of teacher preparation programs (Mitsch et al., 2020; Taylor & Kim, 2020).

Therefore, as theoretical and empirical perspectives support the critical role of parents in students' success, pre-service teachers too must continue receiving training on ways to engage with parents (D'Haem & Griswold, 2017; Epstein & Sanders, 2006; Hoover-Dempsey, Walker, Jones, & Reed, 2002). In their work, Epstein and Sanders (2006) surveyed administrators in 161 teacher preparation programs and found that, although respondents agreed on the importance of involving families, few believed that graduating students were fully prepared to do so. Emphasizing the need for specific courses on school, family, and

community partnerships, the benefits of family engagement in student academic and social success is highlighted (Delgado-Gaitan, 2007; Epstein, 2006; Epstein et al., 2018), and teacher educators are challenged to prepare future teachers for effective partnerships with families (D'Haem & Griswold, 2017). In particular, the lack of preparation for pre-service teachers on how to work with families has been highlighted as being problematic and despite some progress within initial teacher preparation programs, few pre-service teachers have access to full courses on how to form partnerships with families (Willemse, Thompson, Vanderlinde, & Mutton, 2018). It is no wonder that most pre-service teachers report learning no competencies in establishing strong partnerships with families (D'Haem & Griswold, 2017; Patte, 2011) and often face many obstacles in achieving meaningful parent-teacher relationships (Bofferding, Kastberg, & Hoffman, 2016). Thus, teacher education programs should consider offering at least one required course on school, family, and community partnerships (D'Haem & Griswold, 2017; Epstein, 2001).

Additionally, pre-service teachers need to have real life encounters with parents (de Bruïne et al., 2014; Taylor & Kim, 2020) as part of their preparation. However, evidence shows that during their professional preparation, most pre-service teachers have limited opportunities for interacting with parents (de Bruïne et al., 2014; Evans, 2013; Taylor & Kim, 2020). This can be achieved by providing experiences where pre-service teachers interact directly with parents so they can develop skills needed for establishing effective partnerships and to give meaning to knowledge gained in the classroom (Buchanan & Buchanan, 2019; de Bruïne et al., 2014; Mitsch et al., 2020). These interactions should take place within a prolonged period and should not be limited to only school but also to interacting at home and community. This allows them to see the complexity of parenting and realize how contextual factors can impact parent participation. In their study, de Bruïne et al. (2014) found that teacher candidates expressed a wish to have more meetings with parents at school and believed that learning by doing was the best way to further understand family-school-partnerships. In their follow-up study, de Bruïne et al. (2018) concluded that most students wanted to accomplish their learning goals by gaining real life experiences as this would provide them opportunities for learning how to hold meaningful conversations with parents.

It is not surprising that novice teachers often report that they do not know how to effectively incorporate parents into their classrooms early in their careers (Mitsch, Branch & Weglarz-Ward, 2020). de Bruïne et al. (2018) further advocate for curriculum changes that explore family-school-partnerships in a much more in-depth fashion but also acknowledge the challenges with large-scale changes to curricular in teacher preparation. However, substantial attention to this topic needs to begin with small scale changes that teacher educators can make in their courses; for example, adjusting course content by adding specific assignments or changing part of an already existing class activity (de Bruïne et al., 2018; Mitsch, Branch & Weglarz-Ward, 2020; Taylor & Kim, 2020). In many cases, real-life experiences and more authentic situations (de Bruïne et al., 2014) are not common practice and thus, the current study takes a leap in that direction.

Addressing best practices for parent engagement during teacher preparation helps teachers learn different ways of forming sustainable parent-teacher partnerships. This is especially important for early childhood pre-service teachers in that this collaboration is an essential ingredient for student learning right from the early years. Furthermore, understanding that successful early childhood education depends upon partnerships with children's families and communities, pre-service teachers in early childhood programs need to understand the complex characteristics that exist among families and communities. This aids in creating respectful, reciprocal relationships, involving families in their children's learning and development, and focusing on the educational, social and cultural aspects of home, school and community collaboration. Thus, the current work focused on experiences of preservice teachers enrolled in an early childhood teacher education course. Particularly, the goals were (a) to understand the experiences of pre-service teachers in their communication process with parents and, (b) to explore their overall experiences about what it takes to form parent-teacher partnerships. Activities undertaken in this study as well as the findings and implications for teacher preparation are discussed.

Method

The study utilized the qualitative phenomenological approach. This methodology provides a systematic way for greater understanding of phenomena within complex contexts (Creswell, 2013). Through their written reflections and surveys, pre-service teachers provided different perspectives and meaning into parent-teacher partnerships. Data were gathered over a nine-week period during which families and pre-service teachers interacted. The sources of data were the pre-service teachers' surveys and their final written reflections. The written reflections were informed by teacher interviews, in-class observations, pre-service teacher - child interactions, family correspondence and the family and community enrichment night. For the purpose of reporting the findings, the project's proposal was approval by the university's Institutional Review Board and researchers sought permission from students to report on their work. Views from the students who accepted, are included in the findings.

Setting and Participants

This work took place at a private preschool located within an urban setting close to a public university in one of the states in the mid-western region of the United States. The preschool served families who were diverse in both their socioeconomic and racial backgrounds and offered programs for children from infancy through age 5.A total of 75 children (0-3yrs=16; 3-4yrs=25 and 4-5yrs=34) attended the preschool. There were 9 classrooms in total; 2 for children aged 0-3 years, 3 for the 3-4-year-olds and 4 for those 4-5 years old; thus, there were 9 classrooms in total, each with a lead teacher and a teacher assistant.

In total, 44 families agreed to participate with their children. Of the 44 families, 41 each had one child participating while three families had two children each: bringing the total number of child participants to 50. Six teachers had participating families in their classrooms with the 50 children unevenly spread out into the six classrooms. Additionally, there were 50 pre-service teachers enrolled in the Child, Family, and Community course during the spring semester (course is open to all students prior to student-teaching). They were all female and 43 identified as White, five Black, one Hispanic, and one Asian. Thirty-three were in their third year in the program while 17 were in their second year. They were all in their early twenties and none of them had prior experience teaching in a preschool setting.

Procedures

Prior to starting the project, the preschool director together with the course instructor sent out a newsletter to all parents at the beginning of the semester inviting them to be part of an upcoming opportunity to engage in activities that aim at strengthening parent-teacher partnerships. The letter indicated that this was going to be a semester-long project filled with different fun activities for the children and their families. Parents also received information about pre-service teachers enrolled in the early childhood teacher preparation program, who would be interacting with the preschool children in the classrooms (guided by the teachers). Furthermore, the letter detailed the activities of the project, what parents should expect, as well as what their responsibilities and input would be. The details included (a) *family correspondence*, (b) *pre-service teacher – child interactions* and (c) *family and community enrichment night*. Parents who were interested signed an informed consent form and returned it to their child's teacher.

All the pre-service teachers were randomly placed in each of the six classrooms and each assigned a child with whom they would work. Families who did not give consent did not have their child assigned to a pre-service teacher and therefore whenever the preservice teachers visited the classrooms, these children continued with their regular activities with the classroom teacher. Since there were only six teachers and 50 pre-service teachers, four teachers had eight pre-service teachers placed in their classrooms, while the remaining two teachers were each assigned nine pre-service teachers. Each pre-service teacher introduced themselves to the family whose child had been assigned to them and arranged for an informal meeting. This meeting took place either at the child's preschool, at the child's home or at a playground of the family's choice. During that meeting, both pre-service teachers and families focused on establishing relationships by learning about one another. This was also an opportunity for the pre-service teachers to explain to the parents the work they were doing with their preschool children. Following this initial meeting,

parents/guardians corresponded with the pre-service teacher on a regular basis. With permission from the parents/guardians, their contact information was shared with the pre-service teachers who were then required to communicate with the families regularly. The pre-service teachers stayed in contact with the child's family via email or messages sent in the child's folder. This lasted for nine weeks, where each pre-service teacher individually worked with the preschool teachers and families of the preschoolers assigned to them.

Data Collection

Two main sources of data informed the study: namely, pre-service teachers' reflections and pre-service teacher surveys.

Pre-service teachers' reflections. This comprised the written reflections submitted by the pre-service teachers at the end of the semester. Each pre-service teacher wrote a seven-page reflection paper detailing their experiences engaging with parents, preschool children and the preschool teachers. Experiences included in the reflections captured the nature of their interactions with the children, teacher interviews, family correspondence and family and community enrichment night. For each of these interactions, pre-service teachers were expected to take detailed notes that would inform their reflections. The sections below describe the different activities and interactions pre-service teachers reflected on.

Teacher interviews. For each of the six classrooms, there were at least eight to nine pre-service teachers assigned depending on the number of participating families in that classroom. On one particular day during the regular course meetings, time was allocated for developing interview questions. During that time, pre-service teachers sat in groups according to the preschool classrooms they had been assigned to and brainstormed on questions to ask. Each group developed at least 8-10 questions that they thought would allow them to gain a deeper understanding of the teacher-parent interactions and the strength of their partnerships, the challenges faced by teachers in their attempt to involve parents, and ways in which teachers engaged parents in their classrooms. Some questions focused specifically on understanding how to best work with their assigned child. A sample of interview questions from one group are presented in table 1.

Table 1. Teacher interview questions

Teacher Interview
What do you see as the benefits to family and community involvement in the classroom?
What do you see as the drawback to engaging family and community members?
How do you communicate with families?
How do you help families choose how or in what ways they would like to be involved?
In what ways are the children's families involved in the child's work and what benefits of this involvement do you observe for the children?

Since there were groups of eight to nine preservice teachers assigned to one teacher, each group selected a team leader who contacted the teacher to set up the interview time. Once a time was agreed upon, the teacher and pre-service teachers met and the team leader asked the questions. During the interview, each pre-service teacher took individual notes of the teacher responses and asked any clarifying or follow-up questions which they later used to write reflections on their understanding of the teachers' views about parent-teacher partnerships.

Pre-service teacher – child interactions. Each child (whose parent agreed to participate in the project) was randomly assigned to a pre-service teacher with whom they worked for the entire project period at the preschool. During their first visit to the classroom, the pre-service teachers spent an hour conducting in-class observations of their focus child. During this activity, they took notes focusing on the child's learning styles, interaction with peers, potential challenges the child faced, and overall engagement in activities within the classroom setting. They also asked the teacher for any other information that they needed to know about their focus child. This was followed by weekly, one-hour visits of interaction with the preschool children for a total of nine hours (spread throughout the semester). During these nine one-hour visits, the pre-service teachers and children worked on engaging and fun activities that were prepared by the pre-service teachers. These activities ranged from crafts, picture book reading, painting, science

experiments, etc. At the end of each visit, the pre-service teachers put the day's work together with any work to be completed at home in a folder that was sent home to the parents and returned back to school within that week or the following week. In the folder, the pre-service teachers included a note written to the parent/guardian about what they accomplished/did not accomplish with the child and provided directions for any follow up activities to be completed at home. Pre-service teachers kept records of when and if these folders were returned, as well as records of any emails sent by the parents/guardians.

Family and community enrichment night. The project culminated with the family and community enrichment night which brought together members of the school, home and community. The family community enrichment night featured fun activities for all families served by this preschool, whether their children participated in the project or not. As a group, pre-service teachers developed a plan to host what they termed as a family and community enrichment event at the preschool. Pre-service teachers communicated with their respective families, inviting them to offer suggestions for activities or provide input into the planning. The family and community enrichment night was a firsthand experience for the pre-service teachers to engage directly with the families at the school setting. The event brought together community partners, the preschool teachers and staff, as well as the children and their families. Below is a brief description of each of the three phases undertaken in the planning process for the event.

Phase I: At this initial stage, pre-service teachers worked in groups of four or five to explore ideas for the family and community enrichment night. These included, but not limited to literacy activities, hands-on science and math learning stations, face-painting, community services and resource stations, as well as creative, sensory, and dramatic play stations. Selection of activities focused on those that aimed at providing opportunities for the pre-service teachers to engage, communicate and interact with the families. Each pre-service teacher communicated with the family they worked with to suggest activities they would like incorporated into the event.

Phase II: In partnership with the school community and the preschool director, pre-service teachers began developing plans and activities for the family enrichment night. They wrote mini proposals to outline their plans, materials required, estimated cost as well as identifying family learning goals. The day and time selected were one of two days on the preschool year calendar that had previously been allocated for "family event" and did not have a pre-planned activity. Since families already had that on their children's' calendars, the preschool director sent out reminders to all families to hold that date for a family fun night event.

Phase III: The final planning stage included pre-service teachers coordinating with partner families to promote attendance as well as finalize all details and materials. With the help of the parents and teachers, pre-service teachers developed activity stations in the various classrooms where children and their families would visit. Resources and materials needed were secured and attendance or information contribution by community resource persons was confirmed. Finally, arrangements were made to confirm guests, representatives from various community agencies or networks, and every effort made to ensure attendance from students and families. All planning was completed 10 days prior to the date set for the event.

Pre-service teacher surveys. The course instructor developed a short survey which was completed by each pre-service teacher at the end of nine weeks. Each one of them was expected to give a detailed account of their experiences with the semester-long project. Table 2 below contains a list of the survey questions.

Table 2. Survey questions

Pre-service teacher survey questions
What did you take away from this experience?
How did this experience contribute to your knowledge of building teacher-parent partnerships?
How did this experience contribute to your knowledge of families?
What else do you wish to learn that this experience did not provide?

Analysis

Pre-service teachers' responses to the survey together with their final written reflections were read and analyzed using the process of axial and open coding (Corbin & Strauss, 2008). Analyses were done on responses from 27 pre-service teachers who gave permission for their work to be used in this study (there was no penalty on students who did not want their work to be use in the study). First, all the 27 written reflections were read carefully to ensure they covered all the areas of the project's focus. Out of those twenty-seven, nine were found to have omitted at least one or two of the focus areas; they were deemed incomplete and therefore not included in further analysis. The remaining eighteen were read a second time to identify common codes emerging from the written reflections.

To capture thoughts from the same participants, survey responses from the eighteen pre-service teachers whose reflections were analyzed, were included in the next step of analysis. The survey responses were each read carefully and once again any new codes that emerged were recorded. Overall, examples of the codes generated include, communicating with parents, challenges in engagement, parent availability, teacher-parent relationship, parent expectations, school expectations and relationship building. Emerging themes were then created, and codes assigned to the new themes. Findings are presented in the section that follows.

Findings

This project focused on the extent to which pre-service teachers in a teacher education course gained a deeper understanding of parent involvement through real life experiences working directly with families of young children. The goals for this project were (a) to understand the experiences of pre-service teachers in their communication process with parents and, (b) to explore pre-service teachers' experiences in what it takes to form parent-teacher partnerships.

Results indicated that; (1) pre-service teachers acknowledged the power of communication as a critical skill in the process of cultivating good relationships between teachers and parents, (2) pre-service teachers saw firsthand the multidimensional challenges that both teachers and parents face in their attempts to form strong teacher-parent partnerships, and (3) pre-service teachers reported on how the project shaped them as they prepared to engage parents in their future teaching careers. Below are the findings presented under three themes.

The Power of Communication in Cultivating Good Parent-Teacher Partnerships

All pre-service teachers agreed that communication is the most important factor when cultivating relationships with families. They also acknowledged the importance of the content and the way to convey information as critical. Therefore, it is not just communicating for the sake of it, but more attention needs to be paid to the detail of that communication. Epstein (1994) posits that parents are eager to help their children if schools will help them understand what they should do. Parents are also interested in knowing what goes on in their children's classrooms and therefore communication between the teachers and the parents is paramount in becoming partners in children's education (Bofferding et al., 2016). The kind of information sent out to parents, how conversations with parents are held, and all kinds of interactions must be clear as ensuring two-way communication between home and school is key (Grant & Ray, 2010).

Most of the pre-service teachers were young adults (between the ages of 19-21) and recognized their own challenges in the way they use language. For many of them, using certain words or phrases to substitute for standard English words is very common in their communication and as they started communicating with the families, they began to realize that the way one uses language matters. One pre-service teacher noted:

> "… I learned that it is sometimes difficult to find just the right words to use when telling them about their child. Even when I was not saying anything negative, I needed to be aware not to use slang words. I do not think a teacher should use slang words in general, but I felt especially strongly about using very clear language with my student's family…."

Moreover, being clear in what teachers communicate to parents is important (Grant & Ray, 2010). It is sometimes possible for a teacher to assume that parents are ignoring their messages or that parents do not want to communicate; this misunderstanding could be a result of parents not understanding the information. Another pre-service teacher noted that:

> "I learned that you have to be clear in what you would like the parents to do. I know I would have gotten more activities completed with the family if I had asked more directly for what needed to be done rather than ask in a manner that allowed them to choose not to complete or return activities… I think it's really important for teachers to be very direct and concise about what they are expecting families to do while still being very respectful."

Intentionality and clear expectations are key if parents are to be involved. It is good practice for teachers to set goals and not merely send information home to parents without being specific about what is needed.

Murray, McFarland-Piazza and Harrison (2014) note that educators should "create a welcoming environment where all children and families are respected and actively encouraged to collaborate in curriculum decision making with educators to ensure that learning experiences are meaningful", and educators and families should "communicate freely and respectfully with each other" (p. 2). Facilitation of parent involvement and the development of supportive relationships and respectful communication with families are key features in quality early childhood teacher preparation. Quality preparation allows pre-service teachers to learn and utilize different communication preferences for families in order to facilitate communication with parents.

When parents know that their voices are heard in decision making, they feel encouraged to work closely with the teachers and school. This makes parents feel more involved and connected to their child's school experiences and their child's school life and for the teachers, they get to know about the child's home life. Being respectful to families and encouraging their collaboration was also brought up by pre-service teachers as one of the factors determining the extent to which partnerships are created and maintained. This is in line with Epstein's (1995) notion of collaborating with families so they feel that they are part of the larger community.

Pre-service teachers acknowledged the experiences gained while undertaking this assignment. They especially noted that they learned more about parents and ways to best communicate with them. For all of them, this was the first time that they had ever been afforded an opportunity to work directly with parents. In her reflection, one pre-service teacher summed up her thoughts:

> "During the nine weeks I spent with the child and corresponding with his family, I learned a lot about family involvement and communication…this was the first time I have ever been required to interact not just with the student but with their family in a direct way."

Challenges in Parent Engagement

During their interaction with families, pre-service teachers became aware of the myriad of circumstances that may place families in situations that present challenges in their ability to be more involved in their children's schooling and school activities. These may range from workplace demands (i.e. having to work for long hours or sometimes conflicting schedules to family demands), a lack of transportation to merely not knowing what the school expects from them. The statements below sum up the thinking of some pre-service teachers:

> "…many family members work during the day, so they are unable to come to the classroom to participate in that manner and this does not mean they are uninterested in their child's education…"

Another teacher candidate offered a different perspective about how teachers sometimes view families negatively and easily reach conclusions about their participation. As pre-service teachers interacted with families, they understood the importance of getting to know families well in order to avoid making wrong judgements. In one statement, one pre-service teacher noted:

> "…as a teacher, I learned a lot from this process…I learned that parents may be involved but may just not have the time to communicate as much with the teacher…I recommend that we do not judge a family before really getting to know them…you may have a preconceived notion about them, but you could be completely wrong…"

Rather than pointing to weaknesses in parent involvement, one teacher who participated in the teacher interviews seemed to see the high level of involvement of some parents and the complete lack of involvement of other parents as natural. While this teacher would likely see it as positive if each learner's parents attended some or all the available events, she understood that the home and work life of some parents prohibited their involvement. She did not seem to label or speak negatively of these parents. Other teachers pointed to a lack of resources (time, financial resources, and educational resources) as reason for the lack of involvement (both in school and at home) of some parents. These teachers did not blame parents, but rather explained their circumstances as contextual. This discussion provided a rich learning opportunity for the pre-service teachers.

