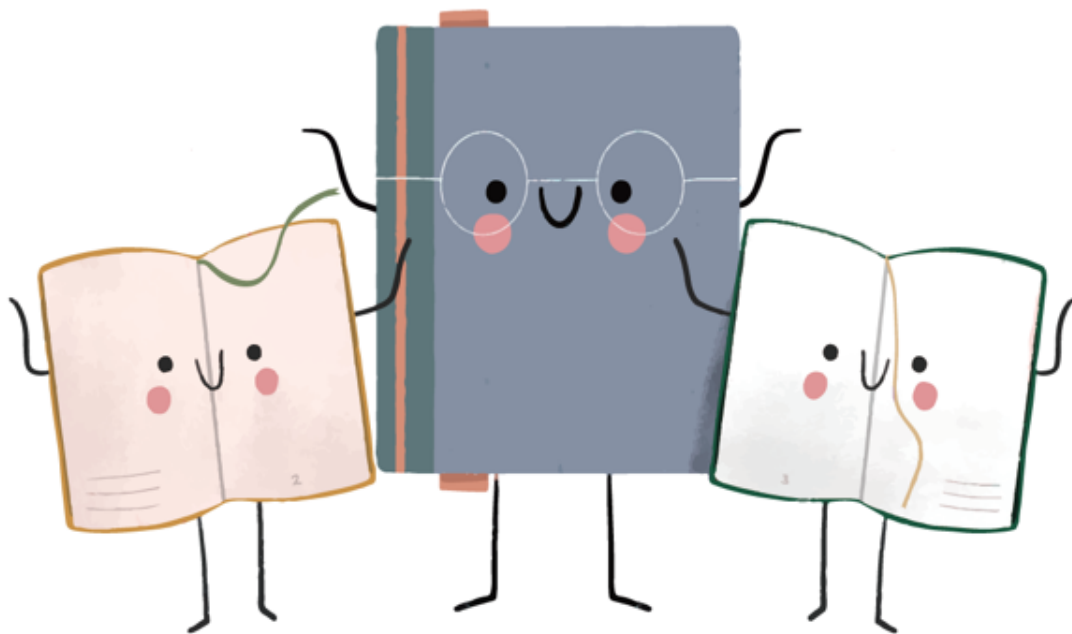




A Systematic Review of Parent-child Reading in Early Childhood (0-6): Effects, Factors, and Interventions

Xu, Y. & Gao, J.



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Authors: Yuwei Xu and Jie Gao

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Executive Summary

This report presents findings from a systematic review of international reviews and meta-analyses, as well as Chinese empirical studies, on parent-child reading. Existing systematic reviews and meta-analyses published in English largely concern Western contexts - especially the US and the UK - yet few studies have reviewed articles in global south contexts including China. There is also no systematic review of Chinese empirical studies on parent-child reading published in either Chinese or English.

Based on research evidence from the two groups of literature, we aim to inform the effects of parent-child reading on young children's (0-6 years old) emergent literacy skills, the factors that enhance or constrain parent-child reading, and the characteristics of effective parent-child reading interventions.

We conducted systematic searches of peer-reviewed literature databases in both English and China and identified 1,702 articles. After excluding non-relevant or low-quality articles, sixteen international reviews/meta-analyses and 16 Chinese empirical studies were selected for full and in-depth analysis (32 articles in total). Using thematic analysis, key themes that respond to the three research questions are identified.

Regarding the effects of parent-child reading on young children's emergent literacy skills, there is strong evidence from international literature that parent-child reading has positive effects on young children's oral language skills, including expressive and receptive language abilities, listening comprehension, and vocabulary. Those positive effects are applicable to the Chinese language context and are relevant for the development of oral language skills among Chinese children aged 0-6 years old.

Parent-child reading also influences children's development of code-related skills (including print awareness, alphabet knowledge, and phonological awareness), although these are less discussed or emphasized by international studies. Code-related skills are more academic-oriented literacy skills. In this sense the literature based on western contexts prioritizes the joy of parent-child reading and the development of oral language development to code-related skills.

In drawing comparisons with reviews of the effects of parent-child reading based on English language, it remains uncertain how far this may be applicable to the Chinese language context, in terms of code-related language skills. It also remains unknown whether such effects of parent-child reading need to be promoted in the Chinese context, where there is a strong academic-oriented education culture in early childhood education, despite recent government policies trying to prevent schoolification in kindergartens (for children aged 3-6 years old).

The factors enhancing and constraining parent-child reading in home literacy environment according to international and Chinese literature are many and relate closely to the quality and quantity of parent-child reading in home literacy environment. Quantity links to the gender of parents (mothers are more frequently involved in parent-child reading than fathers), family SES (families from low SES backgrounds engage less frequently in parent-child reading activities), SEND (it is more difficult to conduct parent-child reading with children who have hearing impairments, ASD, or other special education needs or disabilities), and children's age (parents are less likely to engage younger children aged 0-3 years old in parent-child reading).

Quality is affected by the attitudes of parents (such as their understanding of the purpose of parent-child reading, their understanding of parenting, and their gendered understanding of child rearing), the materials used (the choice of materials can be gendered, and age-appropriate books are advocated by parents), the level and ways of interacting while reading together (interactive and dialogic reading is key, accompanied by effective techniques such as asking open questions), the strategies adopted (strategies need to scaffold children's learning), and the role of digital reading (digital reading reduces interactivity between parents and children).

The characteristics of effective interventions were oriented to promoting the quantity and quality of parent-child reading. They include short and intensive training, comfortable and relaxed contexts (preferably in family homes or local communities), flexible, adaptive, and culturally sensitive content (that fit the target families' diversities and complexities), clear and variable formats of activities and instructions, accessibility to (free) materials, and supportive, sympathetic, and engaging staff members. Those characteristics can inform development of parent-child reading interventions in China, which are currently limited.

Based on the above findings, we make the following recommendations to parents, practitioners, policy makers, and researchers:

Recommendations for parents

- Parent-child reading is a beneficial activity in home literacy environment to promote children's emergent literacy skills and particularly oral language skills. Parents are advised to conduct as frequent reading as possible with their children, starting from a very early age (0 years);
- Interactivity is key for high-quality parent-child reading. In order to improve interactivity during parent-child reading, ask children open questions (wh-questions), allow and encourage them to ask questions and express themselves, and use scaffolding strategies such as rhymes, toys, body languages, and play;
- Digital reading may reduce the interactivity during parent-child reading. Prioritize face-to-face reading activities over digital reading, unless a high level of interactivity can be assured;
- There is no research evidence on the differences between boys and girls in their language and literacy development. Parents should not treat boys and girls differently (e.g. providing them with different materials) in parent-child reading interactions;
- Fathers are encouraged to share childcare responsibilities and engage in parent-child reading with their children. Note though this is not because fathers and mothers have different impacts on children's development.

Recommendations for practitioners, local authorities, and policy makers

- Offer parents short and intensive training on interactive parent-child reading techniques, through home visits and/or in contexts such as local communities;
- Consider the diversity of families, parents, and children when designing the training, and involve parents in the design process whenever possible;
- Use a variety format of activities and instructions, including but not limited to videos, role play, coaching, and handouts;
- Provide free books to families, especially those from low SES who are unable to afford purchasing sufficient children's books.

Recommendations for future research

Future research needs to be conducted in order to produce knowledge and empirical evidence about/on:

- The effects of parent-child reading on children's development of code-related skills in Chinese, and whether those effects should be promoted in the context of deschoolification in Chinese early childhood education;
- Parent-child reading in contexts beyond urban, affluent Chinese families. These include rural areas, families that have children with SEND, families with low SES, and ethnic minority families;
- The development, implementation, and evaluation of effective parent-child reading interventions in China;
- Children's own experiences of and perspectives on parent-child reading (this aspect is also a research gap in international literature).

The above recommendations have been summarised into a poster, in order to support dissemination and application of key findings in this report among different groups of stakeholders (see Recommendations for Effective Parent-child Reading in the next page).

Limitations of this review

This review has its limitations. First, due to time constraints, we conducted a rapid review of reviews for international literature. Future reviews can draw on the richness of literature on parent-child reading and synthesize current knowledge in the field in further depth. Second, we are unable to review articles published in other languages than English or Chinese. As such, the effects of parent-child reading on children's language development in different language systems are not discussed.