While volunteering in their children's classrooms is always encouraged, parents may not always find the time to volunteer due to certain contextual factors that may hinder participation. One of them noted:

> "…I learned from this experience that while family members may sometimes not help or volunteer in the classroom, they typically really enjoy getting to see their child's educational environment and meet with the child's teacher during other school events…during the family enrichment night, I witnessed several parents volunteering at different stations…"

Interactions with the children in the classroom and during the family enrichment night event proved to be powerful learning experiences for the pre-service teachers. They witnessed families take pride in their children's activities and most of them offered to help at different stations. This is an affirmation that parents are willing to volunteer in the classrooms but may not do so due to other commitments. It is also true that parents may not volunteer due to a lack of intentional commitments on the part of the teachers to welcome parents into the classrooms.

Deeper Understanding of Relationship Building

All pre-service teachers agreed that the opportunity to work with families allowed them to learn how to connect and build relationships with families. Coleman (2013) affirms that demonstrating a commitment to family-teacher relationships is one of the professional standards that teachers will be expected to demonstrate and in fact, their commitment to children will in part be judged by their commitment to the children's families. As such, future teachers should be passionate about conveying a strong sense of commitment to the students and their family's involvement. When teachers and families work together, the children are more likely to become successful in their academic pursuits. The statements below were common among the pre-service teachers:

> "…this course project has made me realize how important family involvement is in the school setting…the experience gave me a good idea of what it will be like working with families and getting them involved…"

> "…As a teacher, I will need to make sure I create a strong relationship with my students and their families so that everyone can feel comfortable…these relationships are crucial in helping the child create a bridge between school and home life…"

In terms of parents' opinions about involvement, most pre-service teachers reported that parents truly wanted to be engaged and informed about their children's progress and activities going on at school. They noted that while most parents were eager to form strong relationships with their children's teachers and schools, it was also true that for some parents it was not always possible to be this involved and they would sometimes miss activities taking place at their children's school.

Pre-service teachers indicated that the preschool teachers expressed their eagerness to have parents volunteer in their classrooms. They valued the contribution that parents and community members made and as professionals, they were not threatened by the presence of parents in their classroom. Their understanding of their students' and their parents' needs and abilities likely helped create a welcoming atmosphere in which children learned and parents engaged in activities with their children. As the pre-service teachers worked with the preschool children one-on-one, they came to fully understand the child and his/her learning styles. Engaging parents via the children's folders sent home became the best channel for pre-service teachers to involve them in what their children were doing in the classroom. Most pre-

service teachers reported that some parents sent the folders back while others did not and acknowledged that they now understood why they hardly heard back from some parents.

In summary, the preceding results indicated that pre-service teachers witnessed first-hand what it takes to establish relationships with parents. For most of them, this was the first time that they had interacted directly with families. Within the nine-week project period, most of them reported that they began to understand the challenges that parents sometimes face in their efforts to be engaged with their children's schools. They also understood the important role that communication plays in establishing and maintaining meaningful parent-teacher partnerships and the role that both play in these relationships. It is therefore vital that during teacher preparation, pre-service teachers are provided with opportunities to work directly with families.

Discussion and Conclusions

The results clearly indicate that pre-service teachers benefited from the family engagement assignment added into the course. By incorporating an assignment focusing on family-school partnerships into an early childhood course, the study utilized Epstein's (2011) framework to understand (1) the experiences of pre-service teachers in their communication process with parents and; (2) explore pre-service teachers' experiences in what it takes to form parent-teacher partnerships. The pre-service teachers were able to demonstrate an understanding of what it takes to form partnerships with families, and they saw first-hand the powerful role that communication plays in parent-teacher partnerships. Although communication has always been considered important when working with families, it is also true that teachers are not always equipped with the tools needed to successfully implement effective communication practices that build strong partnerships (Bartels & Eskow, 2010; Henderson & Mapp, 2002).

The pre-service teachers in this study found that when communicating with parents, teachers must be clear about information being sent home. This is supported by the work of Bartels & Eskow (2010) and Henderson & Mapp (2002) who stress that teacher preparation programs continue to intentionally focus on the importance of communication and implementation of programs that help pre-service and in-service teachers learn how to develop lasting partnerships with families in the community. While there are multiple strategies for communicating with parents, for teachers, having interpersonal skills that make communication interactive, meaningful, and comfortable for the parents ensures that relationships are enhanced. In the current study, pre-service teachers valued interacting directly with parents since it allowed them to learn skills on how to maintain reciprocal relationships. Consistent with current literature (Mitsch et al., 2020), teacher preparation programs are essential in introducing pre-service teachers to the skills necessary to effectively engage in communication with families and more attention should be paid to equipping future teachers with skills that will be helpful as they build partnerships with families. Additionally, Taylor & Kim (2019) did a similar study where pre-service teachers worked directly with parents and concluded that providing pre-service teachers opportunities to work directly with families as part of their educational program holds promise for the possibility of transformative learning to occur (Taylor & Kim, 2019). Another outcome from the current study suggests that pre-service teachers did not only point to the importance of communication, but also expressed the significance in being intentional, clear, and choosing the right language when reaching out and conversing with parents. These sentiments are consistent with the thoughts of Grant & Ray (2010), who stress that intentionality and clear expectations are vital when communicating with parents.

Furthermore, the pre-service teachers indicated that they were able to understand the families better and thus, invited them in their decision-making process about the child's learning and solicited their input towards the planning of the family enrichment night. In her work, Esptein (2018) talks about involving parents in decision-making at their children's schools. Teachers make this possible when they acknowledge parent' perspectives and allowing for their voices to be heard. As such, parents feel accepted in the school and thus, more willing to volunteer in their children's classrooms and other school activities. Henderson and Mapp (2002) further suggest providing both, the pre-service and in-service teachers with learning

opportunities that help them connect and work with diverse populations, recognize the advantages of communicating and collaborating with families, and understand the benefits of creating respectful and inclusive relationships with families. Overall, teachers can benefit from learning to communicate and collaborate with families to ensure a continued strengthening of partnerships and to have a more positive experience in the classroom.

Evidence from the current study showed it was through their interaction with parents that pre-service teachers learned about families' daily experiences, their participation in school and other activities and generally the realities of daily life challenges. In the absence of opportunities like these, pre-service teachers may not know what families go through, which sometimes leads to making assumptions and affecting the way they will relate to each family. An understanding of families' backgrounds helps teachers create stronger bonds and strive to recognize the realities that families face (Epstein, 2018; Graham-Clay, 2005). Being aware of families' needs, allows teachers to tailor their efforts into finding suitable ways of working with each individual family to support the children's learning at home.

The pre-service teachers appreciated the opportunity to interact directly with families; this was a new experience for most of them. Unfortunately, in many teacher preparation programs, the opportunity for pre-service teachers to work directly with families is limited (Mitsch et al., 2020; Taylor & Kim, 2020). This is despite the expectation that when teachers enter the teaching profession, they should possess skills to successfully interact and involve parents in their classroom. This suggests that when it comes to parent-teacher partnerships, we are asking a new generation of teachers to do a great deal in the classroom yet they may have not been prepared for it. Rohr & He (2010) indicate that the challenge for teacher educators is to ensure that pre-service teachers leave our teacher preparation programs knowing how to effectively communicate with and involve parents of all students. Furthermore, as Epstein (2018) pointed out, parent-teacher partnerships are a core professional skill and practice which requires development within any program of initial teacher education. Educators bear the responsibility for equipping our pre-service teachers with the skills they will need to succeed as they work with schools, the community, and especially with parents. This requires ongoing efforts in revising our teacher preparation curriculum to align with the best practices of parent-teacher partnerships. It may also mean that assignments that focus on such partnerships are intentionally added to the courses that pre-service teachers take before completing their program.

Engaging parents, families and communities contributes to raising the educational aspirations and attainment of young people (State Government Victoria Department of Education and Early Childhood Development, 2008). A wealth of evidence highlights parental engagement in schooling as positively influencing pupil achievement and attainment (Desforges & Abouchaar, 2003). Epstein (2018) notes that without teachers' efforts on partnerships, many parents will continue to be limited in whether, and how, they motivate and guide their children's learning and development at every grade level. She continues to add that, most importantly, without teachers and parents working in partnership, many students will continue to be denied the support and encouragement for education that has been shown for decades to influence student success in school. Such evidence should be compelling enough to drive changes in the way teachers are prepared to work with families.

This study had some limitations; one such limitation was that parent participants were not interviewed to gather their thoughts about parent-teacher partnerships. Even though they had a meeting with the pre-service teachers at their homes or arranged for a playdate earlier in the project, the goal was not for them to be interviewed but rather to have a rapport where they and the pre-service teachers got to know one another. This assignment was also being piloted on a small scale and had its focus on the experiences of pre-service teachers; therefore, future studies should be designed to include interviewing parents. Another limitation is that the study comprised a small fraction of early childhood pre-service teachers enrolled in a teacher preparation program in one university; all of whom were female and mostly white. These results cannot therefore be generalized to a larger population. A similar study with a more diverse group of participants is warranted.

Building successful parent-teacher partnerships is a process that takes a long time. It is built through trust in a dual communicative relationship. As teacher preparation programs strive to continue preparing pre-service teachers for these partnerships, there should be concerted efforts at every local and state education departments to put in place policies that require and support the promotion of parent engagement at all grade levels. Without doubt, parent engagement in children's learning makes a difference and remains one of the most powerful school improvement levers that we have (Harris & Goodall, 2008). Parents should be encouraged to be a part of their children's education and as such it calls for a strong team of educators who are committed to making this happen. We know that pre-service teachers and novice teachers need to work together with parents, however, for this relationship to be productive teachers need to be confident in their abilities to involve parents. Building such confidence must begin at our teacher preparation programs.

Declarations

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Research Article

Newcomer families' experiences with programs and services to support early childhood development in Canada: A scoping review

Alison Brown[1], Jessie-Lee D McIsaac[2], Sarah Reddington[3], Taylor Hill[4], Susan Brigham[5], Rebecca Spencer[6], April Mandrona[7]

Abstract: It can be difficult for families with young children to navigate early childhood development supports. In particular, newcomer families often encounter additional barriers and require resources, programs, and services that are tailored to their unique assets, experiences, and needs. We conducted a scoping review of the literature published between 2000 and 2019 to explore what is known about newcomer families' experiences with programs and services to support early childhood development in Canada. We searched 12 databases, screened 2390 articles, and included 34 articles for synthesis and analysis. Three common and connected themes were identified: 1) effective intercultural understanding, responsiveness, and communication are critical to ensuring full access to meaningful programs and services; 2) some newcomer families face systemic barriers exacerbated by their immigration status, and; 3) feelings and perceptions of families and service providers, as well as social supports, networks, and relationships influence how programs and services are accessed and experienced. Our review identifies the requirement for additional, participatory research that centres the voices and perspectives of newcomer children and their families and the need to expand that research to less populated and rural areas of the country to inform meaningful and culturally relevant policies, programs, and services for newcomer families to support their children's well-being.

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Introduction

The early years are recognized as a critical period for establishing the conditions for lifelong learning and wellbeing (Marmot, Friel, Bell, Houweling & Taylor, 2008). Early childhood development is a key social determinant of health; early education, family support and services can improve long-term health and educational outcomes and reduce inequities in health, income, and education at a population level (Black et al., 2017; Marmot et al., 2008; McCain, Mustard & Shanker, 2007; Mustard, 2006; World Health Organization, 2020). It can be difficult for families with young children to navigate systems to find the supports they need (McCain, 2020); this can be even more difficult for *newcomer families* as they may encounter barriers in relation to language and literacy, employment, transportation, health, food security, housing, and documentation (Cho & Shin, 2008; Gelatt, Adams & Huerta, 2014). Newcomer families are defined broadly here as those who fall within any of Canada's immigration categories (i.e., economic immigrant, immigrant sponsored by family, refugee, temporary worker, undocumented) who left their country for varied reasons, voluntarily or involuntarily (Statistics Canada, 2019).

[1] Mount Saint Vincent University and School of Information Management, Early Childhood Collaborative Research Centre, Dalhousie University, Halifax, Nova Scotia, Canada, e-mail: alisonbrown@dal.ca, ORCID: https://orcid.org/ 0000-0002-4372-8574

[2] Mount Saint Vincent University, Early Childhood Collaborative Research Centre, Faculty of Education, Department of Child and Youth Study, Halifax, Nova Scotia, Canada, e-mail: jessie-lee.mcisaac@msvu.ca, ORCID: https://orcid.org/0000-0002-9294-5313

[3] Mount Saint Vincent University, Department of Child and Youth Study, Halifax, Nova Scotia, Canada, e-mail: sarah.reddington@msvu.ca, ORCID: https://orcid.org/0000-0002-1870-0342

[4] Mount Saint Vincent University, Early Childhood Collaborative Research Centre, Halifax, Nova Scotia, Canada, e-mail: taylor.hill1@msvu.ca, ORCID: https://orcid.org/ 0000-0003-0048-7712

[5] Mount Saint Vincent University, Faculty of Education, Halifax, Nova Scotia, Canada, e-mail: susan.brigham@msvu.ca, ORCID: https://orcid.org/0000-0003-0273-3366

[6] Dalhousie University,School of Health and Human Performance, Halifax, Nova Scotia, Canada, e-mail: becky.spencer@dal.ca, ORCID: https://orcid.org/0000-0002-5567-8041

[7] NSCAD University, Division of Art History & Contemporary Culture, Halifax, Nova Scotia, Canada, e-mail: amandrona@nscad.ca, ORCID: https://orcid.org/0000-0003-1625-514X

In recent decades, the number of migrants and refugees has risen dramatically. In 2000, there were 173 million migrants; that number now stands at 272 million (United Nations, 2019). Canada's newcomer population has likewise flourished. According to the 2016 Census, 21.9% of Canada's population are immigrants and 3.5% of Canada's population have arrived in the past five years (Statistics Canada, 2017). In 2018, Canada admitted the highest number of newcomers (313, 580) in its history (Government of Canada, 2019). There is limited understanding about the extent to which existing programs, services, and policies are succeeding in supporting newcomer families with young children, especially from the perspective of those families. This scoping review reports what is known about newcomer families' experiences with programs and services to support early childhood development in Canada (e.g., childcare centres, parenting programs, health care providers, family resource centres, and nutritional supplementation).

The newcomer family experience is often marked by change and challenge as they learn to understand, manage, and navigate Canadian physical, social, economic, political and cultural settings and systems, and this unfamiliarity can impact their access to supports and services. Their migration stories and current living conditions similarly influence their complex settlement and integration processes (Best Start Resource Centre, 2010; Colbert, 2013; Mayhew, 2018). As newcomer families become woven into the social fabric of communities across Canada they demonstrate tremendous resilience and resourcefulness (Mayhew, 2018). However, many experience feelings of loss, anxiety, isolation, and stress; many similarly encounter systemic obstacles that impede their integration and inclusive access to programs, services, and community opportunities (Gelatt et al., 2014; Hernandez, Takanishi & Marotz, 2009).

This review paper contributes to the study of early childhood by focusing on the perspectives of a specific population– newcomer children and their parents—in a specific context—Canada—highlighting the findings of recent studies (2000-2019) about newcomer families' experiences with supports and services for early childhood development. Given that countries around the world are increasingly receiving newcomer families with young children, the paper is of interest and value to early childhood studies researchers, policy makers, and practitioners in other geographical locations who want to understand the unique needs and barriers to supports and services experienced by newcomer families and how to enhance community assets to strengthen early childhood development.

Background

Newcomer families *with young children* face specific challenges and often require additional resources, programs, and services that are tailored to their assets, experiences, and needs to support the healthy development and wellbeing of their children. It has been well documented that access to these supports enhances family settlement, reduces socio-economic inequities, addresses newcomers' diverse needs and promotes agency within their communities (Karoly & Gonzalez, 2011; Magnuson & Shager, 2010). Moreover, newcomer families require information on how to locate, activate, and engage with these supports to enhance their access to all facets of community life and wellbeing.

Research reveals that newcomer families experience significant barriers as they try to navigate the complex systems to meet their needs. Further, how newcomer families experience social determinants of health such as employment and working conditions, food and housing insecurity, social exclusion, and discrimination may increase vulnerability and limit access to supports (Browne et al., 2017; Browne, Wade, Prime & Jenkins, 2018). Many existing systems and services are unresponsive or not built to address newcomer families' particular realities. For instance, many families face challenges with application documentation requirements, work-schedule conflicts, fear of child protective service involvement, transportation, and limited program capacity, and may lack affordable childcare, or awareness of the availability of early education programs and services (Browne et al., 2017, 2018; Mazer, Dion & Moryoussef, 2008; McCain et al., 2007; McKeary & Newbold, 2010). There is a requirement to prioritize culturally responsive programs and services (i.e., those which are asset-based and acknowledge, respond to, celebrate, and nurture families' unique cultures) as a means to enhance newcomer families' experiences within their communities as well as their access to services (Ladson-Billings, 2014). AbiHanna (2020), who

conducted a study with newcomer families in Halifax, Nova Scotia, asserts that culturally responsive pedagogy and programming are vital from the early years for ensuring that newcomer children are provided learning environments in which they can develop a sense of "belonging, being, and becoming" (p. 198). However, research indicates that many programs and services are not staffed by multilingual and/or culturally competent providers and therefore are ill-equipped to provide inclusive and accessible programs to newcomer families (Corter & Pelletier, 2010; Health & Education Research Group, 2013; Human Early Learning Partnership, 2015; McCain et al., 2007).

Purpose of the Study

One tool designed to mitigate barriers and promote culturally competent policy and practice when working with newcomer families with young children is the RAISED Between Cultures model. The RAISED model was developed by researchers, service providers, educators, policy-makers, and immigrant community members to inform culturally competent practice with immigrant families and young children (Brosinsky, Georgis, Gokiert, Mejia & Kirova, 2018). The factors comprising the RAISED acronym are: Reveal culture, Acknowledge premigration experiences, Identify post-migration systemic barriers, Support family and community strengths, Establish connections between environments, and Determine child outcomes together with families. The model highlights the importance of having a deep understanding of families' cultural backgrounds, their migration experiences and challenges, as well as their strengths to support early childhood wellbeing (Brosinsky et al., 2018). The current study uses a scoping review methodology and draws on the RAISED Between Cultures conceptual model to examine the strengths and challenges that newcomer families with young children encounter when seeking supports. The aim of this scoping review is to describe what is known about newcomer families' experiences with programs and services to support early childhood development in Canada and identify how to enhance family and community assets to better support newcomer children and families to thrive.

Method

Scoping reviews address an exploratory research question by systematically searching, selecting, and synthesizing a wide range of literature to determine the breadth of evidence on a particular topic (Levac, Colquhoun, & O'Brien, 2010; Peterson, Pearce, Ferguson & Langford, 2017). They are a type of knowledge synthesis that clarifies key concepts and related characteristics, allows assessment of emerging evidence, examines how research is conducted, identifies gaps in the literature, and scopes or maps a body of literature with relevance to time, location, source, method, and origin (Levac et al., 2010). The scoping review method can serve as a richly informed starting point for further investigations to contribute to research, practice, and policy. This scoping review was conducted using the five-stage framework described by Arksey and O'Malley (2005): identifying the research question, identifying relevant studies, selecting studies, charting the data, and collating, summarizing, and reporting the results.

Identifying the Research Question

The research question guiding this scoping review was: What is known about newcomer families' experiences with programs and services to support early childhood development in Canada? For the purpose of this review, "newcomer families" is an umbrella term encompassing those who have moved from their countries of origin for varied reasons, voluntarily or involuntarily, and those who fall within any of Canada's immigration categories: economic immigrant, immigrant sponsored by family, refugee, temporary worker, undocumented, and other (Statistics Canada, 2019). When we refer to early childhood development in relation to newcomer families' experiences, we are referring to language and culture, structural barriers and opportunities, divergent practices and systems, psychosocial factors, and social supports and relationships that determine young children's access and overall development in the early years context. Programs and services are those which support families' efforts to secure their children's healthy development and well-being (e.g., childcare centres, parenting programs, health care providers, family resource centres, and recreational activities.).

Identifying Relevant Studies

We created a sensitive search strategy, in consultation with a subject specialist librarian, to identify relevant articles for inclusion in the study's analysis and synthesis. To identify English, peer-reviewed documents published between 2000 and 2019, without methodological restrictions, we searched 12 electronic bibliographic databases: Child Development and Adolescent Studies, Academic Search Premier, CINAHL Plus, Education Research Complete, Education Resources Information Center (ERIC), PsychArticles, PsychINFO, SocINDEX, Medline, Gender Studies Database, LGBT Life, and SpringerLink. Database searching was followed by a search of the first twenty pages in Google Scholar. For grey literature, we conferred with Canadian immigration experts to create a list of relevant government and nongovernment organizations (n=18) from which to search for relevant reports. Finally, we hand- searched the reference lists of identified review articles, and key journals (e.g., Journal of Immigrant and Minority Health, Journal of Comparative Family Studies, Health and Social Care in the Community) and authors (e.g., Higginbottom, Khanlou, and Stewart) identified by our research team and Canadian immigration experts. The review of literature was completed over four months, ending in July 2019.

Using the research question as a guide, we developed a list of search terms to capture the salient concepts of the study population (e.g. immigrant, newcomer, refugee, permanent resident) combined with the study focus (e.g., early childhood, program, service, support, help-seeking). The terms were searched as key words, topics, and subject headings, particular to each database. As familiarity with the literature evolved, an iterative process was used to establish inclusion and exclusion criteria, outlined in Table 1. Articles were included for consideration if they were focused on the Canadian context, focused on the experiences of newcomer families with young children, included a discussion of access to and experiences of supports for early childhood development, published in English or French, and published between January 2000 and July 2019.

Table 1. *Inclusion and exclusion criteria*

Criteria	Inclusion	Exclusion
Country	Canada	Any country other than Canada
Focus	Experiences of newcomer families' access and experience of early childhood development supports	Not newcomer families with young children; No discussion of experiences with early childhood supports
Language	English, French	Any other than English or French
Publication Type	Peer-reviewed; Grey literature	Review articles
Publication Date	January 2000 – January 2019	Before January 2000; After January 2019
Publication Date	January 2000 – January 2019	Before January 2000; After January 2019

Selecting the Studies

Applying the developed search strategy and removing duplicates identified 2390 potential articles. Scoping reviews use an iterative process for study selection, reviewing potential items in progressively more depth, and updating selection criteria as familiarity with the literature develops (Arksey & O'Malley, 2005). An initial reading of the title and abstract of all articles identified from the databases was undertaken independently by two reviewers; screening against inclusion and exclusion criteria, they identified 168 articles for full-text review. Two members of the research team independently read the full text of those articles and screened against the same inclusion and exclusion criteria. Where there was need for further discussion additional members of the research team were consulted. Of those excluded, 95 articles did not focus on or have substantial discussion about families' access to or experience with supports for early childhood. Sixteen articles did not explore the experiences of newcomer families and nineteen articles did not focus on newcomer families with young children. Finally, four articles were excluded as they did not report on experiences of families within Canada. This screening process, illustrated in Fig. 1 below, resulted in the inclusion of 34 articles in the scoping review.

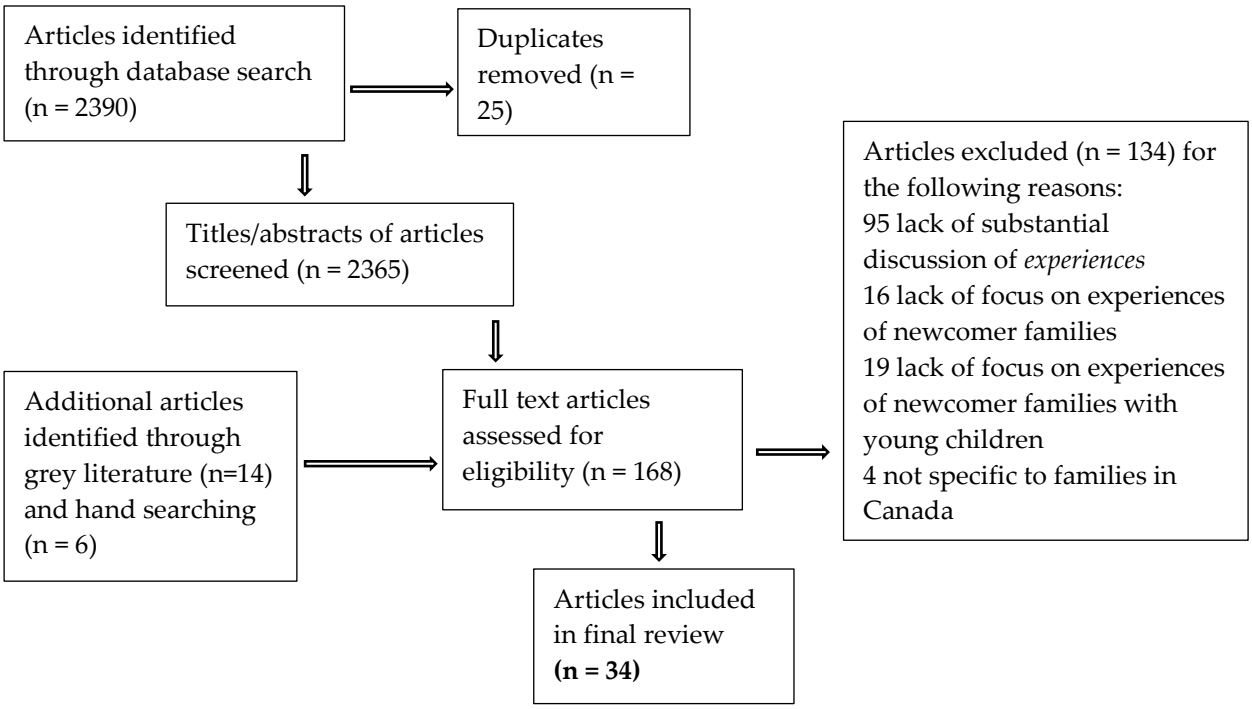

Figure 1. Flowchart depicting search results and exclusions.

Charting the Studies

Using a descriptive and analytical method recommended by Arksey and O'Malley (2005), we systematically extracted, charted, and tabulated data from the studies that met the inclusion criteria. We used an extraction form, collectively and iteratively developed and refined by the authors with categories related to key study characteristics and those that best responded to the research question and objectives (Levac et al., 2010). The information charted included: author(s), publication year, and location; study purpose; methods, design and sample; study key findings; experiences with programs and services to support early childhood development; barriers to programs and services, and; opportunities for improvements. Our data extraction and charting are presented in Appendix A.

Collating, Summarizing, and Reporting the Findings

The fifth and final stage of Arksey and O'Malley's (2005) scoping review framework summarizes and reports findings. The analysis of this scoping review occurred in three phases and involved careful reflection and examination among the authors independently and in meetings. First, we tabulated and reported a descriptive numerical summary for data pertaining to study characteristics (e.g., frequency counts for where and when the studies were conducted, types of studies). Extracted data reporting experiences with early childhood supports, barriers to supports, and opportunities for improvements were then thematically analyzed using the six-step process described by (Braun & Clarke, 2006): Familiarization of data (e.g. reading the data multiple times), initial coding, generating themes, validity and reliability of themes, defining and naming of themes, and interpretation and reporting. We identified common themes and sub-themes in the literature and have categorized them across three broad categories that describe newcomer families' experiences with programs and services to support early childhood development in Canada: 1) language and culture, 2) structural barriers and opportunities, and 3) psychosocial factors, social supports and relationships.

A final analytical step involved reviewing the themes in relation to the RAISED Between Cultures conceptual model. This process was guided by our research objective to identify the families' experiences and perspectives that could be helpful to policymakers and practitioners in developing, delivering, and

sustaining meaningful, effective, culturally relevant supports for early childhood well-being. The mapping of our research findings to the RAISED Between Cultures model is presented in the Discussion section.

Results

Descriptive Numerical Summary

Of the 34 articles that met the final inclusion criteria, the earliest was published in 2003 and twelve were published in the past five years. The greatest number of articles reported research from Ontario (n = 17), followed by Alberta (n = 8) and Quebec (n = 7). The peer-reviewed articles were from a range of disciplines including education, maternal health, health sciences, and social work. The reviewed research included populations identified as economic immigrants, refugees, immigrant families with children with disabilities or illnesses, and those with a variety of immigration statuses such as undocumented. We sought to describe the experiences of newcomer families as they navigate health care and education systems in Canada. Studies mostly (n = 27) applied solely qualitative methods; likely due to our focus on the experiences of families, although there were also solely quantitative (n = 1), mixed-methods (n = 5), and program evaluation (n = 1) studies included. Some studies focused on specific populations, such as children with disabilities (n = 6) or cancer (n = 2), or newcomer women accessing maternity care (n = 5). Some studies (n = 7) were based on service or care providers' (SCPs) experiences supporting newcomer families and their perspectives of families' experiences.

Major Themes

The overall aim with this scoping review was to present what is known about newcomer families' experiences with programs and services to support early childhood development in Canada. We analyzed the reported family experiences with early childhood programs and services, barriers to programs and services, and opportunities for improved programs and services. We identified three common and connected themes: 1) language and culture, 2) structural barriers and opportunities, and 3) psychosocial factors, social supports, and relationships. The evidence for each theme and subtheme is described with key concepts and illustrative examples below (and outlined in Table 2).

Table 2. *Summary of themes*

Theme	Description	Subthemes
Language and culture	Culture and language are intertwined; they evolve together and influence one another. The need for effective intercultural understanding, responsiveness, and communication to ensure full access to meaningful programs and services.	Cultural responsiveness; language constraints; interpretation and translation services; communication between home and service
Structural barriers and opportunities	Newcomer families face disproportionate challenges stemming from systems or sets of procedures beyond their control and exacerbated by their immigration status.	Affordability; employment and education; administrative logistics
Psychosocial factors, social supports, and relationships	Feelings and perceptions of both families and SCPs, as well as social supports/networks/ relationships influence how programs and services are accessed and experienced.	

Language and Culture

Cultural responsiveness to a unique set of experiences. It was evident in the included studies that a responsive understanding and appreciation of cultural diversity is essential for appropriate, inclusive, and meaningful care from SCPs to support early childhood development. Generally, cultural

responsiveness was described as offering culturally appropriate screening, services, programs, and practices (n = 19). For instance, SCPs should be aware of the social determinants of newcomer's health (e.g., social isolation, poverty, education and trained in how to effectively support this population (Ahmed, Bowen & Feng, 2017; Alaggia, Maiter & Jenney, 2017). In addition to tailoring supports to newcomer families' migratory context, the intersection of other circumstances may require attention, such as parents of a child with an intellectual or cognitive disability (Khanlou, Mustafa, Vazquez, Davidson & Yoshida, 2017). Divergent beliefs and practices exist between SCPs and parents (Brassart, Prévost, Bétrisey, Lemieux & Desmarais, 2017; Cobb, 2014; Fontil & Petrakos, 2015; Gagnon et al., 2010; Higginbottom et al., 2013; Jessri, Farmer & Olson, 2013). As awareness stems from pre-migration systems which tend to differ greatly from post-migration systems (Cobb, 2014; Khanlou et al., 2017), unique cultural norms (e.g., importance of dental care) may determine newcomer parents' engagement with certain services (Amin & ElSalhy, 2017). Newcomer parents and SCPs may hold divergent beliefs about children's medical care (Brassart et al., 2017; Klassen et al., 2012), stemming from a misunderstanding between health care system professionals and the newcomers (Gagnon et al., 2010; Higginbottom et al., 2013; Klassen et al., 2012; Woodgate et al., 2017), and accompanied by incongruent expectations regarding parents' involvement in medical health services (Brassart et al., 2017). For example, newcomer mothers may be uncomfortable discussing the use of inclusive education programs and services because they are not familiar with them to comfortably advocate for their use (Cobb, 2014). Acknowledging and trying to understand newcomers' challenges in resettlement at the first meeting between newcomers and SCPs can help build rapport and validate their feelings and experiences (Ansion & Merali, 2017). SCPs' commitment to enhancing awareness of the interaction between migratory context and subsequent challenges can improve feelings of social support in newcomer parents (Ben-Cheikh & Rousseau, 2013) and enhance communication (Dumbrill, 2009).

When designing programs and services to support newcomer families, the multiple layers of influence should be considered (e.g., community, cultural) to ensure cultural acceptability (Jessri et al., 2013). Newcomer mothers whose culture and religion hold certain beliefs and practices can be supported, for example, by SCPs' respectful acknowledgement of these differences (Jessri et al., 2013). Higginbottom et al. (2013) report Sudanese women's concern when nurses gave newborn babies a bottle when the mothers wanted to breastfeed. The need for acknowledging and understanding different cultural beliefs and practices is further discussed below. Professional development to increase cultural competency and responsiveness across the SCP workforce can develop new ways of informing and educating newcomer parents about the resources available to them (Klassen et al., 2012). For example, educating SCPs on newcomer families' coverage and eligibility for health care services can minimize the fragmentation of care (Rink et al., 2017), especially if SCPs can convey health information in accessible language formats (Merry, Gagnon, Kalim, & Bouris, 2011).

Language constraints. Language barriers impact newcomer parents' awareness of their rights (Khanlou Haque, Sheehan & Jones, 2015) and available services and supports (Cobb, 2014; Dumbrill, 2009; Jessri et al., 2013; Joyette, 2014; Kilbride & Ali, 2010; King, Lindsay, Klassen, Esses & Mesterman 2011; Merry et al., 2011; Wahoush, 2009). Moreover, parents' level of awareness is shaped by their command of the English language (Cobb, 2014; Dumbrill, 2009) and their capacity to seek useful, relevant information. For example, parents may be unaware of educational (Joyette, 2014; Kilbride & Ali, 2010) or supportive (Jessri et al., 2013; Wahoush, 2009) opportunities for their child and not have the literacy skills to access information in the English language (Dumbrill, 2009). Even if newcomer parents have the tools to information- and help-seek, SCPs tend to hold varying levels of knowledge about newcomer-specific resources (King et al., 2011; Merry et al., 2011) or have resources available in limited languages (Woodgate et al., 2017).

The ability of families to communicate effectively with SCPs and community institutions (e.g., their children's school) is also dependent on their command of the English language as mentioned previously. Limited English language proficiency was reported as a barrier in most studies reviewed (n = 22) and can compound their access to a modality of supports. For example, a parental language barrier influences mothers' knowledge of available supports (Cobb, 2014; Dumbrill, 2009) and may impede accessing specific

formal services that would benefit their child (Fontil & Petrakos, 2015). Mothers who experience language barriers may have difficulty navigating education systems, have challenges advocating for their child and, as a result, impede their child's access to inclusive learning environments (Kilbride & Ali, 2010).

In addition to verbal communication, SCPs' interpretation of nonverbal behavior (e.g., maternal distress during labour) may be inaccurate due to their lack of understanding of cultural differences in expression (Higginbottom et al., 2013). Particularly sensitive contexts, such as childbirth, present an enhanced requirement for culture and language relevant care (Reitmanova & Gustafson, 2008). For example, Higginbottom and colleagues (2013) reported that newcomer women may hold cultural beliefs about stoicism, which prevents SCPS from identifying signals of distress and ultimately, referrals for maternity care. When health-related information is typically shared with newcomer parents in English or French (the official languages of Canada) discrepancies in understanding can occur (Klassen et al., 2012) and contribute to lower health literacy in newcomer parents. In particular, newcomer mothers may have difficulty expressing health concerns or accessing supports due to their language barrier (Reitmanova & Gustafson, 2008). An opportunity to improve the experience of newcomer families accessing supports is to coordinate intense supports for English and/or French language learning (Roer-Strier, Strier, Este, Shimoni & Clark, 2005). As newcomer parents develop their English and/or French language skills, employment and educational opportunities arise which they may have been excluded from previously.

Hoen (2003) evaluated a program designed to support newcomer families and enhance their relationship with the Canadian education and social service systems. The evaluation report concluded that newcomer parents learned how to promote healthy child development, specifically using teaching approaches commonly used in Canadian school systems to enhance children's transition into school. Newcomer parents also gained knowledge on methods of communication and interaction with school personnel and recognize their right to request an interpreter and information about their children's progress. The program taught parents about the structures and services embedded in the Canadian systems that relate to families, and to feel empowered in this process by advocating for their rights, both parents and children (Hoen, 2003). Another article spoke to the importance of SCPs understanding parents' apprehension regarding therapeutic goals due to cultural differences (e.g., stigma of mental health issues) and consider how they can appropriately involve parents in treatment (e.g., help parents understand treatment process and the importance of therapy by defining achievable goals) (Brassart et al., 2017).

Cultural interpreters can positively engage newcomer families by enabling them to communicate in their own language, although SCPs may lack the resources necessary to employ cultural interpreters or to train support workers (Alaggia et al., 2017). Some newcomer families prefer to speak in English to learn about the new systems and structures in Canada (Alaggia et al., 2017), or when engaging in community support groups (Stewart, Simich, Shizha, Makumbe & Makwarimba, 2012). Further, some parents depend on their child to translate while navigating new systems, especially if their child is in an English-taught school (Kilbride & Ali, 2010). One study demonstrated how SCPs, using culturally competent practice or with the help of cultural interpreters, can use alternative methods to communicate with newcomer families. By employing pictures, photos, or translation software tools, SCPS and parents can develop a shared understanding of needs, resources, and experiences (Brassart et al., 2017). If interpreters and translators are hired, SCPs should be trained on how to engage with their services in a way that best supports newcomer families (Dumbrill, 2009; King et al., 2011). At the very least, SCPs should have a working knowledge of the language services and supports available to newcomer families (Woodgate et al., 2017) and not assume that newcomer parents know what supports exist (King et al., 2011).