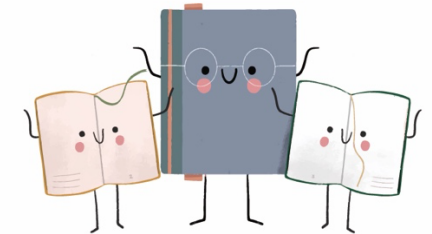
Recommendations for Effective Parent-child Reading

Effective Parent-child Reading



Parent

- Read with your child frequently
- Read from an early age (0 years)
- Reading needs to be interactive
- Prioritize face-to-face reading over digital reading
- Do not treat boys and girls differently
- Both fathers and mothers should read with children



Practitioner, local community, or policy maker

- Offer parents short and intensive training on interactive parent-child reading techniques, through home visits and/or in contexts such as local communities
- Consider the diversity of families, parents, and children when designing the training, and involve parents in the design process whenever possible
- Use a variety format of activities and instructions, including but not limited to videos, role play, coaching, and handouts
- Provide free books to families, especially those from low SES who are unable to afford purchasing sufficient children's books



Researcher

Consider empirical research on:

- The effects of parent-child reading on children's development of code-related skills in Chinese
- Parent-child reading in contexts beyond urban, affluent Chinese families (and other diverse backgrounds internationally)
- The development, implementation, and evaluation of effective parent-child reading interventions in China
- Children's own experiences of and perspectives on parent-child reading (in China and internationally)



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1. Introduction

1.1 Background

The importance of early reading in children's early literacy, language, and other areas of development has been internationally recognized. To promote young children's early reading skills, children's parents and other primary carers are identified as significant adults in supporting engagement and interaction with early reading (Manolitsis, Georgiou, & Tziraki, 2013; Segal, 2019), for example through the initial joint sharing of texts.

Reading between adults and children is emphasized in China's statutory curriculum framework for children aged 3-6 years old. The 3-6 Early Learning and Development Guideline (Ministry of Education, China, 2012; referred to as the Guideline in this report) recognizes language as a core area of development. According to the Guideline, children develop language skills through communications and applications. As such, adults are expected to frequently read together with children so as to enrich their expressions, to cultivate reading interests and habits, and to extend their learning experiences.

1.2 Parent-child reading

The term shared reading is widely used in international literature to refer to joint reading activities between children and parents/carers. In this report, we use the term parent-child reading to specifically focus on interactive reading activities between parents/carers and children (Dowdall et al., 2020), normally taking place in home environments. We emphasize the interactivity (or dialogue) between parents and children to scaffold interactions or conversations, rather than other forms of shared reading that aim to develop specific language skills (for example, vocabulary or phonological awareness) (Noble, et al., 2019). Parent-child reading is thus an informal activity that forms part of the home literacy environment (HLE) (Burgess, Hecht, & Lonigan, 2002).

1.3 Rationale for the review

Parent-child reading has received much attention in current Chinese early childhood education, not only for the development of 3-6 years old who attend kindergartens and preschools (Lu et al., 2018), but also in recent years increasingly for younger children aged 0-3 (Sun & Zhang, 2017; Feng et al., 2018). Nevertheless, whilst international literature on parent-child reading is rich, there is a dearth of empirical studies in the Chinese contexts. Many published scholarly articles in Chinese are based on small-scale, non-systematic reviews of literature from Western countries (Cao & Li, 2016; Shui & Li, 2017; Wang, 2018). Those articles are usually not theoretically informed, nor are they empirically relevant to the Chinese contexts.

1.4 Aims

In order to inform the focus and design of future interventions in the Chinese contexts on parent-child reading, this review aims to synthesize the main findings from the limited number of high-quality Chinese empirical research papers on parent-child reading in Chinese. In addition to reviewing Chinese empirical studies, in this report we further conduct a systematic and rigorous review of international studies on parent-child reading applicable to China. This review benefits Chinese scholarship in parent-child reading in the follow aspects:

- It presents a systematic and rigorous review of theories and empirical evidence relevant to parent-child reading in diverse socio-cultural contexts;
- It offers insights into the relevance of existing international research evidence to parent-child reading in the Chinese contexts;
- It provides an international basis that informs future empirical research needed in China.

Because the western literature is so extensive, our review of international studies on parent-child reading takes a rapid evidence assessment of existing reviews and meta-analyses (Gough, Oliver, & Thomas, 2017). Our justification of using this approach is that those previous reviews have already systematically synthesized the richness of international literature on parent-child reading. Instead of replicating the extensive work on reviewing primary research studies, our review builds upon those international reviews and puts together a knowledge base for understanding parent-reading in China.

1.5 Research questions

This review addresses the following research questions:

- (1) What are the effects of parent-child reading on young children's emergent literacy skills?
- (2) What factors enhance and constrain parent-child reading in home literacy environment?
- (3) What are the characteristics of effective interventions for parent-child reading?

1.6 Theoretical framework

Our research questions are informed by both international and Chinese research that theorizes the impacts of parent-child reading. There is a consensus internationally that parent-child reading is critically important for children's early development and is the foundation for later life opportunities, particularly academic achievements in formal schooling (for example, Bus, de Jong, & Van Ijzendoorn, 2007; Hackman, Farah, & Meaney, 2010; Wang, 2014; Sun & Zhang, 2017; Dong et al., 2020). International scholarship also points to the benefits of parent-child reading on family relationships, attachment, and enjoyment of family activities (Wang & Fan, 2013; Xie, et al., 2018). Chinese literature predominantly points to the significance of parent-child reading in developing young children's interests and habits of reading in later life (Sun & Zhang, 2017).

The importance for early development specifically focuses on children's emergent literacy skills. According to Whitehurst and Lonigan (1998), emergent literacy skills include two interrelated domains of oral language skills and code-related skills. The former covers aspects such as receptive and expressive language abilities, listening comprehension, vocabulary; whereas the latter refers to abilities such as print awareness, alphabet knowledge, phonological awareness, and emergent writing (Justice & Ezell, 2000; Saracho & Spodek, 2010; Cabell, et al., 2011; Farrant & Zubrick, 2011; Lanter, et al., 2012). For children's later life, parent-child reading in early childhood links closely to children's reading skills and achievements in primary and second schools (NELP, 2008; Saracho, 2017). Particularly in the context of poverty and social inequalities, parent-child reading is regarded as a vital intervention strategy to improve the reading skills of children from low socio-economic status (SES) backgrounds (Tan, Lyu, & Peng, 2020).

The above-mentioned impacts and benefits of parent-child reading are underpinned predominantly by sociocultural and ecological systems theories (Bronfenbrenner, 2005; Vygotsky, 2005). Sociocultural theories emphasize the role of adults in scaffolding interactions and conversations, to support and enable children's zone of proximal development (Vygotsky, 1978) in language and literacy abilities (Dickinson et al., 2012). Bronfenbrenner's (2005) ecological systems of human development situate children's language development in multi-layered social and historical contexts, therefore both the immediate family literacy environment and the broader societal contexts have interrelated and undeniable influences (Anderson, Anderson, & Sadiq, 2017). The immediate family literacy environment can relate to factors such as SES, bilingualism, parents' education, and disabilities (Compton-Lilly, Rogers, & Lewis, 2012; Jiang, 2012; Guiberson & Ferris, 2019); meanwhile the family literacy environment is also shaped by broader social and cultural dynamics and complexities, including for example, different religions, social norms (e.g. gender), policies, transnationalism, and digitalization (Anderson, Anderson, & Sadiq, 2017).

1.7 Structure

In the rest of this report, there are three sections. Section 2 details our methodology and the process of identifying included papers for review. In addition, we summarize key information and findings from the selected papers in this section. Section 3 presents synthesized findings from reviewed papers, directly addressing the three research questions that we propose. Finally, in Section 4, we make recommendations for improving parent-child reading to parents, practitioners, and policy makers. We also suggest future research directions on empirical studies needed in parent-child reading.

1.8 Contribution to literature

This report addresses two gaps. Firstly, whilst existing systematic reviews and meta-analyses published in English largely concern Western contexts - especially the US and the UK - few studies have reviewed articles in global south contexts including China. Secondly, there is also no systematic review of Chinese empirical studies on parent-child reading published in either Chinese or English. Before we present our results and findings, we detail our methodology of search, select, and review processes in the next chapter.

2. Methodology

Following Gough, Oliver, and Thomas' (2017) four stages of conducting systematic reviews, our research methods are guided by the above research aims and questions.

2.1 Literature Search

Bibliographic databases including ProQuest (18), APA PsycInfo, and EBSCOhost were searched to identify international reviews and meta-analyses on parent-child reading. Chinese databases CNKI and Wanfang Data were searched for empirical studies in Chinese.

We used the same search terms for both the Chinese and international literature search: "*Parent-child reading OR joint reading OR shared reading OR family literacy OR bedtime story OR shared digital reading OR grandparent/carer child reading AND (review or meta-analysis)*". The international literature was limited to English publications. We set the search period of publication from January 2012 to June 2021 (the time of the search), as 2012 is the launch of the 3-6 Early Learning and Development Guideline in China. For Chinese empirical studies, this period thus covers published work after the Chinese government emphasized the significance of adult-child reading in early childhood education (Ministry of Education, China, 2012). For international reviews and meta-analyses, although there are many published before this period (for example, Bus et al., 1995; Moore & Wade, 2003; Duursma et al., 2008; Marulis & Neuman, 2010), they are included in the more recent reviews and meta-analyses selected by us. Figures 2.1 & 2.2 demonstrate the number of records identified through each database.

2.2 Inclusion and exclusion criteria

As shown in Table 2.1, the following inclusion and exclusion criteria were adopted in the screening of literature as benchmarks of relevance and quality. We include empirical studies concerning reading activities/programmes in family contexts that involve both children and parents and/or other primary carers. Children in those studies are aged 0-6 years old (or at least covering this age range), which is the pre-primary education age group in China. In the context of many parents relying on support from grandparents in child rearing (sometimes grandparents are even primary carers) (Hung et al., 2021; Toran et al., 2021), we paid particular attention to studies that relate to grandparent-child reading. However, no suitable papers were identified. For quality assurance, only articles peer-reviewed and published in journals indexed by Chinese Social Sciences Citation Index (CSSCI) were included.

Our inclusion for international reviews and meta-analyses followed the same inclusion criteria as Chinese empirical studies: reviews and meta-analyses of parent-child reading activities in home literacy environment; covering age range 0-6 for children; peer reviewed and published in between 2012 and 2021. Further, we only included articles published in English language. This is acknowledged as a limitation because those articles predominately concern Western contexts and have implications for knowledge about parent-child reading in other non-Western contexts, such as China. For example, the effects of parent-child reading based on English language may not be applicable to the Chinese language context, in terms of code-related language skills.

Table 2.1 The inclusion and exclusion criteria

Literature	Inclusion criteria	Exclusion criteria
Empirical studies in China	Reading activities/programmes in family contexts that involve both children and parents and/or other primary carers For children aged 0-6 years Empirical studies Published in the past decade (2012-2021) Peer reviewed and CSSCI indexed Chinese language	Review articles and discussion papers that are based on personal experiences or knowledge
International reviews and meta-analyses	Reading activities/programmes in family contexts that involve both children and parents and/or other primary carers For children aged 0-6 years Systematic reviews and meta-analyses Published in the past decade (2012-2021) Peer reviewed English language	Review articles that do not use systematic and rigorous review methodology

2.3 Study selection and quality assessment

As shown in Figures 2.1 & 2.2, our searches with the aforementioned databases and search terms yielded 246 and 1456 articles respectively for the Chinese and international literature. The records were screened by title and abstract in accordance with the inclusion and exclusion criteria, and 43 Chinese articles and 67 international articles were selected. Two more articles were hand included, making selected number of international articles 69. After removing the duplicates (n=8 & 28, respectively), the remaining records (n=35 & 41, respectively) were screened by full text. After this process, 11 Chinese and 14 international papers were excluded, for reasons including relevance to the topic, whether it is an empirical study (for Chinese papers), and whether it is a systematic review (for international papers). The remaining 24 Chinese empirical studies and 27 international reviews/meta-analyses were then assessed against a quality criteria framework that we adapted from Pascal, Bertram and Peckham (2018).

Pascal et al.'s (2018) quality assessment framework has recently been used in some important

systematic reviews in early childhood education in the UK (for example, Pascal, Bertram, & Rouse, 2019). The framework comprises four dimensions: 1) relevance of the study/article to the research questions; 2) conceptual/theoretical framing; 3) methodological rigour, transparency and ethics; and 4) reliability, validity and trustworthiness of the findings. We adopted a four-point scale to evaluate the studies on each dimension, with higher scores indicating more relevance and higher methodological quality (Gao, Brooks, Xu, & Kitto, 2021) (see Appendix I & II for the tables of quality assessment). Before full review and assessment were conducted by the first author, the first and the second authors assessed selected articles and compared their scorings for rating consistency. Any dissonance was discussed among the research team to reach consensus. We further agreed that the overall quality benchmark for Chinese articles is set lower than that of international articles. For Chinese empirical studies, the baseline is an overall score of 10, with a maximum of two dimensions scoring 2 or below. For international reviews/meta-analyses, the baseline is an overall score of 12, with no dimensions scoring below 3. This differentiation takes into account a broader Chinese academic context that empirical research in social sciences is only an emerging and developing technique in recent years (Zhu & Ma, 2020). Therefore, dimensions such as the conceptual/theoretical framing and methodological rigor are generally scored lower for Chinese papers. As a result of the quality assessment process (see Appendixes I & II), sixteen Chinese empirical studies and sixteen international reviews/meta-analyses were included for the data extraction and finding synthesis of this review.

2.4 Data extraction and synthesis

Data extraction (see Appendixes IV & V) was carried out during the first round of full-text review. For Chinese empirical studies, the following data were extracted from the articles: study type, sample, methods, the research questions addressed, and main findings related to the research questions. For international reviews and meta-analyses, the following data were extracted: type of review/meta-analysis, number of studies included, literature search period (if applicable), the research questions addressed, and main findings related to the research questions. The extracted data were used to inform the subsequent synthesis and analysis of the included literature.

A thematic approach (Pascal, Bertram, & Rouse, 2019) was employed to synthesize the research evidence on our three research questions. A hybrid of inductive and deductive coding and theme development was used (Xu & Waniganayake, 2018). We started with reviewing the research findings of the included articles to identify initial codes that emerge from the findings and as relevant to the three research questions (add examples of codes). We then developed a list of themes from these initial codes (add examples of themes), so that they can be used to address our research questions. Patterns generated from the findings of included articles are presented under those themes.

2.5 Methodological overview

Before we move on to present findings that address each research question in Section 3, an overview of the included studies, categorised by their nature and topics relevant to our research questions, are summarized here.