Communication between home and services. Evident from our review is the need for SCPs to implement measures for consistent, effective communication between families and the services they access. One included study suggests that by "establishing a network of champions" (Joyette, 2014, p. 6) that represent different domains of support for newcomer families (e.g., early childhood education, faith and ethnic groups, local support groups), efforts can be consolidated to optimally support newcomer families (Joyette, 2014). Offering in-home, culturally responsive services that respond to the needs of the whole family (Maiter & Stalker, 2011) is another strengths-based, community-embedded way to enhance

communication with newcomer families. For newcomer children with disabilities, such as autism spectrum disorders, the transition from preschool to elementary school requires a strengthening of educational and community support. Schools must intentionally take steps to develop trusting collaborative partnerships with families (Fontil & Petrakos, 2015). Community-embedded programming can enhance newcomer families' resettlement experiences (e.g., mental health support) (Simich, Wu & Nerad, 2007; Stewart, Simich, Shizha, Makumbe & Makwarimba, 2012). Moreover, intersectoral collaboration among supportive services (e.g., agencies) can reduce barriers to accessing supports while being culturally relevant (Stewart et al., 2008; Woodgate et al., 2017). Structuring supports into culturally sensitive, holistic, comprehensive and collaborative programs can ultimately promote the multifaceted well-being of newcomer families, especially in the early childhood period (Roer-Strier et al., 2005).

Structural Barriers and Opportunities

Affordability. Personal financial ability to access supports and the financial constraints of many service organizations were mentioned in many of the studies reviewed (n = 9). For example, Alaggia and colleagues (2017) identified a need for increased funding for service provision for newcomer families with language challenges who are seeking community-based supports. Families' ability to access health services such as dental care for their children was influenced by their ability to pay for these services (Badri, Wolfe, Farmer & Amin, 2018), especially for 'irregular' immigrants who have limited access to insurance (Simich et al., 2007). Newcomer families may experience medication and non-basic health care services as high-cost expenses (Woodgate et al., 2017), and hospitalization is a particularly dire financial burden (Stewart et al., 2012). Refugee claimants may be denied access to care because of a lack of continuous health insurance which is not well understood by some health care providers (Rink et al., 2017). In Canada, an estimated 500 000 live without health insurance due to their immigration status; many provinces and territories require a 3-month waiting period, temporary foreign workers, undocumented, and refugee claimants may qualify for the Interim Federal Health program but the program is not used consistently across jurisdictions (Barnes, 2016). Medical personnel are sometimes reluctant to serve refugee families or those with tenuous immigration status, due to the confusing bureaucracy and delayed reimbursements (Barnes, 2016; Tastsoglou, Abidi, Brigham & Lange, 2014).

Suggestions for mitigating this barrier are presented in several of our scoping review included articles. Enforcing a no-denial, no-fee policy would ensure all children can access medical care (Rink et al., 2017), especially considering how financial barriers may impede newcomer parents from following through with referrals from SCPs (Gagnon et al., 2010). The three-month waiting period for provincial insurance coverage (e.g., Ontario Health Insurance Plan) for newcomers re-enforces this barrier (Goel, Bloch & Caulford, 2013). Taking the time to explain and convey health-related information is essential for effective communication between the health workforce and newcomer families. For example, newcomer mothers may not be able to access postpartum and social services due to financial difficulties (Merry et al., 2011). One way to overcome this barrier is the provision of access to government-sponsored benefits for new parents who are new to Canada; SCPs could implement screening procedures to identify and refer mothers who may be at-risk for experiencing financial difficulties (Merry et al., 2011) and do not know their rights (Rink et al., 2017). Focusing interventions designed to promote the healthy development of newcomer children should consider tailoring support to families with low income (Hoen, 2003), especially considering the negative health consequences associated with financial stress in newcomer families (Khanlou et al., 2017).

Employment and education. Finding meaningful and suitable employment can be difficult for newcomer parents (Khanlou et al., 2017; Woodgate et al., 2017), resulting in unemployment or under-employment (Stewart et al., 2012). Barriers to employment include discrimination against newcomers and not having access to community supports such as certain employment services that are limited to Canadian citizens and permanent residents with the appropriate paperwork (Stewart et al., 2008). In one study it was found that the amount of time that newcomer fathers spend with their children was linked to their employment status, wherein fathers who are not meaningfully employed in a way that utilizes their skills and education (i.e., they are over-qualified for their new employment) feel they cannot adequately

financially provide for their children (Roer-Strier et al., 2005). Newcomer parents trying to navigate the education system on behalf of their children valued interactions with educators who showed compassion, avoided judgement and who worked with the parents in genuine partnerships; however, some educators lacked knowledge of families' pre-migration conditions and were not culturally sensitive in their work with parents (Fontil & Petrakos, 2015). Kilbride and Ali (2010) highlighted how communication between home and school is especially important to avoid streaming newcomer children (i.e., grouped with children who have academic challenges). SCPs can also benefit from continuing education, especially front-line workers and community service providers (Falihi, 2019). SCPs should be strongly encouraged to avail themselves of the professional development opportunities that exist for navigating supportive relationships with newcomers, such as cross-sectoral learning exchanges and field placements (Falihi, 2019).

Administration and logistics. Newcomer families faced many administrative-related barriers to accessing supports, for example: supports being inaccessible to newcomer families due to long wait times (Ben-Cheikh & Rousseau, 2013), inflexible scheduling (Gagnon et al., 2010) with inconvenient locations and times (Khanlou et al., 2017), and services that are too short or lacking in resources (Dumbrill, 2009). Form-filling was identified as a challenge for newcomer parents; the burden of extensive paperwork can be exacerbated by language gaps and paucity of help from SCPs (Khanlou et al., 2015; King et al., 2011; Klassen et al., 2012). The rigid complexity of the Canadian health care system (Brassart et al., 2017) makes navigating a new system increasingly difficult; a caseworker, peer-navigator, or cultural broker model is recommended (e.g., Klassen et al., 2012). Minimal access to childcare can also impede newcomer mothers from attending English language learning classes (Merry et al., 2011) or pre-natal classes (Reitmanova & Gustafson, 2008). Some newcomer parents struggle to find childcare when attending appointments and commitments for one child (Ahmed, Bowen, & Feng, 2017; Amin & ElSalhy, 2017; Gagnon et al., 2010), and perceive SCPs as annoyed when other children are present (Gagnon et al., 2010).

Studies recommend that SCPs be empathetic when dealing with other children being present at appointments (Gagnon et al., 2010) or even offer in-home consultations and care provision in keeping with family-centred care (Maiter & Stalker, 2011). Joyette (2014) advocates for newcomer families to receive public transit subsidies when registered in city programs, to overcome logistical issues. As many services are geographically dispersed (Khanlou et al., 2015), it would be ideal to secure resources to support the development of multi-service centres (Joyette, 2014) to overcome consistently report transportation obstacles (Ahmed et al., 2017; Amin & ElSalhy, 2017; Gagnon et al., 2010; Klassen et al., 2012; Merry et al., 2011; Stewart et al., 2008; Woodgate et al., 2017). Interprofessional collaboration (Brassart et al., 2017) that helps coordinate and integrate knowledge exchange between organizations and individuals can bridge the provision of services (Falihi, 2019). For instance, establishing an equity committee within schools that mandates professional development opportunities for culturally responsive practices (Cobb, 2014) can build the capacity to expand community awareness and responsiveness. By being aware of the need for change, which exists on many levels, existing relevant resources can be used, adapted, built on, and expanded (Falihi, 2019). Identifying newcomer families' needs and being aware of existing resources can propel systematic and strategic planning on multiple levels (Falihi, 2019). The studies also suggest that policies and procedures be developed and implemented in a holistic approach, with strategic planning on multiple levels (Falihi, 2019) that is focused on the needs and issues experienced by newcomer families and young children (Joyette, 2014).

Psychosocial Factors, Social Support, and Relationships

The experiences of newcomer families are shaped in part by their mental health, which is further influenced by the pre- and post-migration experiences and their cultural norms and beliefs. For example, families describe feelings of depression and loneliness (Ansion & Merali, 2017; Klassen et al., 2012; Stewart et al., 2012), especially parents worried about their family being separated due to irregular immigration status (Simich et al., 2007). Lack of legal status takes a psychological toll, yet some parents may distrust those outside of their family which impedes their willingness to seek support (Dumbrill, 2009; Klassen et al., 2012; Simich et al., 2007). Woven through several included studies were feelings of mistrust, disrupted

support systems, and challenges with establishing supportive formal and informal relationships. Newcomer parents may feel isolated (Ansion & Merali, 2017; Khanlou et al., 2017) and in need of more guidance from SCPs (Fontil & Petrakos, 2015; Khanlou et al., 2015). Newcomer parents with children with developmental disabilities may struggle with guilt and feel judgement by the community when with their children in public places resulting in social isolation (Fontil & Petrakos, 2015). Roer-Strier et al. (2005) describe how fathers felt that support could be more tailored to fatherhood, such as programming designed specifically for newcomer fathers. Cultural stigma and privacy concerns are reported barriers to accessing mental health services a (Ahmed et al., 2017; Khanlou et al., 2017). For example, Ahmed et al. (2017) report that refugee women have difficulty expressing feelings of depression due to the stigma of mental health in their cultural beliefs, leading to poor maternal mental health. Pre-existing barriers to accessing services can be exacerbated by inadequate informal support (Stewart et al., 2008), wherein parents are not connected to relevant sources of support which would help them manage their child's well-being.

Families' interactions with SCPs, especially the first meeting, shapes their perceptions and feelings about their experiences. In nearly one-third of the studies reviewed (n = 11), families reveal facing varying levels of discrimination (Dumbrill, 2009; Khanlou et al., 2017; Maiter & Stalker, 2011; Simich et al., 2007). Poor interactions can produce negative feelings toward the health care system and workers (Ben-Cheikh & Rousseau, 2013) and subsequent avoidance of care (Goel et al., 2013; Rink et al., 2017; Wahoush, 2009). To overcome this barrier, studies recommend that SCPs be knowledgeable and friendly (Badri et al., 2018), culturally sensitive (Higginbottom et al, 2013), solicit and address any concerns with parents (Dumbrill, 2009), utilize a strength-based approach to practice (Maiter & Stalker, 2011), and increase community-embedded supportive services (Simich et al., 2007). Normalizing families' experiences and feelings with empathetic professionals (Gagnon et al., 2010) in community-embedded mental health services (Simich et al., 2007) can enhance emotional support (Ansion & Merali, 2017), and ultimately newcomers' mental health. Although newcomer families experience a diminished extended family support system in their resettlement in Canada, new support networks can be created in unexpected ways (Ansion & Merali, 2017). For example, some families report establishing friendships within the health care and school systems (Ansion & Merali, 2017) and among other newcomer parents (Klassen et al., 2012), especially when seeking information about their child's health (Wahoush, 2009). Indeed, an opportunity for SCPs to improve the supports available to newcomer families is to provide the means necessary to build a new social network (Ansion & Merali, 2017; Ben-Cheikh & Rousseau, 2013; Reitmanova & Gustafson, 2008), through informal or formal community supports (Hoen, 2003; Stewart et al., 2012) that can help develop trusted relationships (Fontil & Petrakos, 2015). For instance, Fontil and Petrakos (2015) report the buffering-capacity of support systems (e.g., teachers, family, and community supportive services) to help overcome challenges associated with resettlement.

Community networks are especially important for newcomer families as they navigate supports for early childhood development (Maiter & Stalker, 2011). Stewart et al. (2012) suggest that programming for newcomer children should encourage age-based, gender-based, and language-based groupings (Stewart et al., 2012) to effectively nurture positive relationships and develop social networks. Intersectoral collaboration among organizations is especially helpful when addressing the supportive needs of newcomers, by coordinating different types of support (i.e., instrumental, practical, social) and should be made known to newcomers (Stewart et al., 2008). Ideally, parenting programs should be designed and implemented that are meaningful and relevant to newcomer families. Developing a peer-to-peer support system for newcomer parents to be supported by someone from their culture (Klassen et al., 2012) would be a way of informing and educating parents about resources while also providing the means to build a new social network.

Discussion

Our scoping review reveals a range of factors that affect newcomer families' access and experiences of supports for early childhood development in their new Canadian communities. In turn, these factors are

influenced by the beliefs, socio-cultural practices, and actions of both the families and the systems, institutions, and organizations designed to support them. While major themes were outlined above it is important to recognize that the obstacles and opportunities within one domain influence the other and all interact to shape the experiences of newcomer families with young children.

To critically examine and better understand our results, we looked at them in relation to the RAISED Between Cultures (RAISED) model. The RAISED model builds on Bronfenbrenner's ecological systems theory (1979) and was designed collectively by researchers, service providers, educators, policy-makers, and immigrant community members to inform culturally competent practice with immigrant families and young children (Brosinsky et al., 2018). The model outlines six key factors that when considered by educators and practitioners working with newcomer families can contribute to children's well-being, as outlined in Figures 2 and 3. The factors comprising the RAISED acronym are: Reveal culture, Acknowledge premigration experiences, Identify post-migration systemic barriers, Support family and community strengths, Establish connections between environments, and Determine child outcomes together with families. The findings from our review connect well to the interdependent factors within the RAISDED model and suggest the model would be a useful tool for developing, delivering, and sustaining successful, meaningful, culturally relevant supports for early childhood development.

Figure 2. RAISED model, reprinted from "RAISED Between Cultures: New resources for working with children of immigrant or refugee background" by L. Brosinsky, R. Georgis, R. Gokiert, T. Mejia and A. Kirova, 2018, *Childhood Education*, *94*, p. 20.

Reveal Culture

This factor of the RAISED model highlights the importance of understanding how culture, including the social practices, beliefs, and norms of different communities, shapes every aspect of family life, including access and experiences of early childhood services and programs. The RAISED model stresses that while some cultural traditions are visible and apparent (e.g., food, clothing, language), others are less visible (e.g., beliefs about childhood development, value placed on dental care, post-partum practices). The results of our review suggest that it is important to identify, understand, and respect the deeper meaning behind these culturally-influenced practices and norms (Brosinsky et al., 2018). For example, what is revered in some cultures (e.g., stoicism during childbirth) can be viewed as confusing or worrying to others (Higginbottom et al., 2013). Without recognition and acceptance of cultural differences, the risk of stigmatization, assumptions, and misinterpretation is high. Moreover, if families feel their customs or beliefs are not respected, they may avoid seeking necessary supports (Rink et al., 2017; Stewart et al., 2006). Nearly every study in our scoping review emphasize that culturally sensitive and responsive support is vital, providing support for the RAISED model's advocacy for the provision of professional development

to SCPs for culturally responsive service delivery.

Further, language is intertwined with culture. Most of the reviewed articles discuss how not sharing a common language creates numerous challenges for families as they attempt to access and experience early childhood services and programs. Language barriers lead to families being unaware of programs and services, unable to navigate the unfamiliar systems, or experience discomfort, discrimination, or misunderstandings in the provision of those programs and services. Limited dominant language proficiency also creates challenges in securing education or employment opportunities, directly and indirectly compounding constraints in accessing programs and services for early childhood development. Cultural brokers, translators, and interpreters can strengthen the provision of supports, facilitating shared understanding (Dumbrill, 2009; King et al., 2011; Woodgate et al., 2017). Intensive language supports can strengthen families' abilities to navigate the additional services they need.

Acknowledge Pre-Migration Experiences

This factor emphasizes the need for SCPs to understand that every newcomer family had experiences prior to their migration to Canada that shape their current socio-cultural practices and actions. Learning about and acknowledging these experiences can uncover the information necessary to develop and deliver effective, responsive supports for early childhood development. Our review included studies reporting the experiences of families who voluntarily chose to come to Canada for economic or family reasons, families who did not choose Canada but were forced to flee their countries of origin and provided refuge in Canada, and families who were looking for better health care and educational opportunities. Regardless of their motivations for moving to Canada, all families left behind social networks, and familiar systems and processes and as a result, many experienced feelings of isolation and fear. A sense of belonging is a vital component of the inclusion of vulnerable groups, such as newcomer families, into local Canadian community contexts. Canadian early childhood programs and services should be developed to take into consideration global mobility and migration.

Additionally, families initially relied on their pre-migration knowledge and experiences of navigating early childhood development supports and services, despite that Canadian systems (e.g., government, healthcare, educational, social development) may be quite different (Amin & ElSalhy, 2017; Ansion & Merali, 2018; Brassart et al., 2017; Cobb, 2014; Fontil & Petrakos, 2015; Higginbottom et al., 2013; Jessri et al., 2013; Khanlou et al., 2017; Roer-Strier et al., 2005; Woodgate et al., 2017). This highlights the importance of knowing the political, cultural, and social contexts from which newcomer families have arrived and understanding how these contexts influence their current understandings and experiences. For example, families who come from a culture where stigma surrounding mental health or inclusive education remains, may be reluctant to access the required supports or be unfamiliar with how to navigate them (Ahmed, Bowen, & Feng, 2017; Ben-Cheikh & Rousseau, 2013; Joyette, 2014; Khanlou et al., 2015). Findings from our review support the RAISED model's recommendation to proactively learn about and acknowledge each family's pre-migration experience as their stories can inform how to best support them.

Identify Post-Migration Systemic Barriers

Evident from our review is that several post-migration systemic barriers prevent or hamper newcomer families from accessing the supports they need to ensure their children's well-being. Systemic barriers are "practices, processes/procedures, and beliefs that do not take into account the social, cultural, and language realities of all families and may prevent meaningful participation and equitable access to programs and services" (Georgis et al., 2017, p. 16). Corroborating findings from past studies in other jurisdictions, families in our review of studies identified several issues that directly or indirectly created challenges to successfully securing supports for early childhood development: financial constraints, limited educational or employment opportunities, lack of proficiency in the dominant language (English or French), feeling unwelcomed and discriminated against, long waiting times, inconvenient locations or scheduling, lack of affordable childcare or transportation, complicated forms, lack of insurance, and stringent eligibility requirements for certain services. Identifying newcomer families' needs and being aware of the obstacles in meeting those needs can propel coordinated and strategic efforts to adapt or

expand existing resources, as well as develop and implement new ones (Falihi, 2019; Roer-Strier et al., 2005).

Support Family and Community Strengths

The RAISED model highlights that alongside the multiple challenges experienced by families are their demonstrated assets and strengths. Findings from our review confirm that family and community strengths such as multilingualism, interdependence, perseverance, and family bonds can be leveraged to improve access and experiences of supports for early childhood development (Ben-Cheikh & Rousseau, 2013, p.?; Khanlou et al., 2017; Maiter & Stalker, 2011; Reitmanova & Gustafson, 2008; Stewart et al., 2008). Several of the studies included in our review highlight the importance of family and community networks to combat feelings of isolation and to improve awareness of and access to meaningful information and services (Ansion & Merali, 2017; Klassen et al., 2012; Wahoush, 2009) For example, Cologon (2016) investigated the experiences of families with children with disabilities and explains the requirement to better understand what views families hold and to not make assumptions about the views of parents. Cologon's (2016) research resonates with experiences of newcomers who often are stigmatized and misunderstood. Hence, the necessity to work closely with newcomer families and community organizations that support their transition to Canada.