2.5.1 Methodological overview of the included Chinese empirical studies

Figure 2.1 Procedure of literature search of Chinese empirical studies

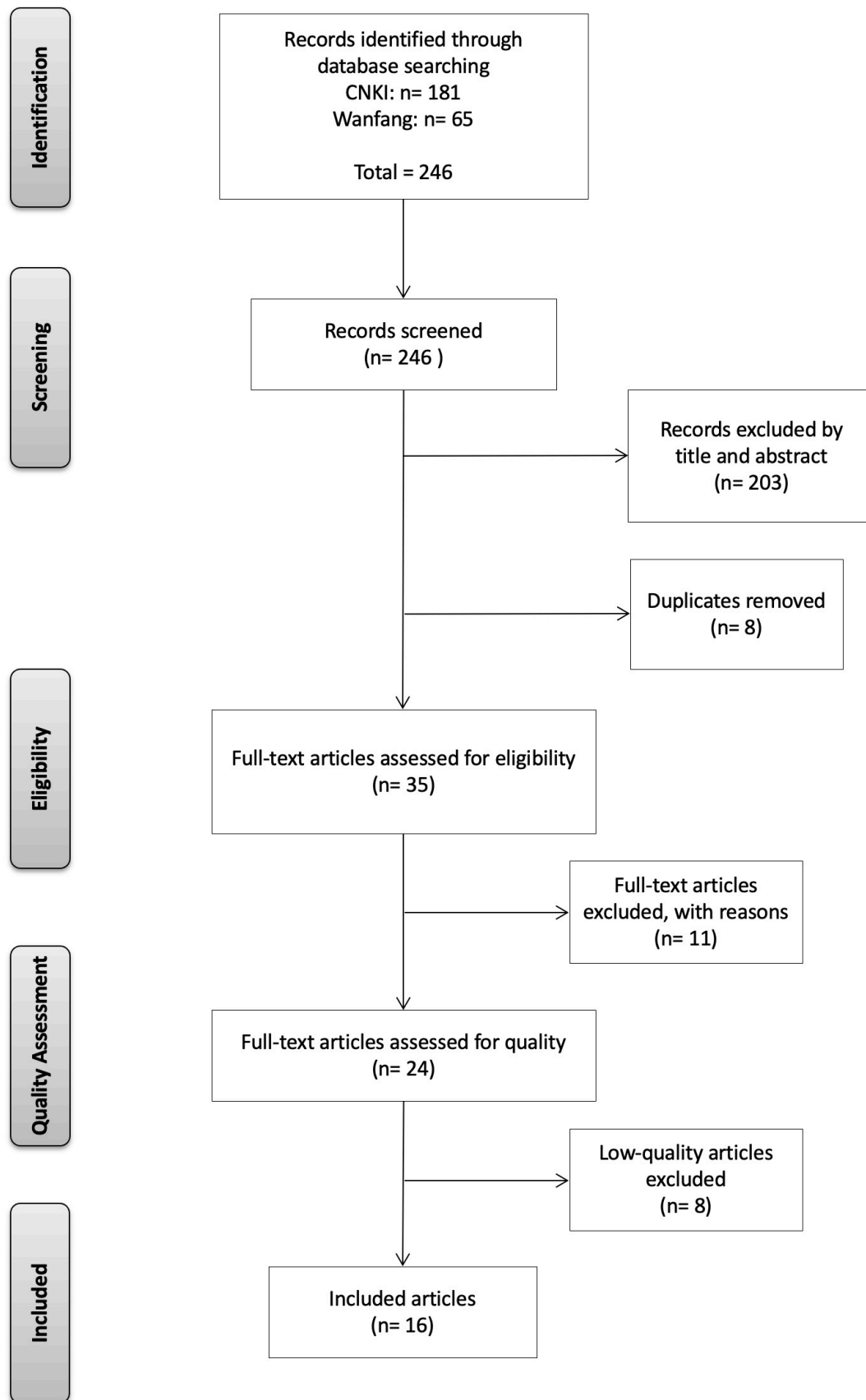
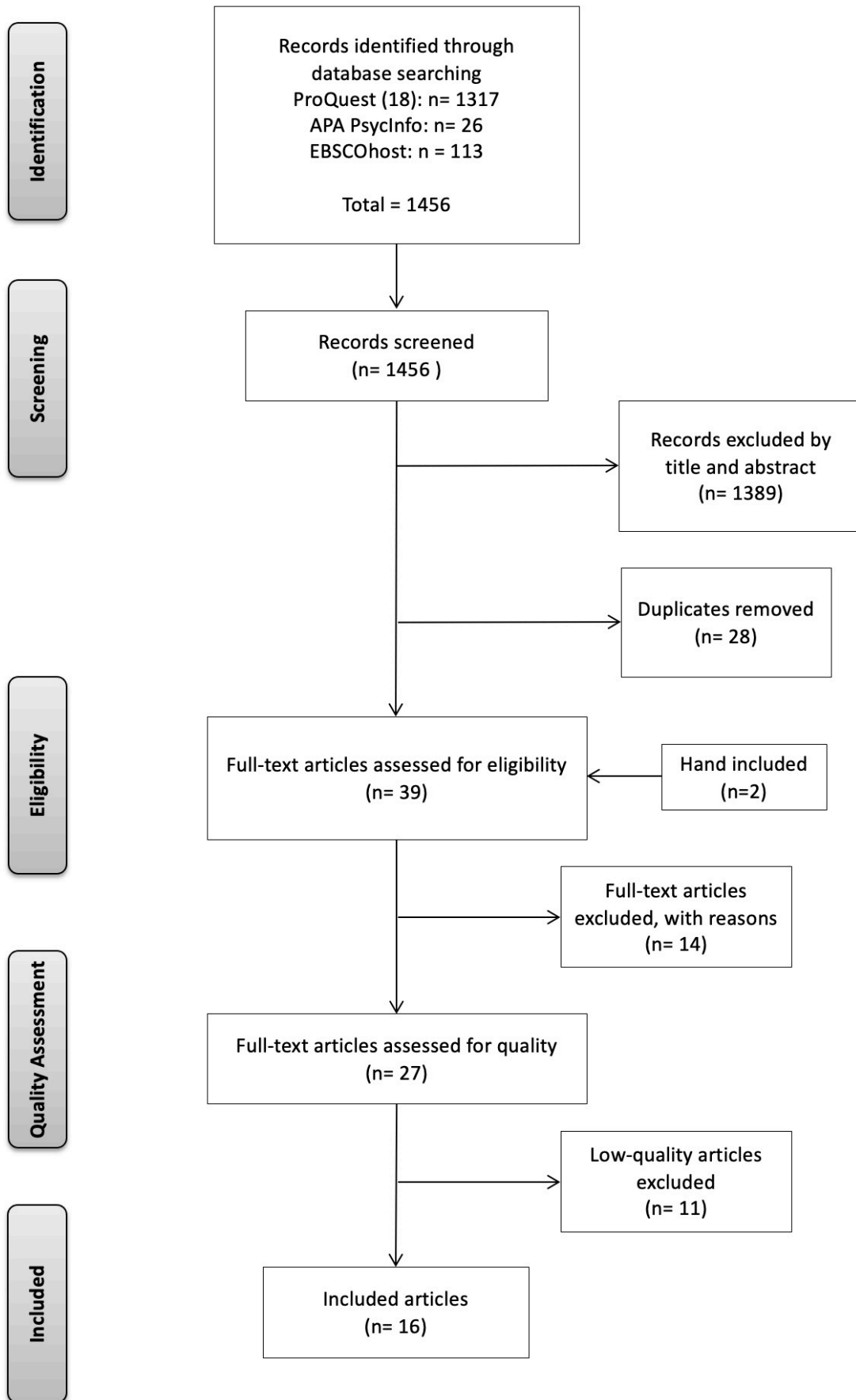


Figure 2.2 Procedure of literature search for international reviews and meta-analyses



Among the sixteen Chinese empirical studies reviewed, eleven employed a quantitative approach to investigating correlations between parent-child reading (or other aspects of home literacy environment) and one or more elements of children's emergent literacy skills. Three studies are qualitative, focusing on characteristics of interactions in the process of parent-child reading. The remaining two studies adopted mixed methods and were published by the same author(s) from one project.

Survey is the predominant method used by quantitative and mixed-method studies (n=12) to obtain information about participants' (usually parents') demographic information and aspects of home literacy environment. This is oftentimes followed by assessment tools/measurement scales on children's literacy and language development (n=5). Two studies conducted randomised control trial (RCT) to test the impacts of parent-child reading interventions.

All three qualitative studies employed observations on interactions between parents and children, sometimes supplemented by interviews with parents (in one qualitative and the two mixed-method studies). Whilst high-quality empirical studies on parent-child reading are limited in Chinese literature, there is particularly a lack of qualitative studies. No studies included attempt to include perspectives and experiences of children.

Participants of most studies (n=12) are children aged 2/3-6 years old and/or their parents. This reflects the Chinese early childhood education provisions that primarily serve 3-6-year-olds (some limited provisions for 2 years olds). Only two studies specifically focus on children aged 0-3, with two further studies covering all age ranges in the context of Chinese early childhood education (0-6).

All studies that indicate the location of participants (n=13) were conducted in developed cities including Beijing, Shanghai, Shenzhen, those in the East Coast, and capital cities. Although variations of parent education and socio-economic status (SES) within those cities were noted and discussed, no studies included participants from rural China or other diverse backgrounds (for example, ethnic minorities). One study was conducted with parents of children with hearing impairments in Beijing, pointing to a further scarcity of studies involving children categorized as 'non-typically developing' in Western terms (Page et al., 2017).

Overall, Chinese empirical studies on parent-child reading (with relatively high-quality) largely employ survey with parents of children aged 3-6 years old from developed cities. Children involved in studies that adopted observations or assessments are typically developing without any physical disabilities, except one study that targeted children with hearing impairments. The results synthesized in this report are therefore limited to this group of population. Future empirical studies on parent-child reading are much needed in China, with more heterogeneous backgrounds of participants.

2.5.2 Methodological overview of the included international reviews and meta-analyses

A similar trend of quantitative dominance is also observed among the sixteen included international articles, with eleven being meta-analyses of effect sizes of parent-child reading on children's development. Only two are qualitative reviews/syntheses, and three are mixed, integrated reviews that include diverse methodologies, variables, issues, and populations (Whittemore & Knafel, 2005). This trend of included international articles is indicative of the prevalence of quantitative studies on

parent-child reading in English literature.

The meta-analyses usually use robust variance estimation (RVE) technique (Pustejovsky & Tipton, 2021) to estimate the joint effect sizes of included studies. Cohen's (1988) categorization of small (0.2), medium (0.5), and large (0.8) effect sizes is widely used to suggest the effects of parent-child reading and other related interventions. This report only focuses on the interpretations and discussions in those articles, as relevant to the research questions in this report.

Although our inclusion of international reviews and meta-analyses is limited to those published after 2012, they have covered relevant studies published in between 1880 to 2018. Therefore, through synthesizing results from those articles, this report provides a rapid review of scholarship of parent-child reading in the past four centuries.

However, almost all included articles (n=14) are authored by Western scholars, particularly those from the United States. One meta-analysis is even exclusively based on studies conducted in the US (Sloat et al., 2015). Two articles are written by Chinese scholars based in Hong Kong. Even though most articles included studies from diverse geographical and cultural contexts, a limitation is noted by both some of the authors (Xie et al., 2018; Dowdall et al., 2020) and us that the data were largely collected from high-income countries (and a limited number of middle-income countries). More studies based in less developed and developing contexts especially those in the global south are needed. Findings presented in this report also acknowledge this limitation.

The sixteen articles cover children aged from zero up to 14 years old, because some reviews or meta-analyses have included children both in early and middle childhoods. Where older children are included, there are usually discussions on how the effects of parent-child reading are mediated by age. This report particularly presents findings related to the effects on children aged 0-6.

Although those international articles published in English are largely based in high-income countries, there are some that tend to focus particularly on how parent-child reading supports children's (literacy and language) development in disadvantaged backgrounds - such as low SES, English as second language, ethnic minorities, and special educational needs. Nevertheless, many reviews or meta-analyses have not included child participants that have physical disabilities or are non-typically developing. Again, these limitations need to be addressed in future research and be acknowledged in any results summarised in this report.

To summarize here, international literature on parent-child reading has several research gaps, as reflected by the included reviews and meta-analyses. These include for example, a predominant reliance on quantitative studies to test/assess effect sizes on parent-child reading and children's literacy and language skills; a lack of research on children with diverse backgrounds, beyond those who are regarded as typically developing. These gaps are mirrored in Chinese empirical studies. One difference is that there are substantial studies in international literature that propose and evaluate interventions target at supporting and promoting parent-child reading. Such studies are scarce in China and need future attention.

Further, international reviews and meta-analyses on parent-child reading included in this report are largely based in developed, western contexts; alerting that international knowledge base and empirical evidence in the field is biased and western centric. Our intention is thus to add some knowledge produced in the Chinese context to international literature (although limited).

3. Findings

In this section, we present the findings under each research question, organized into themes that emerge from the reviewed articles.

3.1 What are the effects of parent-child reading on young children's emergent literacy skills?

The benefits of parent-child reading are widely recognized by both international and Chinese literature reviewed. Here we present research evidence on how parent-child reading supports children's development of emergent literacy skills, including oral language skills and code-related skills. As mentioned in the introduction, oral language skills refer to receptive and expressive language abilities, listening comprehension, and vocabulary. Code-related skills include for example, print awareness, alphabet knowledge, and phonological awareness.

We present evidence on the effects of parent-child reading from international literature, followed by discussing its relevance to the Chinese context (see Table 3.1).

Table 3.1 The effects of parent-child reading on emergent literacy skills

Category	Area	Mechanisms	Evidence (International)	Relevance (China)
Oral language skills	Expressive language	Verbal interactions facilitate children's own initiations of language use	A1.1, A6.1, A6.3, A6.5, E5.1, E5.2, E6.1, P1.4	C2.1
	Receptive language	Reading and with support of pictures, gestures and other signs, support children's understanding of the languages used by adults	A6.5, E5.1, E5.2, E6.1	C3, C2.1, W5, W10, W13
	Listening comprehension	Listening to stories told by adults, allow children to retell the story, and respond to adults' questions related to the story	A1.1, A6.1, E5.3, P1.1	C3, W13
	Vocabulary	By exposure to vocabulary diversity through conversations with adults, children gain vocabulary skills	A1.1, A6.3, A6.5, E5.2, E5.3	C1
Code-related skills	Print awareness	Literacy-based interactions with adults develop children's understanding of print concepts	A1.1, E5.2	C3, C6, W3, W5, W16
	Alphabet knowledge	Reading develops children's alphabet knowledge, by understanding the relationships between letters and sounds in words	A1.1, A6.5	N/A

	Phonological awareness	Oral language uses help develop children's sensitivity to phonological composition of spoken language	A1.1, E5.2	N/A
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3.1.1 Parent-child reading and oral language skills

International literature has proved that parent-child reading primarily benefits children's oral language skills, in aspects including expressive and receptive languages, listening comprehension, and vocabulary. Those aspects are also found to be relevant in the Chinese context according to reviewed Chinese articles.

Expressive language. Firstly, parent-child reading significantly links to children's expressive language skills. Expressive language is initiated by children in communications with others, as opposed to for example, responding to adult questions (Heidlage et al., 2020). Supporting children's development of expressive language relies much on (verbal) interactions between children and adults (Zauche et al., 2016; Dowdall et al., 2020), therefore it is important for parents to encourage children to take an active verbal role during parent-child reading activities (Mol et al., 2008; Dowdall et al., 2020).

To illustrate, parents are suggested to use wh-questions (what, where, who, why, etc.) in shared booking reading, so that children develop advanced comprehension and increased ability to produce wh-questions independently (Cutler & Palkovitz, 2020). The quality of language used by parents during reading is also vital, in terms of vocabulary (lexical and syntactic) diversity and complexity of speech (Tamis-LeMonda, 2004; Baker, 2013; Noble et al., 2019).

The effect of parent-child reading on children's development of expressive language skills is noted among Chinese children, when some children were found to initiate conversations combining the story with their own experiences and imagination during reading with parents (Cheng & Wang, 2015).

Receptive language. Children's receptive language skills refer to their abilities to understand and respond to others' spoken language (Grow & LeBlanc, 2013). In parent-child reading, children are highly likely to develop receptive language abilities when being read by adults (Zauche et al., 2016). This area of development for young children has received much attention in Chinese literature (Cheng & Wang, 2015; Zhao, 2015; Yao et al., 2017; Kang & Wu, 2018; Sun, 2019). It is found that through parent-child reading activities, Chinese children are able to retell the story (Sun, 2019), name the main characters and events, perform out the scenarios, and have an understanding of the topic in the book (Kang & Wu, 2019).

It seems that Chinese literature emphasizes the effects of parent-child reading on receptive language skills more than on expressive language skills, whereby the latter is much more researched by international studies. Nevertheless, it should be noted that the two areas are closely related and mutual development in both skills benefit children's early language and literacy (Lonigan & Milburn, 2017).

Listening comprehension. Listening comprehension is defined as children's communicative

reactions to adult questions, either using speech or signs (Boyle, McNaughton, & Chapin, 2019). Parent-child reading helps to increase listening comprehension through discussions with children (of the story, the text, and the characters) (Reich, Yau, & Warschauer, 2016). Such discussions further offer children with social contingencies that help them to learn (Ibid).

Techniques such as the use of an AAC (Augmentative & Alternative Communication) display with pictures and/or symbols are found to be effective in enhancing listening comprehension (Boyle, McNaughton, & Chapin, 2019). Informal supports like pointing to the pictures in the book are also helpful. Using picture-based books in parent-child reading is thus regarded as a powerful intervention for children's listening comprehension, especially for children with special educational needs (Ibid).

For Chinese children, listening comprehension is often tested as a key element of children's language development (Yao et al., 2017; Sun, 2019). Parent-child reading can support this by parents reading and explaining stories to children, asking children questions, and allowing children to ask questions (Cheng & Wang, 2015; Yao et al., 2017; Sun, 2019).

Vocabulary. Lastly, young children learn vocabulary best from in-person interactions, as compared to other formats of language acquisition such as passive video watching or interactive video (Reich, Yau, & Warschauer, 2016). Parent-child reading as a form of in-person interaction promotes children's vocabulary through stimulating interchanges of languages, such as questions, discussions, and sharing (Cutler & Palkovitz, 2020). One Chinese study (Lu et al., 2018) has also noted this benefit of parent-child reading, especially for children from low SES backgrounds.

3.1.2 Parent-child reading and code-related skills

In addition to oral language skills, international literature also points to the effects of parent-child reading on young children's development of code-related skills. Namely, print awareness, alphabet knowledge, and phonological awareness. However, due to differences between Chinese and English languages (Wang & Chen, 2013), those effects of parent-child reading based on English language may not be applicable to the Chinese language context.

Print awareness. Children develop understanding of print concepts through literacy-based interactions with adults (Reich, Yau, & Warschauer, 2016; Barone et al., 2019). These concepts include how books work and how to use them for reading. For Chinese children, a key aim of early parent-child reading is to cultivate their reading habits (Yi & Wang, 2012; Hua, 2014; Sun & Zhang, 2017; Yao et al., 2017; Kang & Wu, 2018). This could include developing understanding of the functionality of books. Therefore, the effect of parent-child reading on print awareness can be relevant in the Chinese context of early language and literacy development.