Establish Connections between Environments

This factor of the RAISED model underscores the importance of creating trusted connections between newcomer families' homes and broader community supports. Supports for early childhood development are often the first point of contact with their new communities; a trusted relationship between families and the varying care environments can be instrumental to ensuring children's well-being. SCPs must explore creative and meaningful ways to enhance newcomer children's and families' connections to these spaces. Establishing an intersectoral "network of champions" through better coordination, collaboration, and knowledge exchange among services and providers, appointing systems navigators, and delivering culturally responsive, in-home or community-embedded programming can secure those trusted connections (Joyette, 2014; Maiter & Stalker, 2011; Roer-Strier et al., 2005Simich et al., 2007; Stewart et al., 2008, 2012; Woodgate et al., 2017).

Determine Child Outcomes Together with Family

The final factor of the RAISED model highlights the importance of working with, rather than for, families to identify needs and potential solutions in developing and delivering early childhood supports (Georgis et al., 2017). This follows the United Nations Convention on the Rights of the Child that identifies in Article 29, "The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own" (United Nations, 1991). Our findings highlight the importance of family-centered care and the need for SCPs and families to use creative communication methods in working together in develop shared understandings and expectations (e.g., of medical conditions and treatments, program and funding opportunities) (Brassart et al., 2017; King et al., 2011; Maiter & Stalker, 2011).

Migration can co-occur with a loss of linguistic and cultural heritage, as well as a severing of connection to important traditions and histories (Strekalova-Hughes & Wang, 2019). However, our findings illuminate the problematic nature of the prevailing integration rhetoric insofar as it places the onus on newcomers to adapt, rather than on the development of truly inclusive systems and structures. This perspective risks exacerbating existing inequalities and barriers to services for newcomer families. To assume that because newcomers may have had traumatic experiences and therefore may lack the understanding necessary to identify and navigate available supports, implies that their socio-cultural knowledge are devoid of holistic and responsive relational practices.

Strengths, Limitations and Gaps

This article reports a comprehensive, systematic review of the most recent available evidence exploring the experiences of newcomer families supports and services for early child development in Canada. Our use of the Arksey and O'Malley (2005) scoping review framework is a strength, as is our discussion of the results using the RAISED Between Cultures model. As well, this work is being conducted by a team with diverse expertise in a variety of fields relevant to this work, and experience in conducting evidence synthesis, including scoping reviews (Brown, Spencer, McIsaac & Howard, 2020; McIsaac, Spencer, Chiasson, Kontak & Kirk, 2019; Spencer, Rehman & Kirk 2015). A typical restriction of scoping reviews is that they do not include quality assessment; we can therefore not speak to the quality of articles included in this study. Further, each newcomer family has its own story and migration path which can influence its access to and experience of supports and resources. A comparison of experiences between those in different immigrant categories was beyond the scope of this study.

One of the strengths of scoping reviews is their ability to identify gaps in the literature that inform where future research should or might take place. A critical gap identified in this review is that no included studies were conducted from the perspective of newcomer children. Future research would benefit from positioning newcomer children's voices as the focus (Ajodhia-Andrews, 2016; den Besten, 2010; Roxas, Gabriel & Becker, 2017). Child-centred perspectives would allow us to better understand of newcomer children's experiences of programs and services that are designed for them and to more fully understand children's capacity to influence and transform their social and cultural surroundings (James, Jenks & Prout, 1998). Even in a review focused on the experiences of newcomer families, some of the included studies considered only the perspectives of SCPs. Additional research should centre the voices and ideas of newcomer children and families as they describe and interpret their experiences related to early childhood programs and services in the Canadian context. As Pence and Nsamenang (2008) state:

> [Westernized universal] assumptions and understandings have become the normal and natural way to see and understand children, regardless of culture and context. Local perspectives, activities, and practices are all too often considered to be deviant or deficient by comparison and, like local languages, submerged in their wake (p. 1).

Relatedly, many of the included articles subscribed to the prevailing rhetoric around integration, continuing to position newcomers as those who must adapt. Research with newcomer families should include an explicit discussion of how the barriers they experience do not reveal their lack of understanding or navigational skills, but point to the ways in which education, healthcare, and service structures continue to best serve privileged groups.

As well, while included studies were primarily qualitative and therefore able to illuminate the experiences of newcomer families, only one study used a participatory approach. Future research in this area should consider the strengths that could be added by using participatory and community-based methodologies. Much of the research reviewed was conducted in fields of education, social work, and health sciences. Conducting research on newcomer families' access to services to supports in fields such as psychology and sociology would enable other orientations and perspectives to emerge that can contribute to richer insights. A final gap identified by this review is that it is reflective primarily of experiences in only three large Canadian provinces, where supports and infrastructure are likely to be most accessible; future research should aim to explore the experiences of newcomer families in provinces and territories with smaller populations and those in rural or remote areas.

Conclusions and Implications

This paper used a scoping review method to examine the findings of recent studies (2000-2019) about newcomer families' experiences with supports and services in Canada. It utilized the RAISED Between Cultures (Brosinsky et al., 2018) model to critically examine and better understand our results. In describing and interpreting what is known about newcomer families' experiences with programs and services to support early childhood development in Canada, our scoping review identifies ways family and

community assets can be enhanced to better ensure families thrive. Our findings reveal three prevalent and connected themes (language and culture, structural barriers and opportunities, and psychosocial factors, social supports, and relationships) that reinforce the RAISED model's factors SCPs must consider to better ensure newcomer children's well-being.

A responsive understanding and appreciation of cultural diversity to provide appropriate, inclusive, and meaningful care from SCPs is critical. This involves providing translation and interpretation and increased communication between newcomer families and service providers. Given the myriad structural barriers experienced by newcomer families (including lack of affordability for services and programs, un/underemployment, challenges in navigating education systems, and administrative-related barriers), in-home consultations should be offered where possible, multi-service centres should be developed, a holistic approach for delivering services and programs should be taken, and there should be increased interprofessional collaboration to bridge the provision of services. Finally, SCPs must acknowledge that the experiences of newcomer families are shaped by their mental health, which is further shaped by the pre- and post-migration experiences and their cultural norms and beliefs. This means that establishing supportive and trusting formal and informal relationships is essential, which requires SCPs be knowledgeable and friendly, culturally sensitive, capable of soliciting and addressing the concerns of parents and using a strength-based approach to practice.

Further, this scoping review shows that newcomer families' actions and relationships are influenced by social, political, and historical discourses that contribute to their daily experiences with Canadian early childhood programming and services. In this way, agency plays a central role in deciphering newcomer families' needs and desires. There is a requirement to explore more fully research that examines newcomer families' experiences when living and partaking in Canadian early childhood programs. This type of research will help to inform if their needs are being met, but more importantly, if they feel like they are contributing members of our communities. In addition, this scoping review highlights the merit in exploring the development of policies, practice, and research in early childhood contexts that advocate for newcomers to increasingly participate in decision-making processes that impact their families' lives and well-being.

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Appendix A: Summary of Charted Data

Author, year, location	Study purpose	Method, design, sample	Study's key findings	Experiences with early childhood supports	Barriers to supports	Opportunities for improved supports
Ahmed, Bowen, & Feng, 2017, Saskatoon, SK	To understand how refugee women understand and experience maternal depression and social support	Mixed-methods utilizing questionnaires and focus groups; 12 perinatal Syrian refugee women	Maternal depression is prominent in Syrian refugee women recently resettled in Canada; migration jeopardizes mental health; women reluctant to disclose depressive symptoms	Experience of migration and resettlement affects maternal mental health: difficulty expressing feelings of depression	Stigma of mental health; privacy concerns; language; transportation; lack of childcare	Raise awareness among refugee women of causes, symptoms, treatment of maternal depression; raise clinician awareness of social determinants of refugee women's health; provide trained interpreters, increased opportunities for social connection and culturally appropriate screening and services; family (especially mother) reunification
Alaggia, Maiter, & Jenney, 2017, Toronto, ON	Explore how support workers in shelter and community-based services respond to the language needs of clients with limited language abilities due to nationality	Qualitative utilizing focus groups; 26 support workers between four focus groups	Language barriers are prominent issues for newcomers seeking protection services. Five themes associated with language barriers included: enhancing client engagement and self-agency; advantages and drawbacks in use of interpreters; creative and intensive translation strategies; structural challenges; gender and cultural considerations	Interpreters were client-valued; positive client engagement when clients could tell stories in their preferred language; some preferred to speak in English to learn about systems; extra steps were taken with IPV clients as the nature of the conversations were uncomfortable; structural constraints existed which influenced how the service providers were able to are for newcomers; providers need to be understanding of environmental and cultural contexts	Language; inadequate resources for support services to employ cultural interpreters or to train support workers	Provide training for workers in multiple contexts with specific protocols; organizational commitment to support the worker–client relationship when language challenges exist; increased funding for service provision for clients with language challenges
Amin & ElSalhy, 2017, Edmonton, AB	To explore factors affecting children's dental attendance among new immigrants	Cross-sectional quantitative utilizing a questionnaire; 314 newcomer child-parent pairs at the pre-school level	Main determinants of children's dental attendance: perceived efficiency of parental checking, perceived dental check-up as a painful experience, lack of insurance and time; less than half of immigrant children had a dental visit in last year	Majority of parents believed that going to the dentist was somewhat effective or very effective for detecting caries; parents were unaware of dental status until they visited a dentist; after a visit, parents were more aware of the need to seek treatment	Children's resistance; lack of time and lack of knowledge; lack of insurance; weather, transportation; lack of childcare; difficulty finding a dentist	Increased awareness of the importance of dental visits; education that visits do not necessarily cause discomfort; increased supports for insurance

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Ansion & Merali, 2018, Edmonton, AB	Investigate the experiences and adjustment processes of an ethnically mixed group of Latino immigrant mothers and fathers raising young children in Canada without extended family support networks	Qualitative; interpretative inquiry of interview data; 5 Latino couples with at least one child under the age of 10	Felt increased family responsibility following migration leading to poor emotional well-being, leading to adoption of Canadian family norms (e.g., new parenting partnerships) which increased nuclear family cohesion and paternal engagement; rebuild social network through friends ('surrogate family members'); anxiety, fear dissipates through increased system contact	Initially, lack of support led to depression, loneliness, fear or worry, fatigue and symptoms of burnout; successful adaptations once they access services; new support networks were established in surprising ways, such as through interfaces with friends and the health care and school systems; new relationships compensated for the loss of extended family support systems	Initial lack of social support; fear and skepticism regarding the Canadian health care system	Care providers should acknowledge newcomers' difficulties in resettlement at first meeting; appoint a systems navigator to help families remain culturally empowered and to help access services; provide opportunities for building social network; normalize families' experiences, feelings
Badri, Wolfe, Farmer, & Amin, 2018, Edmonton, AB	To better understand how Filipino parents perceive and experience adhering to preventative dental attendance for their preschool children, and the psychosocial factors influencing adherence	Inductive focused ethnography; 18 Filipino parents with children of 2-6 years of age	Psychosocial factors (stressors, resources) shaped parents' beliefs and perceptions of pediatric dental care; pre-migration, parents took preventative strategies as dental care was expensive; post-migration, parents open to dental care, despite socio-economic hardships	Stressors negatively affected, while resources positively affected, the participants' perceptions, experiences, beliefs and behaviors around adherence to dental care for their children	Financial struggles, lack of access to pediatric dentist, not provided information about oral health, poor communication from dental providers	Acculturation; high quality dental services; knowledgeable, friendly, culturally competent providers and staff, referrals/reminders
Ben-Cheikh & Rousseau, 2013, Quebec	To understand the impact of an autism diagnosis disorder or a pervasive developmental disorder on the social support networks of newly immigrated North African parents	Qualitative, utilizing semi-structured interviews; 10 individual parents	Autism diagnosis reorganizes a families' internal and external social networks; group support with other mothers was beneficial; therapeutic alliance must hold through intercultural communication difficulties and administrative obstacles	Long wait times for services; negative feelings towards health care system and workers; perception of health care workers lacking empathy being discriminating; experienced stigma; negative psychological outcomes post-diagnosis	Wait times; poor interaction with health care system leading to subsequent avoidance	Greater awareness by health and social professionals of the interaction between the migratory context and the social network challenges associated with autism diagnosis; opportunities for increased social network

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Brassart, Prévost, Bétrisey, Lemieu, Desmarais, 2017, Montreal, Gatineau, and Quebec City, QC	Filling gap in knowledge of how service providers address barriers and strategies to enhance engagement in treatment by immigrant parents raising a child with a disability	Qualitative, interviews; 21 service providers (20 women, 1 man, all Caucasian)	Service providers' knowledge of barriers and strategies for immigrant parents raising a child with a disability centred around three main strategies for overcoming barriers: overcoming language barrier; developing shared understanding of the child's disability; helping parents understand the treatment process	NA (from SPs point of view)	Language; divergent beliefs about child's diagnosis; misunderstanding of the health care system, divergent beliefs about the role of parents in treatment; rigidity and complexity of health care system; lack of SP training for cultural sensitivity	Develop a shared understanding of the child's disability between parents and service providers; help parents understand treatment process; training for SPs to develop cultural competency; encourage SPs to use other communication methods when language barriers exist (such as using translation software, pictures, photos); SPs can engage parents by helping them better understand the importance of the therapy and define achievable expectations; SPs should thoroughly understand parents' non-acceptance of therapeutic goals because of cultural reasons and divergent beliefs about the role of the family in treatment; interprofessional collaboration (e.g., social workers) can help parents navigate the systems
Cobb, 2014, urban centre in Ontario	Identify barriers, and strategies to address those barriers, faced by culturally and linguistically diverse (CLD) parents to interacting with school professionals in the context of special education	Critical qualitative inquiry; case study of a Korean-Canadian mother	Being culturally and linguistically diverse influences knowledge awareness, gathering, and use of special education milieu, which in turn influences inclusion in school procedures	Maternal language barrier influenced knowledge of supports that were available; awareness stemmed from pre-migration system which differed greatly; maternal discomfort with school when discussing use of special education (based on different systems, lack of awareness and opportunity to comfortably advocate)	Language; lack of awareness of procedures or supports (special education registration expectations, documentation requirements, application timelines, child and parent rights, translation), lack of cultural competence among staff	Establish strong connections between feeder daycare centres and schools to ease transition; Co-ordinate and integrate knowledge exchange between organisations and individuals; provide translation/interpretation; establish equity committees within schools and professional development for culturally responsive practices

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Dumbrill (2009); Ontario	To enable refugee parents to share their experiences and provide information that might help child protection workers and agencies to better engage refugee communities for	Participatory action; photovoice and focus groups; 11 participants (9 women, 2 men; 8 from West Africa, 3 from Southwest and Central Asia)	Despite this lack of confidence and mistrust in child protection and the government, refugee parents want to work with child welfare services to develop systems that act in the interests of their children; social workers should be aware of newcomers' fears, settlement challenges, and hopes	Culture shock which went unaddressed by support workers; services were too short and lacking in support; unaware of after school programs stemming from language barriers; lack of culturally-appropriate services; experiences with social workers shaped by lack of cultural understanding, respect, and translators; feelings of judgement and misunderstanding from child protection workers	Language; post-traumatic stress; perceived racism; mistrust in government agencies and social work systems; lack of awareness of supports; lack of culturally-appropriate services	Social workers could build a deeper understanding and communicate with participants; address child welfare concerns and responses of the parents; service providers could build a greater awareness of the issues faced by refugee families; create initiatives where child protection agencies and welfare policymakers build relationships with refugee communities
Falihi, 2019, Saskatoon, SK	How do mid-level leaders of Saskatoon's community service provider organizations perceive the importance of cross-cultural responsiveness in supporting the cultural integration of newcomer families?	Qualitative; interview; social constructivist framework; 2 participants (SCPs)	Four types of capacity building for culturally responsive service delivery for newcomer families: expanding community awareness and responsiveness; leadership development; educational preparedness; culturally responsive resource development; consistent policies and procedures			Build capacity to expand community awareness and responsiveness by being aware of: need for change; existing need on multiple levels; existing relevant resources to use, adapt, build, and expand on; need for systematic strategic planning to address identified needs; need for ongoing, educational opportunities; cultural planning, brokering, and bridging when providing services. Educational preparedness: upgrade education for front-line professionals and community service providers (e.g., professional development and cross-sectorial learning exchanges and field placements; policies and procedures should be delivered in a holistic approach with strategic planning on multiple levels

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Fontil & Petrakos, 2015, urban centre, Quebec	To explore the varying experiences, support systems, and obstacles of Canadian and immigrant families of children with Autism Spectrum Disorders (ASDs) during their transition to school	Qualitative utilizing semi-structured interviews; 10 children (9 male, 1 female) with ASDs and their parents, half were immigrant (Jamaica, China, Peru, Haiti, and the Philippines)	Importance of home-school relationships; parents perceived the quality of care during preschool as more supportive than in elementary school; immigrant families reported language barriers with educators; resources such as educational and community support are beneficial	Parents felt that: working with educators who genuinely cared for and supported the needs of their children was an essential component of relationship; support systems, such as teacher knowledge or family and community support can help buffer challenges; used a variety of resources to gain support during settlement; sometimes support was lacking	Teachers lack pre-migration information; parents struggle with guilt and judgment, leading to isolation in home; divergent belief systems between home and school; communication between service or programs and school; language barriers impede communication	Transition practices (e.g., meeting elementary school teachers prior to transition) supports for teachers to involve parents; increased formal/informal community supports; develop trusted relationships; better utilize school psychologists
Gagnon, Carnevale, Saucier, Clausen, Jeannotte, & Oxman-Martinez, 2010, Montreal, QC	To explore inhibitors and facilitators of migrant women for following through with referrals, to ultimately develop an intervention to address this reduced access issue	Qualitative, interviews and focus groups; 25 women with migration experience	Barriers included language differences, transportation and scheduling, low paternal engagement, child care, weather, potentially inappropriate referrals, and culture differences; facilitators included appropriate service referrals, caring professionals, and timely providing of information; both barriers and facilitators can be due to cultural discordance in health care expectations	Empathetic care encouraged women to follow-up; difficulties with accessing "hotline" care as it was in French; unsure how to make an appointment; outdated professional lists; complicated phone systems and inflexible scheduling; staff annoyed with extra children; incongruent understanding of appropriate medical care	Language; financial; limited knowledge of the transportation network; physical access and distance between home and appointment; weather; difficulty making appointments; husband's availability; disengagement; lack of childcare; perceived culturally-inappropriate referrals	Develop culturally competent, organized referral pathways to cultural- or faith-based health and social programs, considering culture, language, beliefs, family structure, family support systems, and knowledge of the health care system; ensure early receipt of information and empathetic professionals
Goel, Bloch, & Caulford, 2013, Toronto, ON	Describe the experiences of a group of new immigrants or their caregivers who were subject to the 3-month waiting period for the provincial health plan while in need of health care	Qualitative, semi-structured interviews; 7 participants, either immigrants or their caregivers, waiting for access to health care	Newcomers cited a lack of clear information and little assistance available leading to delayed care-seeking; unmet health care needs produced risk for emotional hardship and poor health outcomes; aspects of hardship included lack of support, economic instability, difficulty accessing alternative care options; lead to negative feelings toward Canada	Three month waiting period to access health care following migration; lack of clear information and help from professionals when accessing health care services; negative social interactions influenced subsequent service access; fear of financial insecurity due to accessing health services; may have to choose between paying for care or cease care due to cost	Lack of information and lack of help from officials; three month waiting period once arriving to Canada; financial; alternative care options	Eliminate the three month waiting period