Alphabet knowledge & phonological awareness. Through parent-child reading, children may also understand the relationships between letters and sounds in words, as well as develop sensitivity to phonological composition of spoken language (Reich, Yau, & Warschauer, 2016; Barone et al., 2019). No Chinese empirical studies reviewed in this report have mentioned the effects of parent-child reading on phonological awareness for children aged 0-6 years old.

To summarize, importance has been attached to the effects of parent-child reading on children's development of oral language skills, including expressive and receptive language abilities, listening

comprehension, and vocabulary. Those effects are relevant to parent-child reading in Chinese language contexts, too.

Probably due to the emphasis on enjoyment of parent-child reading in Western contexts (Xie, et al., 2018), international literature mentions the effects of parent-child reading on code-related skills to a minimum. There is also little empirical evidence to support the effects of parent-child reading on Chinese children's code-related skills, especially considering that Chinese language system differs from English. In the context of 'deschoolification' in Chinese early childhood education (Xu et al. 2020), future studies can discuss whether those areas of children's emergent literacy skills require investigation in relation to parent-child reading in China.

3.2 What factors enhance and constrain parent-child reading in home literacy environment (HLE)?

Parent-child reading is both an intervention strategy itself to support children's development and an everyday practice regarded as beneficial for parent-child interactions, relationships, and children's emergent literacy skills (Bus, de Jong, & Van Ijzendoorn, 2007; Hackman, Farah, & Meaney, 2010; Wang & Fan, 2013; Wang, 2014; Xie, et al., 2018; Sun & Zhang, 2017; Dong et al., 2020). Normally parent-child reading interventions are expected to lead to continuing habits of parent-child reading in family homes, but there is a paucity of studies evaluating the long-term effectiveness of parent-child reading interventions (de la Rie, Steensel, & Gelderen, 2017; Heidlage et al., 2020). To inform interventions that promote quantity and quality of parent-child reading in home literacy environment, existing evidence on factors enhancing or constraining it is helpful. According to our reviews, SES (including parent education), SEND, language backgrounds, gender, age, and parent-child reading strategies are critical in the quantity and quality of parent-child reading in HLE.

3.2.1 Frequency of parent-child reading in HLE

International reviews and meta-analyses included in this report rarely discuss quantitative aspects (e.g. the frequency) of parent-child reading in HLE. This could possibly be because the evidence on the influences of gender, SES, SEND and age on frequency of parent-child reading is well established in existing literature (Compton-Lilly, Rogers, & Lewis, 2012; Jiang, 2012; Guiberson & Ferris, 2019); and focuses are placed more on effective interventions to support and promote parent-child reading.

By contrast, Chinese empirical studies mostly address the research question of how frequent parent-child reading takes places in HLE. Drawing upon surveys with Chinese parents, the included studies report findings on current landscape of parent-child reading in China (limited to urban areas). For example, 48.21% parents (n=363) in Changsha city conduct reading with their children (3-6 years old) twice or three times a week (Kang & Wu, 2018). For another 1/3 parents it is more than four times, and the remaining 19.56% did only once or no reading. A 75.59% rate of involvement in parent-child reading for parents (n=389) of 3-7 years old in Shanghai was also reported, although there is no information on the frequency (Yao et al., 2017).

For children aged 0-3 years old, 1/3 parents (n=327) in suburban Nanjing read once per week with children, and another 1/3 read 3-4 times (Sun & Zhang, 2017). Less than 20% parent read with

children on a daily basis, and 17.81% read only once or none. Similarly, only 18.98% Shenzhen parents (n=1064) read with children every day, and around half read 1-2 times a week (Feng et al., 2018).

There seems to be an emerging pattern that most parents read with children for between 10-30 minutes every time; and the reading is most likely to take place before bedtime (Sun & Zhang, 2017; Yao et al., 2017; Feng et al., 2018; Kang & Wu, 2018).

Although available statistics are far from sufficient to conclude the frequency of parent-child reading among Chinese parents, there are some emerging patterns on factors that influence parent-child reading:

Gender. Fathers are less involved in parent-child reading than mothers, especially for younger children aged 0-3 (Yao et al., 2017; Feng et al., 2018). However, one changing pattern found about the gendered frequency of parent-child reading in international literature is worth noting. The frequency of fathers reading with their children is reported to be increasing in more recent research (Cutler & Palkovitz, 2020), although they also note that white, middle-class fathers contribute much more to the rise. In the context of raising awareness about fathers' participation in child care and education in China (Gao et al., 2020), Chinese fathers' involvement in parent-child reading deserves further investigation.

SES. SES is a widely relevant factor to the quantity and quality of parent-child reading in home literacy environment (Chen & Chen, 2012; Tan, Lyu, & Peng, 2020). Parents with higher income and education are more likely to conduct frequent parent-child reading, possibly related to the amount of books possessed in the household (Wang, 2014) and screen time (for example, mothers with low education tend to use digital devices longer themselves and allow their children to do the same (Lu et al., 2018).

SEND. Parents of children with special educational needs may struggle with frequent parent-child reading activities in HLE. For example, parents of children with hearing impairments in Beijing are less likely than other parents to read with their children (Chu, Zhang, & Luo, 2013). This is either because they find that children with hearing impairments do not want to participate in such reading activities, or because they do not know how to read with children.

However, there is limited evidence available on parent-child reading in families that have children with SEND. Many international reviews and meta-analyses intentionally excluded studies involving children who are not typically developing (Barone et al., 2019; Noble, et al., 2019; Dong et al., 2020). Therefore, more research is needed investigating the barriers and difficulties parents face in shared reading activities with children who have different special educational needs.

Age. As children grow older, parent-child reading frequency decreases according to Hua's (2014) findings using survey with parents of 3-10 years old. The author explains that more time may have been occupied by academic studies and extracurricular classes. On the other side, not all parents believe that parent-child reading should start from birth, with 1/3 of parents in Sun and Zhang's study (2017) thinking that the starting age is 1-2. Only 10.09% parent agree that they can start parent-child reading right after birth.

3.2.2 Quality and process of parent-child reading in HLE

International literature points out that several factors influence the quality of parent-reading, including the attitudes of parents, materials, interactions and strategies, and digital reading. Those factors are also evidenced in Chinese empirical studies, albeit limited.

Attitudes of parents. Firstly, parental understanding of parent-child reading affects how they interact with children. Chinese parents tend to focus much on outcomes of reading such as gaining knowledge and intellectual development, but tend to ignore the social and emotional benefits (Wang & Fan, 2013). This may result in that the parent-child reading interaction focuses more on the book rather than the child (Chen & Chen, 2012; Hua, 2014).

Second, parents from lower socioeconomic status in the west often use a directive style of communication in reading activities with children (Hart & Risley, 1995; Pluijm, Gelderen, & Kessels, 2019). This is reflected in the Chinese context regardless of SES. Chinese parents who adopt an authoritative parenting style are likely to give orders to their children in parent-child reading (Ma & Ming, 2020).

Lastly, parents' self-efficacy affects their active engagement and use of strategies during parent-child reading, as supported by both international and Chinese literature (Hoover-Dempsey et al., 2005; Wilson Toso & Gungor, 2012; Ma & Ming, 2020). Many parent-child reading interventions in the west thus aim at improving parents' positive beliefs and self-efficacy (Pluijm, Gelderen, & Kessels, 2019).

Materials. Parents' choice of reading materials also affects parent-child reading, and many Chinese parents expressed their concerns of choosing suitable and age-appropriate books (Kang & Wu, 2018). It seems that parents tend to choose picture-based, colourful pictures for younger children, referring to developmentally appropriate practices (Feng et al., 2018). Wang (2014) added that when children turn age of 4, there is a sharp increase in the amount of words in books chosen by parent for parent-child reading.

The choice of reading material is also found to be influenced by children's gender, family SES, and parents' education and occupations (Wang, 2014). For example, boys are more exposed to materials related to word learning, mathematics, poems, and intellectual training, and girls oftentimes are read with fairy tales, rhymes, and popular science. Mothers with higher education are more likely to choose picture-based books. The gendered interactions with boys and girls are also noted by international literature (Cutler & Palkovitz, 2020), but those essentialist approaches to reproduce gender stereotypical differences between men and women are criticized.

Although some parents agreed that choice of books should be based on children's interests and respect children's own choices (Yao et al., 2017; Kang & Wu, 2018), there are no studies discussing how this is actually implemented in everyday practice in China.