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Higginbottom, Safipour, Mumtaz, Chiu, Paton, & Pillay, 2013, urban centre, Alberta	Explore the perinatal experiences of women of Sudanese origin to better understand how maternity services can better enable immigrant/minority women to have positive maternity experiences	Ethnographic focus groups; 12 Sudanese women within one year postpartum	Divergent cultural beliefs (e.g., stoicism) and practices (e.g. hot foods) between patients and providers can lead to misunderstandings and are a barrier to meeting health care needs maternal settings; birth-related behaviors are highly cultural revealing need for cultural sensitivity	During labour, care providers misinterpret women's signals (outward display of pain is considered weakness; childbirth perceived as natural and empowering) and misunderstand practices (desire for hot food)	Misinterpretation due to divergent cultural beliefs and practices	Facilitate cultural awareness and competency of care to prevent misunderstandings and even harm
Hoen, 2003, Toronto, ON, Montreal, QC, Vancouver, BC	External evaluation of a program developed to help newcomer families promote their children's development and success in school and improve their relationships with Canadian education and social service systems	Program delivery directed at Latin American parents of children ages 4-8 (fall) and parents of children from birth to kindergarten (spring); evaluation of the program	High attendance at program sessions; mothers satisfied with program as they learned about topics of importance to them, their child's development, and how to improve child's school success; appreciated opportunity to speak in their own language; suitable logistics (location, time); desire for more in-depth coverage of some topics.	In the program designed to support newcomer families, mothers: increased use of informal and formal supports; learned about children's healthy development and how to promote it; learned and used "Canadian ways" to promote children's' school readiness; learned about structures and services of Canadian systems related to children and families; learned about their own and their children's rights, and how to use them		Translate program delivery into necessary language(s); further development and acquisition of culturally appropriate resources using more current technology such as visual aids; focus implementation of supportive programs on newcomer families who are most at risk due to stressors (e.g., low education and income)
Jessri, Farmer, & Olson, 2012, Edmonton, AB	Explore the beliefs, values and experiences that shape breastfeeding practices of Middle-Eastern mothers (from their own perspective) residing in a city in Western Canada	Qualitative ethnographic; 22 newcomer mothers from the Middle East	Five layers of influence on maternal decision-making process: culture/society, community, health care system, family/friends and mother-infant dyad; religious beliefs were threaded throughout as determinant of breastfeeding decision	Positive experiences with wet-nursing in home country; negative experience with pumping milk in work bathroom; decision to breastfeed influenced by family members' religious beliefs; cultural tension between home and host country; believed their culture is not respected in Canadian society even by health care professionals	Divergent cultural beliefs and practices; lack of awareness of community supports (e.g., clinics, hotlines); perceived lack of societal support; lack of nursing rooms at work or in public; mixed messages from healthcare information	Interventions must occur at different levels of influence and should consider religious beliefs to ensure cultural acceptability; practitioners may support breastfeeding through cultural competency, and respectfully acknowledging Islamic beliefs and practices; bilingual clinicians

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Joyette, 2014 Ontario	Summarizes findings and recommendations from a consultation process conducted; investigate factors contributing to the reduction in use of ECE services by newcomer parents as the time since arriving to Canada increases; understand and address the. Specific challenges and barriers that newcomer families experience in accessing or seeking out ECE services	Newcomer parents of children aged 0-6; compared parents usage of supports to parents similar in socio-demographic characteristics; 223 newcomer parents, SCPs, and cultural/faith leaders participated in focus groups, surveys, and large community consultation	Four broad themes: reality of life in Canada (high motivation in first six months of arrival in Canada which wanes with the demands and stressors of re-settling); access and availability of services (travel and logistics; cost of childcare for other children; language difficulties; limited space, long waiting lists, being denied); relevance and quality of services and supports (felt isolated, overwhelmed, and lacking in traditional family supports; concerned over losing culture, language, values; stigma), and promotion and engagement (unaware of ECD programs and supports; mostly use word of mouth for gathering information; opportunities for connecting parents to ECD services are missed; limited chances of being referred to ECD services after first year post-settlement)			Advocate for public transit subsidies for families and children registered in city programs to overcome logistical issues; secure resources to support the development of multi-service centres; leverage opportunities for sharing tools, resources, knowledge, and skills that build capacity to create welcome, relevant, and inclusive ECD services and supports; establish a network of champions representing ECD, faith/ethnic groups, settlement and local government, and explore possibilities for the consolidation of efforts; develop strategy to encourage political attention and action on the needs and issues experienced by newcomer families and young children
Khanlou, Mustafa, Vazquez, Davidson, & Yoshida, 2017, Toronto, ON	Explore health promotion needs and strategies of newcomer mothers of children with developmental delays	Qualitative, interviews; 28 newcomer mothers with at least one child under two	Factors impacting mother's well-being are macro-level (financial, linguistic, and racial barriers, lack of programs and services) meso-level (social networks, mother blaming), and individual-level (lack of trust in health care system, limited leisure time, lack of self-esteem); identified health promotion strategies include self-care and expanded maternal-specific programs and services	Financial stress caused negative health consequences for mother and family; language barriers obstacle to accessing and navigating health care system; mothers felt isolated without their social support networks and without guidance from professionals; mistrust of health professionals; stigma is barrier to information seeking	Financial barriers; finding employment; language; lack of trust; lack of programs and services tailored to immigrant mothers of children with a developmental delay; inconvenient locations and times	Meaningful, relevant parenting programs; information sessions; social support groups

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Khanlou, Haque, Sheehan, & Jones (2015); Ontario	Present perspectives of service providers on immigrant mothers' challenges raising children with disabilities	Qualitative utilizing interviews; 27 service providers	Gender and immigration status interact for mothers of children with disabilities; challenges identified included structural, instrumental, emotional, and perceptual support; language barriers are significant for accessing these types of social support	Difficulty with navigating a new system and its complexities; extensive paperwork and lack of help form-filling by service providers; some mothers thought that SPs had inadequate information of the needs of immigrant mothers of children with disabilities (disability awareness)	Language and communication; geographically-dispersed services; complex system to navigate meaning families were unsure where to go or who to ask for help and information; form-filling was complicated for mothers due to lack of professional help, time constraints, limited language skills; mothers may be unaware that access to health/education is their basic right and do not forcefully seek this out for their children	Utilize a case worker model to help mothers understand the systems of service, complete paperwork for them; inform about available resources; in big cities where lots of immigrants settles there could be a navigation system implemented;
Kilbride & Ali, 2010, Toronto, ON	To identify the key obstacles to learning English experienced by immigrant women, and their views on how to overcome obstacles	Qualitative utilizing focus groups and interviews; 30 immigrant mothers (8 each in the Cantonese, Mandarin, and Urdu groups, 6 in the Punjabi group)	Reasons for learning English were occupational pursuits, effective communication with health care providers, educators, and government, and for family well-being; barriers were financial and logistical	Mothers who face language barriers when navigating education system have children who are streamed into non-academic programmes, limiting their opportunities in higher education; children are unlikely to be aware of or receive special services; difficulty in accessing emergency services; some mothers rely on their children as translators when navigating the health system	Barriers to learning English: logistics of taking English language classes, especially for mothers who do shift work; financial barriers; eligibility requirements; racism; challenges with teaching methods	Needs-based subsidies for English classes – or free classes; holding local classes during weekends; provide childcare; provide interpreters in beginner levels; provide anti-bias professional development for all instructors

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King, Lindsay, Klassen, Esses, & Mesterman , 2011, Ontario	Assess attitudinal, policy, and practice barriers to health service utilization by immigrant parents who are raising a disabled child or youth in Ontario	Two-part mixed methods; assessed perceptions of three groups (community SCPs geared toward newcomer parents; 15 newcomer parents; SCPs in health care centres) regarding barriers in service delivery for newcomer families, extent of unmet needs, and extend to which services are culturally sensitive and family-centred; phase 1: qualitative assessment of perceptions of barriers and supports; phase 2: survey assessing families' needs and experiences		SCPs had no training in cultural competency	Newcomer parents had unmet needs regarding help finding available services; advocacy; day to day support for their child; lack of cultural competency in SCPs	SCPS who have greater community connections are able to refer families to services available in the community; SCPs could be trained on how to work with translators, to be aware of what language services are available to newcomer families and not assume they know what supports exist; hire SCPs from diverse backgrounds to break down barriers; take extra to time to talk to newcomer parents about their knowledge of the services, supports, equipment, funding, and possibilities for their children; SCPS could link parents with a social worker or settlement worker to help navigate the system (finding services, form filling); newcomer parents with extended family in Canada may fare better, due to the informational, emotional, and practical support they receive from family members
Klassen, Gulati, Watt, Banerjee, Sung, Klaassen, Dix, Poureslami, & Shaw, 2012, cancer centres across Canada	Explore any special challenges faced by immigrant parents seeking care for their child with cancer; identify supportive factors	Qualitative, interviews; 50 first-generation Asian parents	Context of being an immigrant made certain experiences particularly challenging; challenges include managing caregiving demand and financial strain, accessing support from others, and interfacing with the healthcare system; practical, emotional, social and informational support from extended family, their workplace, other cancer families, community organizations and health care providers	Parents had to take initiative when information-seeking about their child's illness and options; complex medical terminology was challenging to understand due to language barriers; some sought out information from other immigrant parents at the hospital; some parents did not know how to or what to ask for in terms of help; form filling to obtain financial assistance was difficult	Socio-economic status, resettlement issues; loneliness and social isolation; divergent cultural norms regarding health and illness; health information provided in English-language only; obstacles to transportation; low health literacy; lack of culture-relevant resources and supports; discomfort with help-seeking; unfamiliar with Canadian health care system; form-filling	Develop initiatives to increase cultural competency across the healthcare work force; increase number of readily available interpreter services; develop new ways of informing and educating parents about resources; develop a peer-to-peer support system for immigrant parents to be supported by someone from their culture

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Maiter & Stalker, 2011, large metropolitan centre, ON	Better understand the stressors in the lives of South Asian families perceived as contributing to involvement in the child protection system, and the services found helpful or unhelpful	Qualitative, long interview method; 20 South Asian parents (12 women, 8 men)	Despite the many struggles , findings revealed the resilience, strength, resourcefulness, and personal agency of these parents	Participants reluctant to express dissatisfaction with services; some grateful for positive changes in family while others confused about investigative nature (vs support service); disappointed in lack of services; reporting to system caused mistrust in healthcare and social service providers; turnover in workers caused confusion/ interruption; sense of fear; both positive and negative experiences of worker-client relationship; parenting groups helpful and normalizing	Poor understanding about the reasons for child protection involvement; lack of cultural sensitivity and family-centred care; lack of social supports; men expressed feelings of inadequacy	Provide in-home, culturally responsive services that respond to needs of whole family; utilize strength-based approaches to practice; establish community networks
Merry, Gagnon, Kalim, & Bouris (2011); Montreal, Vancouver, Toronto	To gain a greater understanding of barriers vulnerable migrant women face in accessing health and social services postpartum	Barriers to accessing care: refusal of care for infants of mothers covered under IFHP; maternal isolation and difficulty for public health nurses to reach women postpartum; lack of assessment, support and referrals for psychosocial concerns	Newcomer mothers were concerned about: refusal of care; maternal isolation and difficulty for public health nurses to reach women postpartum; language barriers; low health literacy; inadequate psychosocial screening; support and referrals; and lack of awareness of insurance coverage	Mothers were unsure how to access health care services leading to belief there were none available; felt unsupported by service providers; some stopped seeking services due to their refugee status; many were flat-out refused/denied care and service for their children or self	Some mothers do not own a cell phone leading to isolation; language; transportation; financial; low health literacy led to a reluctance to seek help or ask for the appropriate care; lack of awareness which services are covered by provincial health insurance; because of lack of childcare or transportation mothers couldn't attend ESL classes	Provide access to: subsidized language courses; social housing; government-sponsored benefits for parents; SPs should implement screening to identify and refer high-risk mothers; SPs should request additional or back up phone numbers and contact information, or do 'drop-In' visits; educate clinicians on claimants' coverage/eligibility for services; use pictograms/ plain language to convey information

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Reitmanova & Gustafson, 2008, St. John's, NL	To document and explore the maternity health care needs and the barriers to accessing maternity health services from the perspective of immigrant Muslim women living in St. John's, NL.	Qualitative, interviews; 6 Muslim women	Immigrant women had concern their cultural or religious beliefs impacted their experience of health care; limited access to culturally-relevant resources and support; lack of knowledge about religion or culture among health care providers; poor social or community support; feeling embarrassed, insulted, or misunderstood, many women stopped seeking support	Women experienced discrimination, insensitivity and lack of knowledge about their religious and cultural practices; health information was limited or lacked the cultural and religious specificity to meet their needs during pregnancy, labor, delivery, and postpartum phases; emotionally unsupported by existing maternity health services which should be sensitive to cultural and linguistic contexts	Difficulty expressing health concerns or accessing supports due to language barrier; health care providers uniformed about maternity needs of Muslim women; weak social supports; routine check-ups perceived as burden; no childcare for other children while attending pre-natal classes; cultural/religious challenges participating in programs attended by men	Design services that consider impact of religious diversity and migration status and ensure that immigrant Muslim women receive relevant, useful information; offer women-only pre-natal classes to accommodate religious beliefs regarding mixed-sex events; provide healthcare providers cultural competency training; provide worship areas and translation/ interpretation services; establish and refer to social support networks; partner with immigrant services
Rink, Muttalib, Morantz, Chase, Cleveland, Rousseau, & Li, 2017, Montreal, QC	Describe experiences of refugee claimant families who were denied health services; identify barriers to health care access and understand the impact; provide recommendations for child health care providers to improve access to care for refugee claimant children	Qualitative, interviews; 11 individual refugee parents (9 mothers, 2 fathers from Caribbean, Africa, Middle East, Southeast Asia, South America)	Barriers to health care led to increased risk of negative health outcomes, psychological distress, financial burden, and social stigma	All mothers reported being refused service or being asked to pay for services despite financial barriers; information was sought from word-of-mouth or social worker assistance; distress related to delayed care for their children; some actively avoided seeking care due to past experiences	Lack of continuous health insurance which was not well understood by health care provider; refusal of services or fees charged; lack of information regarding health care rights and services; language; financial	Enforce a no denial, no-fee policy so all children can access medical care; encourage medical professionals to sign up to be an Interim Federal Health Program provider; educate administrators, medical trainees, and all allied health professionals about refugee claimant health care rights
Roer-Strier, Strier, Este, Shimoni, & Clark, 2005, across Canada	Explore fathers values, expectations, role definitions, and beliefs related to being an immigrant father, opportunities for and barriers to fathering in related to their immigration, involvement in daily childcare responsibilities, their participation in intervention programmes for parents and families, and their recommendations for designing successful programmes that promote the involvement of fathers in the lives of their children	Qualitative, interviews; 24 immigrant fathers of preschool children (6 Chinese, 1 from El Salvador, 4 from Colombia, 1 from Chile, 2 from Yugoslavia, 2 Bosnian; 3 from India, 1 from Nepal, and 3 from Pakistan)	Fathers highly committed to playing central role; Migration adjustment themes included role; involvement; meaning attached to paternal role; opportunities and barriers to fatherhood in host culture; cultural variation in themes as the meaning of fatherhood is a social and cultural construction; all fathers identified as main provider for family	Enthusiasm for resources (parks, playgrounds) that facilitate interaction between fathers and children, sense of safety and security, educational opportunities, and opportunities to learn about child development and parenting; lack of support networks and programs just for fathers	Language barriers and lack of meaningful employment impacts self-esteem and shapes parenting; lack of support networks; challenges with shift to new cultural norms (gender equality, shared parenting responsibilities, different notions of 'authority'	Culturally sensitive, holistic, comprehensive, collaborative programs to promote the health, social, emotional, physical, and cognitive development immigrant and refugee families through early childhood phases; intense supports for language training and employment; stronger social policies; combat institutional racism

Author, year, location	Study purpose	Method, design, sample	Study's key findings	Experiences with early childhood supports	Barriers to supports	Opportunities for improved supports
Simich, Wu, & Nerad, 2007, Toronto, ON	Explore the experiences of living without regular immigrant status and implications for health security among irregular migrant families	Qualitative, interviews; 11 individual parents (8 women, 3 men) with diverse countries of origin	Although participants demonstrate resilience in maintaining a work ethic, moral self-image, and strong parenting, emotional distress related to their insecure situation is significant. All report unmet health needs that impact children	Perceived discrimination due to lack of legal status; worried about family separation; chronic stress and trauma impact ability to seek and access supports; inconsistent treatment from service providers	Psychological and practical toll due to lack of legal status; distrust/limited support outside family; financial burden of hospitalization; language barriers	Raise awareness of the challenges that irregular immigrants face; increase availability of community-embedded mental health services
Stewart, Simich, Shizha, Makumbe, & Makwarimba, 2012, urban centres in Ontario and Alberta	Design and pilot test a culturally congruent intervention that meets the support needs and preferences of ethno-culturally distinct refugee groups	Qualitative, interviews and face-to-face support groups facilitated by peers and professionals; 68 Somali and Sudanese refugees	Intervention gave African refugees informational and social support, decreased loneliness, expanded coping capacity; support groups filled information gaps on how to navigate service systems and practical support (resumes, workers' rights, parenting info)	Refugees had difficulty accessing and navigating education, health-care, childcare, social assistance and employment; frustrated by the lack of information regarding available services	Adjusting to culture shock; language difficulties; loneliness and isolation; seeking safe and affordable housing, unemployment and under-employment	After-school groups to support children's engagement with school; support groups to build community, converse in mother tongue; encourage age-based, gender-based, and language-based groupings
Stewart, Anderson, Beiser, Mwakarimba, Neufeld, Simich, & Spitzer, 2008, Toronto, ON, Edmonton, AB, Vancouver, BC	Examine immigrant women family caregivers' access and barriers to services and supports, and to describe implications for services, programmes and policies	Qualitative, interviews; 29 immigrant women family caregivers, 15 service providers	Barriers comparable to Canadian-born caregivers with low income, low flexibility, heavy demands; may avoid formal services because of lack of cultural sensitivity; challenges compounded by language, immigration and separation from home country and family	When accessing services, women encountered waiting lists and inconvenient hours of service; felt that services should be reaching out to the women as well as women reaching out	Immigration policies; language	Peer mentors to help women through challenges which are culture and language specific; recruit volunteer translators to attend doctor appointments; modifying and expanding policies and programmes which influence maternal ability to care for family members with illnesses or disabilities within the context of Canadian society (e.g., information, transportation, language, attitudinal and network barriers); intersectoral collaboration among agencies is essential to reduce barriers; establish services which are linguistically and culturally appropriate