On a whole, there is in general a lack of guidance on choosing reading materials available in China (Sun & Zhang, 2017).

Interactions and strategies. The interactivity of parent-child reading is vitally important on children's emergent literacy skills. To illustrate, the use of imperatives and other types of directives negatively

impact children's language development (Zauche et al., 2016); whereas reading style and use of dialogic techniques (including asking questions) increase the number of new words children learn from shared book reading (Flack, Field, & Horst, 2018). Nonetheless, international literature further mentions that it is particularly challenging for parents with lower socioeconomic status or education (including literacy skills) to carry out interactive and strategic parent-child reading (Sloat et al., 2015).

Chinese studies also emphasize the interactivity of parent-child reading. Interactive reading activities (with emotions) are more effective in supporting children's reading comprehension than simply reading to the child (Zhao, 2015). Synthesising findings from included Chinese studies, the following aspects emerge as related factors influencing the quality of interactive parent-child reading:

Children were observed to be more engaging when mothers asked children questions during mother-child reading interactions, especially when those questions are to extend the stories or to encourage further reading (Cheng & Wang, 2015). More importantly, children's initiations of communications/interactions are critical in the process. Cheng and Wang (2015) argue that understanding children's questions and requests during parent-children reading is vital in understanding children's needs. Children may ask questions about the content of the book, request mothers to continue reading or to repeat some content; they may also repeat the stories themselves, and bring in their experiences and imagination. How parents react to those questions and requests have implications on the effectiveness of parent-child reading.

The most frequent parent behaviours during parent-child reading observed by Sun (2019) in their study were parent reading, commenting, and asking closed questions; and children were less observed to be asking questions. Parents ask frequent questions during parent-child reading, and mostly focus on asking children to repeat the content in the book (Chen & Chen, 2012). They use optional questions, yes or no questions, open questions, and directive questions. And they are less likely to ask open questions to children aged 3-4 than to 5-6 years old.

In addition to interactions, strategic scaffolding during parent-child reading is also beneficial (Ma & Ming, 2020). Parents are encouraged to make use of rhymes, toys, body languages, snacks, and games to support understanding of the story and to make the reading funnier (Ibid).

Digital reading. Parent-child reading using digital devices may result in different effects on children compared to print books. When parents use digital devices to conduct shared reading with children, discussions are more likely to be around the devices and functions, rather than the content of stories (Reich, Yau, & Warschauer, 2016).

In China, observations of parent-child reading between Chinese mothers and their children by Cheng and Wang (2015) suggest that digital reading is less interactive than reading with print books. Whereas, the interactive nature of parent-child reading is important for children's languages skills such as expressive languages (Mol et al., 2008).

Digital use is also more likely to happen in low SES families in China, reducing interactions between children and parents (Lu et al., 2018).

As such, digital reading needs to embed scaffold learning features in order to have effective

benefits for children's literacy and language development (Reich, Yau, & Warschauer, 2016). Frequent digital reading for children younger than 3 years is particularly discouraged, for the value of face-to-face interactions during parent-child reading.

Overall, multiple factors have been researched when understanding what constrains/enhances parent-child reading in HLE, both in terms of its quantity and quality. Nonetheless, according to Cutler & Palkovitz (2020), there is a lack of knowledge on 'whether there are developmental ceiling and floor effects for the quantity and quality of parent-child reading and developmental outcomes for children' (p.156).

3.3 What are the characteristics of effective interventions for parent-child reading?

In this section, we focus on effective interventions aimed at improving the quantity and quality of parent-child reading. Among the international reviews and meta-analyses concerning parent-child reading intervention, characteristics of effective intervention emerge in relation to the following aspects:

Intensity. Short and intensive parent training on specific skills (e.g. asking open questions) is found to be effective in improving the quality and quantity of parent-child reading (Sloat et al., 2015; Zauche et al., 2016; Dowdall, et al., 2020). This is because parents usually lack time to participate in such interventions due to other work or commitments, especially those from low SES backgrounds and/or who are single parents (Rie, Steensel, & Gelderen, 2017). Shorter training is thus more likely to attract attendance and retain parents. However, one possible pitfall of short and intensive training is that it may fail to result in change of parents' book-sharing behavior (Sloat et al., 2015). This needs to be considered for families where parent-child reading is less frequent or nonexistent.

Context. The effectiveness of parent-child reading interventions is also influenced by where the interventions take place. Parents may find some settings outside home threatening, especially if they are from at-risk populations (Manz, et al., 2010). For example, if the interventions are conducted in educational settings, low SES and minority parents may feel intimidated because of the perceived hierarchical relationships between home and school (Ibid). Some of those parents even have negative educational experiences.

There may also be logistical constraints on travelling to/from training venues (Zauche et al., 2016). For some families, home-based interventions (such as home visits) might be more realistic and effective than other formats (Steensel, et al., 2012), especially if such interventions engage children (Pluijm, Gelderen, & Kessels, 2019).

Content of activities. The content/type of activities in parent-child reading interventions need to be flexible and adapt to specific family backgrounds and personal experiences (Pluijm, Gelderen, & Kessels, 2019). Some intervention programmes presume that parents have certain didactic skills and belief that they play an important role in their children's academic development, whereas discrepancies sometimes exist between programme contents and the abilities and beliefs of parents (Mol et al., 2008; Manz et al., 2010). This is especially applicable to parents from low SES and at-risk backgrounds (normally with less education), as oftentimes the skills and beliefs required for parent-child reading interventions are closer to educated middle-class views of child development (Zauche et al., 2015).

Cultural sensitivity is necessary too in the design of interventions, bearing in mind that 'one size does not fit all' (Zauche et al., 2016) for parent-child reading interventions. In particular, interventions could embed/incorporate activities that take place in the target family contexts.

Type of activities. A variety of intervention strategies have been used in parent-child reading interventions, including video instructions, role play, coaching, and handouts (written instructions) (Rie, Steensel, & Gelderen, 2017; Heidlage et al., 2020). A combination of different activities is particularly found to be effective (Heidlage et al., 2020). Whereas, unclear written instructions are likely to confuse parents in the implementation of interventions (Rie, Steensel, & Gelderen, 2017).

Provision of materials. For families particularly from low SES backgrounds, providing materials such as free children's books is an effective intervention that increases frequency of parent-child reading (Sloat et al., 2015; Zauche et al., 2016).

Staff. Similar to the comfort level with contexts, who delivers the parent-child reading interventions matters in parents' participation and implementation. Although evidence is not strong (Zauche et al., 2016), more professional trainers such as university researchers may not be as effective as for example, trained parents and members of local communities that parent relate to more closely (Manz et al., 2010).

Further, a partnership-driven and participatory model of intervention is endorsed by many articles (Manz et al., 2010; Zauche et al., 2016), so that parents and other community stakeholders actively participate in the development, implementation, and evaluation of the interventions. This way, the diverse needs of families can be accounted for in the interventions.

To summarize, despite some emerging characteristics that could possibly lead to effective parent-child reading interventions, it is difficult to conclude standardized patterns of effective parent-child reading intervention from them. In addition, limited studies have reported the fidelity of parent-implementation/enactments after the interventions (Rie, Steensel, & Gelderen, 2017; Dowdall et al., 2020; Heidlage et al., 2020). The long-term effects of those interventions on children's development are also unknown (Rie, Steensel, & Gelderen, 2017; Dowdall et al., 2020).

That being said, those characteristics are helpful in informing the development of parent-child reading intervention in China. There is only one Chinese study included in this report that discussed interventions to promote parent-child reading (Feng et al., 2018). In this study, they addressed the issues of selecting appropriate books, low fathers' participation, and children's (0-3 years old) long-time use of digital devices - by designing interventions for both parents and children. Pre- and post-intervention tests and surveys were conducted, suggesting that parents have improved their choice of reading material and reading strategies. Fathers' participation has also increased, as well as the frequency of parent-child reading. Although interventions are proved to be effective, this study has not provided details of the intervention conducted.

Therefore, future studies investigating characteristics of effective parent-child reading interventions are imperative in China.

4. Conclusions, recommendations, and limitations

This report draws on a rapid review of international reviews and meta-analyses, as well as review of Chinese empirical studies, to synthesize and present research evidence on the effects of parent-child reading, the factors enhancing or constraining parent-child reading, and the characteristics of effective parent-child reading interventions.

There is strong evidence from international literature that parent-child reading has positive effects on young children's oral language skills, including expressive and receptive language abilities, listening comprehension, and vocabulary. Those positive effects are applicable to the Chinese language context and are relevant for the development of oral language skills among Chinese children aged 0-6 years old.