Author, year, location	Study purpose	Method, design, sample	Study's key findings	Experiences with early childhood supports	Barriers to supports	Opportunities for improved supports
Stewart, Anderson, Beiser, Mwakarimba, Neufeld, Simich, & Spitzer, 2008, Toronto, ON, Edmonton, AB, Vancouver, BC	Understand the meanings of social support for immigrants and refugees; to explore the types and adequacy of formal supports	Mixed-methods, interviews and linking to census data; 120 newcomers and 60 service providers	Challenges that required support included language difficulties, finding employment, system navigation, family dynamics, childcare, immigration status, expectations versus reality, discrimination. Challenges tended to co-occur; coping hindered by limited personal resources and depleted social networks	Difficulty accessing services, such as childcare, can disrupt family dynamics (e.g., role changes, children's welfare); difficulty finding adequate childcare based on insufficient subsidies to cover high costs of child care; obstacle for accessing services is discrimination;	Language mediated other challenges; (e.g., finding work, navigating systems); barriers exacerbated by inadequate informal support from dwindling social support network; discrimination led to problems finding employment and housing; dwindling social networks; extensive unmet support needs due to service providers' bureaucratic and resource constraints; immigration status prevented refugees from accessing social services and programs, delayed family reunification	Policies and programs should foster culturally relevant support; both formal and inform social supports were helpful; intersectoral collaboration among organizations could address the support needs of immigrants and refugees; understand different types of support (i.e., instrumental: practical help integrating into new environment); make supports very well-known and advertised to newcomers;
Walhoush (2009); Ontario	Generate evidence about equity and access to health services for preschool children in refugee families	Mixed-method including interviews; 55 refugee claimant mothers	Barriers to care include financial, inadequate health insurance, lack of knowledge about available services, fear of judgement; perceived discrimination; health insurance was not sufficient to predict service uptake; even Canadian-born OHIP-covered children had little access to information about services; parents tended to self-problem solve to compensate	Child's health insurance was not sufficient to ensure access to health care; lacking information on health services available leading to extensive problem-solving to manage child's illness; prior to accessing health services, mothers contacted other mothers before deciding if a hospital visit was necessary for child; negative prior experiences with providers hindered willingness to help-seek in the future	Financial; negative prior experiences influencing subsequent help-seeking behaviors; lack of continuous health care insurance; lack of awareness of available services; refugee claimants excluded from settlement supports means parents are not connected to relevant sources of support and information that could help them manage child's well-being	Health care staff should be trained in working with refugee and other immigrant groups; use sensitive explanations of expected delays and wait times to prevent being interpreted as discriminatory; care providers should be able to address the informational needs of refugee mothers
Watt, Dix, Gulati, Sung, Klaassen, Shaw, & Klassen, 2011, Canada	Describe Asian immigrant parents' experiences of family-centred care in paediatric oncology settings	Qualitative, constructive grounded theory, interviews; 50 first-generation Asian immigrant parents	Parents generally satisfied with care; concerns included low perceived status as member of medical team, inconsistency in quality and coordination of care, insensitivity of care providers, providers providing inappropriately explicit	Frustration and not understanding why the same questions were being asked repetitively; felt they were left in the dark concerning their child's care; those with English proficiency found the doctors and information	Language; fragmented care led to confusion of which service provider to seek help from	Enhanced communication of the elements of family centred-care between healthcare staff and families is needed to negotiate a clear role for the parents as partners of the healthcare team (e.g., explain family-centred care and the potential role of parents in the care team)

Author, year, location	Study purpose	Method, design, sample	Study's key findings	Experiences with early childhood supports	Barriers to supports	Opportunities for improved supports
			information with children without parental consent	provided was sufficient and comprehensive; some felt they did not have enough time to think through all the information due to the urgency to start treatment; some parents felt their decisions about what was best for their child was not respected or considered		
Woodgate, Busolo, Crockett, Dean, Amaladas, & Plourde, 2017, urban centre, MB	Examine experiences of access to primary health care by African immigrant and refugee families	Qualitative, interviews; 83 African refugee immigrant families	African newcomer families experienced three major barriers to accessing primary health care: expectations different than reality; facing a new life; utilizing a networking approach to increase access	Families felt that expectations of the Canadian health system were not met; waiting times were too long; challenges in cultural differences concerning care	Perceived high cost of medication and non-basic health care services; care lacked cultural sensitivity; unfamiliarity with health system; system; dependent on sponsor to get oriented to new health care system; transportation; finding employment; language; lack of interpretation services or dissatisfaction with translation services	Culturally relevant programs and health care where care providers can reflect on values, beliefs, and practices of others; collaborative networking approaches; policies that focus on addressing social determinants of health; increase efforts to raise awareness about potential supports and services for refugee families with language-appropriate materials; increase provincially funded programs that do not exclude based on neighbourhood/area; subsidizing indirect and non-basic health care costs for low income newcomer families; culture-specific community organizations could act as a knowledge broker to link service providers with immigrant communities

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The impact of the quality of early mathematics instruction on mathematics achievement outcomes

Bilge Cerezci[1]

Abstract: The examination of teaching quality in mathematics in relation to student learning outcomes has become increasingly important following the research reports indicating that early mathematics teaching and learning experiences are critical contributors to students' learning and later achievement in mathematics and other content areas. The purpose of this study is to investigate the relationship between the quality of early mathematics instruction and students' mathematics learning outcomes in 73 Pre-K to 3rd grade classrooms in an urban public schools system. The results suggested that the quality mathematics instruction varies across observed classrooms but mostly mediocre. Limited but significant associations between instructional quality and mathematics achievement were also documented at the classroom level. More specifically, there was a positive significant interaction between quality of mathematics teaching and students' mathematics achievement at the end of the school year in classrooms where ratings of the instructional quality was identified as "high," after controlling for students' pre-test scores and gender.

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Introduction

In today's global knowledge economy, mathematics proficiency is critically important for all members of the society to achieve, as it constitutes the core of any productive economy. For our society to develop citizens who are knowledgeable and globally competitive, it is essential to provide them with excellent quality mathematical experiences to facilitate their math abilities (Ritchie & Bates, 2013; Watts, Duncan, Siegler, & Davis-Kean, 2014). Mounting evidence indicates the dependence of later school performance on the quality of early math experience (Aunola, Leskinen, Lerkkanen, & Nurmi 2004; Carr, Peters, & Young-Loveridge, 1994; Duncan, et. al., 2007; Lange, Brenneman, & Mano, 2019). If a student falls behind mathematically during the critical years of early schooling, it becomes increasingly unlikely that the student will catch up as he moves up the grade levels (Aunola et. al., 2004; Bodovski & Farkas, 2007). This discrepancy may exist because many students are not developing foundational mathematics knowledge, skills, and confidence needed for success during elementary schooling (Gervasoni & Perry, 2017). Moreover, research suggests that students' struggles in elementary mathematics are related to weaknesses in early number competence, a fundamental early mathematics concept (Gersten, Jordan, & Flojo, 2005; National Research Council, 2009). Such research results are both distressing and indicative: early mathematics education is foundational and attention to early math education and instruction is vital to improving students' performance in mathematics.

Background

The beginning of this century saw the development of two position statements on early childhood mathematics, which set the precedent for the myriad of studies that document the implications of early childhood mathematics knowledge. The first released in the US by the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM).

[1] National Louis University, National College of Education, Early Childhood Education, Chicago, USA, e-mail:bcerezci@nl.edu, ORCID: http://orcid.org/0000-0002-9648-2387

> The National Council of Teachers of Mathematics and the National Association for the Education of Young Children affirm that high quality, challenging, and accessible mathematics education for three-to-six-year-old children is a vital foundation for future mathematics learning. In every early childhood setting, children should experience effective, research based curriculum and teaching practices. Such high-quality practice in turn requires policies, organizational supports, and adequate resources that enable teachers to do this challenging and important work (NAEYC & NCTM 2002/2010, p.1).

Following the footsteps of NAEYC and NCTM, the Early Childhood Australia (ECA) and the Australian Association of Mathematics Teachers (AAMT) put forward the following statement:

> The Australian Association of Mathematics Teachers and Early Childhood Australia believe that all children in their early childhood years are capable of accessing powerful mathematical ideas that are both relevant to their current lives and form a critical foundation for their future mathematics and other learning. Children should be given the opportunity to access these ideas through high quality child-centered activities in their homes, communities, prior to-school settings and schools (AAMT & ECA, 2006, p.1).

Both of these statements reiterate the importance of early childhood mathematics education and urge making high quality mathematics teaching and learning a shared experience for all students. These statements also suggest that providing mathematics instruction as early as possible may be particularly beneficial if the early childhood teachers guide children's mathematical thinking and learning through intentional and explicit teaching.

In addition to these leading institutions efforts to turn their nation's attention to implications of early mathematics teaching and learning, two major research developments have led to growing appreciation of the importance of early math instruction at the global level. Research has suggested that early mathematics performance significantly influences: (1) overall school achievement in mathematics and later life (Aunio & Niemivitra, 2010; Aunola, et. al., 2004), and (2) other subject areas (Carmichael, MacDonald, & McFarland-Piazza 2014; Geary, Hoard & Hamso, 2013).

First line of research indicated that children's mathematical competences differ considerably in early childhood years (Anders & Rossbach, 2012; Sonnenschein & Galindo 2015) and achievement in early mathematics has a profound impact on later success in mathematics (Aunola et al., 2004). A longitudinal study by Aunio & Niemivitra (2010) with 212 kindergarten children suggested that specific mathematics skills such as counting in kindergarten are associated with learning basic and applied arithmetic skills and the overall quality of mathematics achievement in the first grade. Another study done by Aunola and his colleagues investigated how children's mathematics development occurs from Pre-K to Grade 2. The results suggested that differences among children's math performance increase over time and these discrepancies exist as early as preschool years (Aunola et al., 2004). Further, consistent with previous studies, recent literature also suggests that early number competence is a strong predictor of future mathematics and school success. For example, Jordan, Kaplan, Ramineni and Locuniak's (2009) study of early mathematics suggests that early number competence in kindergarten predicts rate of growth in mathematics achievement (between Grade 1 and Grade 3) and achievement levels in Grade 3.

The impact of early math skills is not limited to academic achievement in primary grades but carries on through high school and beyond (Duncan & Magnuson, 2011; 2011; Entwisle & Alexander, 1990; National Research Council, 2009; Stevenson & Newman, 1986). For example, Duncan and Magnuson (2011) examined the mathematics achievement of children who consistently exhibited persistent problems in understanding mathematics in elementary school and analyzed it in comparison to children who had stronger early math abilities. The results of the study revealed that 13% of the children with persistent problems were less likely to graduate from high school and 29% of them are less likely to attend college than those who had stronger early mathematics abilities. In other words, the initial differences in mathematics skills in early years may lead children to lag behind their more knowledgeable peers not only in primary grades but also throughout their formal schooling (Geary et al., 1999).

Second line of research studies showed the predictive power of early math skills compared to other academic skills, such as reading (Duncan et al., 2007; Duncan & Magnuson, 2011). Lerkkanen, Rasku-Puttonen, Aunola and Nurmi (2005) investigated the relationship between mathematical performance and

reading comprehension among 114 children during the first and second years of primary school. The results indicated that early mathematics skills predict not only later achievement in mathematics but also later reading achievement. Similarly, Duncan and colleagues (2007) conducted a meta-analysis of six large-scale longitudinal data sets to examine the relationship between early learning and later school achievement. Their meta-analysis revealed that early math skills were consistently a stronger predictor of later achievement compared to reading and level of attention (Duncan et al., 2007). Consistent with the educational attainment analyses (Duncan & Magnuson, 2011), early math achievement found to be the most powerful predictor of later school achievement (Duncan et al., 2007).

Studies mentioned above have become the cornerstone of the growing movement among researchers, early childhood educators, and policy makers to better understand mathematics instruction in early childhood years (Barnett, 2008; Clements, Sarama & DiBiase, 2004; National Research Council, 2009). In a contemporary society where universal early childhood education has become a reality, the focus of attention has shifted from the availability of early childhood education to its quality. How can we provide our youngsters with the necessary skills and knowledge to succeed in math? How can we ensure that high quality early mathematics teaching and learning experiences is a norm for all children? Examining early mathematics teaching practices in more detail and depth by using measurements of instructional quality at the classroom level, based on the activities that the students and teachers are engaged in during early math lessons, can be a first crucial step in finding an answer to these questions.

The Current Study

Quality of instruction and students' instructional experiences in early mathematics lay the foundation for the formal systems of mathematics that will be taught later in school. Despite its importance, our knowledge about quality of mathematics instruction in relation to student achievement outcomes is quite limited (Ball & Rowan, 2004; Brenneman et al., 2011). In order to address this gap in the literature, current study investigates to what extent the quality of mathematics teaching predicts children's mathematical gains over the course of an academic year in Pre-K to 3rd grade classrooms. Early mathematics instruction is documented, analyzed and assessed according to specific indicators in several areas: the quality of early mathematics content, the quality of implementation, and the extent to which the instruction is facilitated developmentally appropriate learning experiences. Examining the quality of early mathematics instruction through these lenses may shed light on the characteristics of early childhood teachers' mathematics teaching and how to better support young children's developing mathematics understanding.

Method

Sample Description

Teacher participants. 73 early childhood teachers (Pre-K to 3rd grade) from 8 public schools in a large Midwestern city in the U.S. participated. Descriptive analysis of the available data about the sample revealed that the number of teachers from each school ranged from 3 to 12. There are 37 teachers from the primary grades (e.g., first, second, and third) and 36 teachers from pre-kindergartens and kindergarten (see Table 1).

Table 1. Distribution of teachers by grade level

Grade	n	%
Pre-K	15	20.5
K	21	28.8
1st	11	15.1
2nd	12	16.4
3rd	13	17.8
1-2	1	1.4
Total	73	100

Note: N= 73

1-2: 1st and 2nd graders mixed class

Student Participants. 546 students (Pre-K to 3rd grade) participated this study. Recruited students were included in this study, if they were also; a) enrolled in the classroom of the participating teacher, b) able to complete the student assessments in English or Spanish, c) 4-years-old or older by the time they were first assessed at the beginning of the academic year. Table 2 shows the overall child-level data in terms of their grade level.

Table 2. Distribution of students by grade level

	Pre-K	K	1st	2nd	3rd	Total
n	131	160	89	75	91	546
%	24	29.3	16.3	13.7	16.7	100

Instruments

Assessment tools that were used in this study include HIS-EM (The Early Math Collaborative, 2011), WJ-AP subtest (Woodcock, McGrew, & Mather, 2011) and "About my Teaching" on-line survey.

High-Impact Strategies for Early Mathematics (HIS-EM) is a lesson-based observation tool designed to be used in Pre-K through 3rd grade classrooms in order to measure the quality of mathematics teaching (The Early Math Collaborative, 2011). As an observation tool, HIS-EM focuses on the intentional instructional activities of a teacher; for that reason, the period of observation is from the start to the finish of a single teacher-directed mathematics lesson. HIS-EM categorizes indicators of quality of early mathematics teaching first according to three primary domains: (1) foundational knowledge of the mathematics (i.e., what); (2) understanding knowledge of young children's learning in mathematics (i.e., who); and (3) effective use of instructional support in mathematics (i.e., how). Three dimensions further define each domain. "What" domain is assessed through evaluation of the clarity of the learning objectives, the use of math representations and promoting mathematical concept development. "Who" domain includes teacher's attention to developmental trajectories, response students' individual needs and use of developmentally appropriate learning formats. The third HIS-EM domain, "How," reflects the teacher's ability to plan well organized math lessons, facilitate student engagement and establish math learning communities during the course of mathematics instruction. The HIS-EM measures the extent to which these dimensions of quality teaching practices in early mathematics, both individually and collectively, are present in an observed lesson. Scores are assigned (to each dimension) on a 7-points Likert scale categorized by low (1, 2), medium (3, 4, 5), and high (6, 7) quality ratings. The construct validity of the HIS-EM established through an extensive literature review and consultation with experts in early math education. Reference to the NCTM standards and principles (2000) guided selection of the indicators for the HIS-EM. High levels of inter-rater reliability (.88) and internal consistencies (Cronbach's alpha .97) have been reported (Cerezci, 2020).

The Woodcock-Johnson-III Applied Problems subtest (WJ-AP) is an individually administered norm-referenced test that measures skills in analyzing and solving practical math problems with 60 items. It is the 10th subtest of Woodcock Johnson-III (Woodcock et al., 2011). The test administered verbally presents items involving counting, telling time or temperature, and problem solving. Items are ordered in terms of their age-appropriateness. Testing begins with an item corresponding to the subject's age and is discontinued after 6 consecutive errors. The score is determined by summing the number of correct responses. Internal alpha reliability estimates are reported as .88 to .94 for English speaking children ages 4 to 7 years.

About my teaching is an online survey collecting participating teachers' demographic information and teaching and learning experiences about early mathematics education. The questions included in the survey were aimed to elicit information about a participating teacher's educational background, experience in participating pre-service and in-service workshops teaching mathematics, as well as his or her experiences working with English Language Learners (ELL). For example, teachers were asked to answers questions such as: How many years have you been teaching?; About how many hours of in-service math

education workshops have you taken in the last two years?; and How many years of experience do you have working with ELL students in a classroom setting?

Procedure for Data Collection

Classroom observations. Trained observers conducted live in-class observations in the fall (pre-test) and spring (post-test) at each participating classroom only one HIS-EM observation per classroom in spring and fall at each participating classroom collected. Each HIS-EM observation at each time point (spring or fall) is considered a snapshot representing how mathematics instruction may function across a given school year. All classroom observations were scheduled in advance and conducted during the time the teacher allocated to teach mathematics or the mathematics lesson time period. Scheduled observations were not specific to mathematical content (e.g., number and operations or geometry or etc.), or a particular instructional day (e.g., start or end of a weekly math unit). Observers remained in each classroom for the duration of the mathematics lesson.

Applied Problems subtest of Woodcock–Johnson Tests of Cognitive Abilities, 3rd ed., (WJ-AP). Young children's mathematical achievement was assessed via WJ-AP subtest (Woodcock et al., 2011) in the fall (pre-test) and spring (post-test) in each participating classroom. Because only the children whose parents consented to the study could be assessed, the number of students assessed in each classroom was not consistent. However, the total number of children from each classroom never exceeded 10. For example, if more than 10 students gave consent in any given classroom, only 10 students among all the consenting children were randomly selected and assessed. If the number was not more than 10, then all the consenting children were assessed.

Data Analyses

In order to examine the relationship between quality of mathematics teaching measured by HIS-EM and students' learning gains in mathematics over a school year, three-level hierarchical linear modeling (HLM) analyses (Raudenbush & Byrk, 2002) was conducted by using the HLM program. In this analysis, students (Level 1) were nested within teachers (Level 2), who were nested within schools (Level 3). Using three-level HLM, relationships between students' math achievement and quality of mathematics teaching was estimated after controlling for school variations.

Results

This study examined the degree to which quality teaching can be used as an indicator for student learning outcomes in mathematics. The association between quality teaching in mathematics and students' learning gains explored by analyzing data from participating teachers and students.

The Distribution of HIS-EM and its Domain Scores

Results suggested that overall teaching quality was medium level (*M*=4.19), ranging from 1.67 to 6.78, with a standard deviation of 1.32 (*N*=73) (see Table 3).

Table 3. Descriptive statistics of overall HIS-EM and HIS-EM domains

		Mean (*SD*)	Minimum	Maximum
HIS-EM (Average)		4.19 (*1.32*)	1.67	6.78
	What (Foundational Knowledge in Mathematics)	4.22(*1.30*)	1.67	7.00
	Who (Knowledge of Young Children)	4.17 (*1.30*)	1.67	6.33
	How (Effective Use of Instructional Support)	4.18(*1.51*)	1.33	7.00

Note: N= 73

Table 4 provides sample sizes, means, standard deviations, minimum and maximum WJ-AP standardized score at each time point. As suggested by the WJ-AP standardized score, assessed students' math performance was lower than the national norm (M=100). On average, WJ-AP scores were 95.14 (ranged from 48 to 134) at pre-test and 96.60 (ranged from 49 to 136) at post-test. On average, male students scored higher at both pre-test and post-test compared to female students and Pre-K students scored higher compared to students between kindergarten and 3rd grade (see Table 4).

Table 4. Descriptive statistics of students' mathematical performance at pre-test and post-test by grade level and gender

		WJ III Applied Problems Pre-test (Standardized Score)		WJ III Applied Problems Post-test (Standardized Score)	
Group	**N**	**Mean**	**SD**	**Mean**	**SD**
Pre-K	131	99.47	11.40	99.03	11.51
K	160	95.56	11.53	96.58	12.26
1	89	92.88	13.78	93.51	11.45
2	75	93.37	13.73	95.89	15.17
3	91	91.85	14.57	96.74	14.41
Male	259	95.67	13.29	97.56	12.78
Female	287	94.59	12.72	95.73	12.81
Overall	546	95.14	12.99	96.60	12.85

Note: N=546

Relationship between Quality of Mathematics Instruction and Teaching and Professional Development Experiences

Descriptive analyses of the number of years of teaching experience the observed teachers had and the number of math education PD hours they have attended suggested that, on average, observed teachers had 13.7 years of teaching experience, ranging from 1 to 41 years, with a standard deviation of 9.93 (N=73). The number of PD hours teachers attended, on average, was 12.1, ranging from 0 to 80 hours, with a standard deviation of 16.63 (see Table 5).

Table 5. Descriptive Statistics of Teaching and Professional Development Experiences

	Mean (*SD*)	**Minimum**	**Maximum**
The number of years of teaching experience	13.7 (*9.93*)	1	41
The number of math education PD hours attended	12.1(*16.63*)	0	80

Regression analysis performed to investigate the relationship between teachers' teaching and professional development experiences and their mathematics teaching quality as measure by HIS-EM. The results revealed no statistically significant relationship between commonly used indicators of teacher expertise (i.e., number of years of experience and the number of PD hours teachers attended) and scores on the HIS-EM (observational measure of mathematical teaching quality), R^2= 0.27, F (2, 70) = .973, p= .383.

The Prediction of Students' Math Outcomes by Teaching Quality

In order to examine the relationship between quality of mathematics teaching measured by HIS-EM and students' learning gains in mathematics over a school year, three-level hierarchical linear modeling (HLM) analyses (Raudenbush & Byrk, 2002) were conducted by using the HLM program. Hierarchical Linear Modeling (HLM) is a type of regression model often used for analyzing education data sets because they tend to include multiple layers of data that are correlated with one another because they share similar traits (Raudenbush & Byrk, 2002). Three-level HLM analysis conducted where students (Level 1) were

nested within teachers (Level 2), who were further nested within schools (Level 3), to explore whether students' math outcomes (measured by WJ-AP) was predicted by teachers' quality of teaching in mathematics (measured by HIS-EM), after controlling for school level variances. In this analysis, students' mathematics learning was Level 1 outcome variable and teachers' mathematics teaching quality was Level 2 predictor variable. Model testing is completed in two phases; null model (without predictors) and random intercept and slope model (with predictors at Level 1 and Level 2).

The null model. This model was run first in order to determine the partitioning of variance among the three levels of analysis. The fully unconditional HLM model for WJ-AP test results at post-test used as outcome in 3-level HLM analysis is represented below:

$$\textit{Math Performance at Post-test}_{ijk} = \gamma_{000} + r_{0jk} + u_{00k} + e_{ijk}$$

Analysis of this model revealed $\chi 2\ (7) = 11.73$, $p = .109$, and ICC was .01, suggesting that there were not any significant differences in the students' math performance measured by WJ-AP at the school level. Between Level 1 (i.e., student level) and Level 2 (i.e., teacher level), $\chi 2\ (65) = 141.01$, $p < .001$, and ICC was .14 suggesting that there were significant differences in students' math performance between classes (within the same school); about 14% of the variance in students' math performance indicated by WJ-AP was between classrooms (i.e., teachers), and about 85% of the variance in students' math performance was between students within a given teacher's classroom. For this reason, additional predictors to Level 1 and Level 2 were added for further analysis. Specifically, predictors at the teacher level (HIS-EM, Level 2) and student level (pre-test WJ-AP standardized score and students' gender) were added to different models to explore whether, and to what extent, the mathematics performance at pre-test, students' gender, and quality of mathematics teaching measured by HIS-EM explains the differences in math performance at post-test.

The random intercept and slope model. This model predicts the level 1 intercept on the basis of the other grouping or predictor variables. This model was performed after partitioning the variance among the three levels. The WJ-AP pre-test scores (centered around the group) and students' gender (coded dichotomously) were entered to this model as Level 1 predictors of math performance at post-test. The three-level HLM analysis for this model was the following:

$$\textit{Math Performance at Post-test}_{ijk} = \gamma_{000} + \gamma_{100}*\textit{GENDER}_{ijk} + \gamma_{200}*\textit{WJ-AP-PRE}_{ijk} + r_{0jk} + u_{00k} + e_{ijk}$$

The addition of gender and math performance at pre-test to this model at Level 1 indicates students' math performance is a function of the mean math performance at post-test in the classroom, plus some effect of gender and math performance at pretest, plus some individual variation. The results indicated that the gender partially significantly predicted the intercept of the level 1 model ($r = -1.38$, $p = .07$), suggesting that on average boys scored higher than girls in WJ-AP at both pre- and post-test. Also, the pre-test score significantly predicted the slope of the level 1 model ($r = .66$, $p < .001$), suggesting that the higher the pre-test score, the more likely those students performed higher in the post-test as well. In order to further investigate the effects of Level 2 on Level 1 variables, predictors at the Level 2 were added to random intercept and slope model. In this new model was performed in which both WJ-AP pre-test results and students' gender were kept as predictors of math performance at post-test and mathematics teaching quality measured by HIS-EM added as predictor at Level 2. The three-level 3-level HLM analysis was the following:

$$\textit{Math Performance at Post-test}_{ijk} = \gamma_{000} + \gamma_{010}*\text{HISEM}_{jk} + \gamma_{100}*\textit{GENDER}_{ijk} + \gamma_{200}*\textit{WJ-AP-PRE}_{ijk} + \gamma_{210}*\textit{WJ-AP-PRE}_{ijk}*\text{HISEM}_{jk} + r_{0jk} + u_{00k} + e_{ijk}$$

The results indicated that the HIS-EM score did not significantly predict the intercept of the level 1 model ($r = .559$, $p = .353$), suggesting that HIS-EM did not predict students' learning in mathematics after controlling for students' pre-test scores and gender and school level characteristics. Using one standard deviation above the mean represent high quality mathematics teaching (high scores on HIS-EM), one standard deviation below the mean to represent low quality mathematics teaching (low scores on HIS-EM), and mean score as the average quality of mathematics teaching, observed teachers' HIS-EM scores were

categorized as high, low and medium and entered to the model to be analyzed in relation to student mathematics achievement.

Even though the overall HIS-EM did not predict students' mathematics learning, the results also suggested that there are varying effects of teachers' math teaching quality on students' mathematics learning. More specifically, teachers who scored high on HIS-EM (one standard deviation higher than the overall mean) more likely to have a positive effect on students mathematics learning at the end of the year (r= .15, p=.027). On the other hand, the effect of students' mathematics performance at the beginning of the school had significantly less effect on their mathematics performance at the end of the school year if they had a teacher who scored average on HIS-EM (r= -.206, p=.001). The negative interaction suggested that while there is a positive relationship between students' pre-test and post-test performance, medium quality of mathematics teaching decreased this relationship. Similar kinds of significant relationships between students' math performance and teachers' math teaching quality were not observed for teachers who score low in HIS-EM (r= .11, p=.16) (see Table 6).

Table 6. Descriptive statistics for levels of teaching quality in relation to student mathematics achievement

	N	*r*	*SE*	*p*
High HIS-EM	15	.15	.07	.027**
Medium HIS-EM	41	-.20	.06	.001**
Low HIS-EM	17	.11	.07	.160

Note: N= 73

**The correlation is significant at .01 level.

Conclusion and Discussion

This study investigated the relationship between the quality of early mathematics instruction and student mathematics achievement as measured by the WJ-AP subtest. The current study did not reveal a significant prediction of students' mathematical learning over a year after controlling for the impact of students' pre-test scores[1] and gender.[2] The findings of the study also revealed that indirect indicators of teaching experience (i.e., years of teaching and the number of PD hours teachers attended) did not demonstrate any significant association with mathematics teaching quality. However, the results did find mixed effects of teachers' degree of mathematics teaching quality on students' mathematics learning. Specifically, overall mathematics-teaching quality in early childhood classrooms as measured was linked to positive child outcomes when the quality of mathematics instruction was identified as "high."

Teaching and Professional Development Experiences

The results showed no statistically significant relationship between commonly used indicators of teacher expertise (i.e., number of years of experience and the number of PD hours teachers attended) and scores on the HIS-EM (observational measure of mathematical teaching quality). Existing research has also shown mixed results on this matter. For instance, Rockoff (2004) found that the teaching experience of teachers matters, but only up to a certain point. It is generally true that less experienced teachers are less likely to provide quality instruction compared to teachers who have ten to fifteen years' experience. This difference begins to disappear after the less experienced teachers taught about four years (Kane, Rockoff & Staiger, 2006; Rivkin, Hanushek & Kain, 2005; Rockoff, 2004). In terms of the relationship between the number of hours teachers participate in professional development in mathematics and higher quality teaching, some found the positive correlations (King & Newmann, 2000) while others reported mixed results (Goldhaber & Brewer, 2000).

[1] Students' pre-test score was a significant predictor of their post-test test score. In other words, if a student received a high score at pre-test, they were more likely to receive high score at post-test as well, and vice versa.

[2] On average, boys received higher scores on mathematics achievement tests as compared to girls on both the pre-test and post-test.

Despite the inconclusive results, the current finding is noteworthy because it indicates that the effects of experience, whether measured in years of teaching or hours of professional development, are complex and their association with quality of early mathematics teaching is not linear, at least for this group of teachers. Even though no one would claim that years of teaching experience or professional development services do not contribute to teachers' capacity to provide quality of mathematics teaching, lack of associations might imply that teacher education and professional development programs in early mathematics are not well developed to support teachers. Perhaps the content of these programs and services is not staying up on the latest curricular and pedagogical advances in early mathematics teaching, therefore making it less likely for teachers to deliver quality mathematics instruction regardless of their years of teaching. While what teachers know has tremendous impact on students' learning outcomes (Darling-Hammond & Bransford, 2005), it is important for the field to redesign the content of teacher education programs and in-service professional development to ensure the continuity of quality mathematics teaching experiences for all students.

Varying Teaching, Varying Outcomes

The present findings indicate that students who scored lower in pre-test tend to score similarly in post-test. Similar trends also observed among the high scoring students. When the student mathematics achievement are further analyzed in relation to instructional quality, such a trend is not observed. In other words, mathematics instruction in early childhood classrooms as measured by HIS-EM does not predict students' learning in mathematics. However, when observed teachers' HIS-EM scores were categorized as high, low and medium and examined in relation to students' learning gains in mathematics, the results of this study revealed three interesting findings. First, there was a positive significant interaction between quality of mathematics teaching and students' mathematics achievement at the end of the school year in classrooms where ratings of the instructional quality in mathematics was identified as "high," after controlling for students' pre-test scores and gender. These findings exemplified the significance of higher quality mathematics instruction in facilitating students' mathematics learning. Specifically, teachers who simultaneously exhibited (1) understanding of mathematics content, (2) ability to discern the math content based on students' development and learning, and (3) skills in employing a range of strategies to move students along, were able to facilitate their students' mathematics learning. Even though the impact of high quality mathematics teaching on students' learning was rather small and only concerned a subgroup of students, these findings are consistent with other studies indicating the positive effects of high-quality mathematics teaching on mathematics achievement. That is, students of teachers who provide high quality mathematics teaching make more gains in mathematics than their peers in classrooms with lower quality mathematics teaching (Kyriakides & Creemers, 2008; Nye, Konstantopoulos, & Hedges, 2004; Rockoff, 2004).

Second, in classrooms where teachers provided average levels of quality mathematics instruction, there was a negative interaction between quality of mathematics teaching as measured by HIS-EM and students' pre-test and post-test performance. While students' pre-test performance was predictive of their post-test performance, the strength of this relationship decreased when teachers provided mediocre levels of mathematics teaching. This result, however, should not imply that all mediocre quality mathematics instruction is deleterious for students' mathematics learning. Rather, it raises an interesting point, which suggests that teachers with average HIS-EM scores may fail to provide consistent level of mathematics teaching and evenly support their students with varying degrees of mathematical abilities. For advanced students, their instructions may not be challenging enough. For students who are behind, adequate support may not be provided.

Third, neither positive nor negative interaction was detected between teachers who provided low quality mathematics instruction and their students' mathematics performance. This finding implies that when teachers failed to; (1) provide students with meaningful mathematics content, (2) provide opportunities for students to engage with and make sense of the mathematics content that is developmentally appropriate, and (3) creating a learning environment conducive to learning mathematics by using effective instructional support in mathematics, no significant relations can be detected between

mathematics teaching and learning gains in mathematics. It is not clear why there is no link between the lower quality of mathematics instruction and students' mathematical learning gains. Much remains to be learned about the lower level of quality mathematics teaching and how it affects students' learning in mathematics.

Despite these interesting findings, one lingering question remains unanswered: Why did teachers' mathematics teaching quality envisioned in the HIS-EM not correspond to student achievement gains? One reason for the lack of the association could be the need for more data about students. There are multiple factors (e.g., parents, tutors, and the availability learning materials, classroom size) affecting students' learning outcomes besides the quality of instruction (Epstein, 2018; Garcia & Weiss, 2017; Koretz & Hamilton, 2005), and the existence of these influences on students' learning make it more difficult to test the relationship between the ratings of quality teaching and mathematics achievement (Sass, 2008). Such information about students, which can have a potential effect on their mathematics learning, was not collected in this study. Thus, further multifaceted data about students is needed in order to determine how mathematics teaching quality influences mathematics achievement.

Another reason for the lack of relationship between teachers' instructional practices and mathematics achievement could involve the state of early mathematics teaching in early childhood classrooms. For example, a study of kindergarten classrooms found that a disparity exists between mathematics teaching and students' abilities: often, teachers spent significant time on mathematics concepts, such as counting and shapes, which most students had already mastered (Engel, Claessens & Finch, 2013). It is a possibility that the majority of the observed teachers' understanding of their students' abilities in mathematics and of what they need to learn might be misaligned with their students' actual abilities and needs. Such misalignment would make it more difficult to test the mathematics teaching quality as measured by HIS-EM in relation to mathematics achievement, because the tool's framework is based on teachers' understanding of the mathematics content and ability to introduce math concepts that are aligned with their students' development and needs through the use of instructional strategies.

Last but not least, it is also important to note that the HIS-EM is developed to be used across multiple grade levels. This, inadvertently, might have carried the risk of failing to document the quality of mathematics instruction to its fill extend. While some aspects of early mathematics instruction are likely to be general, cutting across grade levels, other features of instruction are almost certainly grade level-specific, requiring constructs and indicators that are applicable for each grade level that the tool is designed to be used in. Even though some of the HIS-EM constructs are claimed to be appropriate across varied grade levels (Pre-K to 3rd), the indicators listed might not be necessarily indicative of the quality of instruction across these grades. Therefore, the lack of relationship observed between mathematics instruction and mathematics achievement might be unfortunate result of the tool design and its broad range of applicability in Pre-K through 3rd grade.

Taken altogether, the results indicated that the interactions between quality of mathematics instruction and the relationship between students' pre-test and post-test math performance were not consistent with regard to the degree of their teaching quality. When there was a statistical impact of teachers' instructional quality on students' learning, the impact was rather small and only concerned a subgroup of students who were taught by high quality teachers. It is also worth noting that no significant relationship was found between low quality mathematics teaching and students' learning gains in mathematics. Preliminary evidence supporting predictive validity of HIS-EM produced mixed results and made it difficult to capture and reveal clear linkage between quality of mathematics teaching and students' outcomes in mathematics across the whole sample of students.

Limitations and Future Directions

Clearly, the results presented here are promising, yet limited. First, the current study involves a limited sample Future research should examine the applicability of these results in wider array of early childhood classrooms with greater diversity at both child and teacher level. Second, lack of significant associations obtained may be a function of the data collection procedures used and decisions made both at

the student and teacher level. This study acknowledges that "standardized achievement tests, in particular, are exceedingly blunt instruments for measuring what students might learn in a given year from a given curriculum" (National Research Council, 2001, p. 479), and standardized test scores do not always reflect students' actual state of knowledge and abilities (Erlwanger, 1973; Schoenfeld, 1988). It is possible that even though WJ-AP is a standardized and commonly used measure to test students' math achievement, it only provides a snapshot of student achievement at a particular point in time and with limited content coverage (e.g., restricted topics, usually only number). Using outcome tools that measure students' mathematics learning in different mathematics content areas might yield stronger and more consistent results. Furthermore, all teacher level data was collected in single-day observations in each teacher's classroom. Unfortunately, single-day observations may not necessarily reflect teacher practice across the entire school year. Synthesis of multiple observation cycles could reveal the true relationship between quality of mathematics and instruction and student achievement that was unable to be detected in this data set. Last but not least, it is also possible that there may be other contributors to students' scores that account for additional variance amongst students' learning gains in mathematics and were not measured either by HIS-EM or the WJ-AP subtest. Future research should also examine how multiple observations within a short timeframe impacts the estimates of quality of mathematics instruction in relation to mathematics achievement.

When considered in light of the fields' substantial attention to issues of quality of early mathematics teaching and how best to promote students' early mathematics understanding and learning, this study goes a considerable distance in ascertaining which factors indicate the quality of mathematics teaching. Introducing the High Impact Strategies in Early Mathematics (HIS-EM) as a measure to document early mathematics teaching quality represents a beginning contribution to this effort. The vision of mathematics teaching that guided this study is based on Pedagogical Content Knowledge (PCK) framework put forward by Shulman (1986); and claims that for quality mathematics instruction to occur, early childhood teachers need to familiarize themselves with foundational mathematics content (i.e., what) and the ways in which young children learn, specifically in terms of mathematics (i.e., who), and adopt developmentally appropriate teaching strategies to maximize children's mathematics learning and growth (i.e., how). HIS-EM was designed as an observational measure to document and assess the quality of early mathematics teaching in relation to this vision for mathematics instruction. While the study will help to contribute to the literature on how to measure early mathematics instruction, more research is needed. If low level of mathematics achievement is ever to be interrupted, and if students are to ever have a chance of succeeding in mathematics, observation measures of early mathematics teaching should continue to seek to understand and identify the characteristics early mathematics instruction that lead to high quality teaching and learning experiences in mathematics. Identifying which types of early mathematics instructions are associated with which developmental outcomes and for whom reflects the sophisticated and nuanced understanding of quality mathematics teaching that is needed to serve the diverse needs of students in our classrooms.

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