Parent-child reading also influences children's development of code-related skills (including print awareness, alphabet knowledge, and phonological awareness), although these are less discussed or emphasized by international studies. Code-related skills are more academic-oriented literacy skills. In this sense the literature based on western contexts prioritizes the joy of parent-child reading and the development of oral language development to code-related skills.

In drawing comparisons with reviews of the effects of parent-child reading based on English language, it remains uncertain how far this may be applicable to the Chinese language context, in terms of code-related language skills. It also remains unknown whether such effects of parent-child reading need to be promoted in the Chinese context, where there is a strong academic-oriented education culture in early childhood education, despite recent government policies trying to prevent schoolification in kindergartens (for children aged 3-6 years old).

The factors enhancing and constraining parent-child reading in home literacy environment according to international and Chinese literature are many and relate closely to the quality and quantity of parent-child reading in home literacy environment. Quantity links to the gender of parents (mothers are more frequently involved in parent-child reading than fathers), family SES (families from low SES backgrounds engage less frequently in parent-child reading activities), SEND (it is more difficult to conduct parent-child reading with children who have hearing impairments, ASD, or other special education needs or disabilities), and children's age (parents are less likely to engage younger children aged 0-3 years old in parent-child reading).

Quality is affected by the attitudes of parents (such as their understanding of the purpose of parent-child reading, their understanding of parenting, and their gendered understanding of child rearing), the materials used (the choice of materials can be gendered, and age-appropriate books are advocated by parents), the level and ways of interacting while reading together (interactive and dialogic reading is key, accompanied by effective techniques such as asking open questions), the strategies adopted (strategies need to scaffold children's learning), and the role of digital reading (digital reading reduces interactivity between parents and children).

The characteristics of effective interventions were oriented to promoting the quantity and quality of parent-child reading. They include short and intensive training, comfortable and relaxed contexts (preferably in family homes or local communities), flexible, adaptive, and culturally sensitive content (that fit the target families' diversities and complexities), clear and variable formats of activities and instructions, accessibility to (free) materials, and supportive, sympathetic, and

engaging staff members. Those characteristics can inform development of parent-child reading interventions in China, which are currently limited.

4.1 Recommendations for parents

Based on the above findings, this report makes the following recommendations to Chinese parents:

- Parent-child reading is a beneficial activity in home literacy environment to promote children's emergent literacy skills and particularly oral language skills. Parents are advised to conduct as frequent reading as possible with their children, starting from a very early age (0 years);
- Interactivity is key for high-quality parent-child reading. In order to improve interactivity during parent-child reading, ask children open questions (wh-questions), allow and encourage them to ask questions and express themselves, and use scaffolding strategies such as rhymes, toys, body languages, and play;
- Digital reading may reduce the interactivity during parent-child reading. Prioritize face-to-face reading activities over digital reading, unless a high level of interactivity can be assured;
- There is no research evidence on the differences between boys and girls in their language and literacy development. Parents should not treat boys and girls differently (e.g. providing them with different materials) in parent-child reading interactions;
- Fathers are encouraged to share childcare responsibilities and engage in parent-child reading with their children. Note though this is not because fathers and mothers have different impacts on children's development.

4.2 Recommendations for practitioners, local authorities, and policy makers

To support and promote the quantity and quality of parent-child reading, Chinese practitioners, local authorities, and policy makers could consider the following measures:

- Offer parents short and intensive training on interactive parent-child reading techniques, through home visits and/or in contexts such as local communities;
- Consider the diversity of families, parents, and children when designing the training, and involve parents in the design process whenever possible;
- Use a variety format of activities and instructions, including but not limited to videos, role play, coaching, and handouts;
- Provide free books to families, especially those from low SES who are unable to afford purchasing sufficient children's books.

4.3 Recommendations for future research

Finally, there are still many research gaps in knowledge about parent-child reading in China, especially when relevant empirical research is scarce in Chinese literature. Future research needs to be conducted in order to produce knowledge and empirical evidence about/on:

- The effects of parent-child reading on children's development of code-related skills in Chinese, and whether those effects should be promoted in the context of deschoolification in Chinese early childhood education;
- Parent-child reading in contexts beyond urban, affluent Chinese families. These include

rural areas, families that have children with SEND, families with low SES, and ethnic minority families;

- The development, implementation, and evaluation of effective parent-child reading interventions in China;
- Children's own experiences of and perspectives on parent-child reading (this aspect is also a research gap in international literature).

4.4 Limitations of this review

This review has its limitations. First, due to time constraints, we conducted a rapid review of reviews for international literature. Future reviews can draw on the richness of literature on parent-child reading and synthesize current knowledge in the field in further depth. Second, we are unable to review articles published in other languages than English or Chinese. As such, the effects of parent-child reading on children's language development in different language systems are not discussed.

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Appendix I: Quality assessment of the included Chinese empirical studies

Note: A four-point scale was adopted, with higher score indicating more relevance and higher methodological quality.

NO.	Reference	Type of study	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
C1	Lu et al., 2018	The mediation effect of home learning environment and digital exposure between family socio-economic status and children's (3-4) vocabulary. Surveys and PPVT-IV test were used.	3	3	3	3	YX	JG
C2.1	Cheng & Wang, 2015	The impact of digital books on parent-child (5-6) communications during shared reading. Qualitative study using observations.	4	4	4	4	YX	
C2.2	Jiang, 2012	Survey with parents on home reading environments for children (3-9).	2	2	1	1	YX	
C3	Kang & Wu, 2018	Survey with parents (both fathers and mothers) on current situations of parent-child (3-6) reading; and how public libraries can support parent-child reading.	4	2	3	3	YX	
C6	Hua, 2014	Survey with parents on children's (3-10) reading	2	2	3	3	YX	
W1	Liu, Wang, & Zhang, 2019	Observations of parent-child (5-6) reading using AR technology	3	2	1	2	YX	JG
W3	Sun & Zhang, 2017	Survey with parents on parent-child reading environments for 0-3 years olds.	4	3	3	3	YX	

NO.	Reference	Type of study	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
W4	Ma & Ming, 2020	Video analysis of types of scaffolding during parent-child (3-6) reading. Both reading in Chinese and English were videos by 8 families. The method was supported by semi-structured interviews with parents.	4	4	3	3	YX	
W5	Yao et al., 2017	Parent-accompanied reading and its impact on children's (3-7) early reading skills, using survey and Scales for 3-6 Child Development in China.	4	4	4	4	YX	
W6	Feng et al., 2018	Survey to understand current situations of parent-child (0-3) reading in Shenzhen city, followed by interventions with selected families for 1 year. Pre- and post-intervention tests with children using scales of children's emotional and social development (12-36 months) and 2-3 Child Behaviors.	4	4	4	4	YX	
W7	Chen & Chen, 2012	Observations of parent-child (3-6) reading in a public library, focusing on how parents ask questions during the reading.	4	3	3	3	YX	
W8	Wang & Fan, 2013	Survey and interviews with parents (of children aged 3-6) on their understanding of and attitudes towards parent-child reading in Jilin City.	4	3	3	3	YX	

NO.	Reference	Type of study	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
W9	Wang, 2014	Survey and interviews with parents on the resources used in parent-child (3-6) reading in Jilin City.	3	3	3	3	YX	
W10	Zhao, 2015	Tests of children's (0-6) reading skills, based on differences of how parents engage with reading.	3	3	2	3	YX	
W11	Xie, et al. 2020	Surveys with mothers on how their SES, education, and understanding of reading link to children's (0-5) reading environment at home.	3	3	2	3	YX	
W12	Chu et al., 2013	Survey with parents on situations of early reading environments at home for children (2-6) with hearing impairments.	3	2	2	3	YX	
W13	Sun, 2019	Survey with parents on situations of parent-child (3-6) reading in Changshu City, followed by experiments with 4 families to test how interactions between parents and children during reading affect children's abilities in repeating the stories.	4	3	3	3	YX	
W14	Pan, 2015	The modes of services on parent-child reading provided by professional bodies, using descriptions of three such bodies.	2	2	1	1	YX	
W15	Guo, 2017	Survey and interviews with parents on situations of home reading environment.	3	2	1	1	YX	

NO.	Reference	Type of study	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
W16	Yi & Wang, 2012	Survey with parents on situations of parent-child (below 7) reading.	3	2	2	3	YX	
W17	Cao, 2014	Situations of how public libraries promote parent-child reading, using data from the author's visits, communications with peers, visiting library websites, and online sources.	2	2	1	1	YX	
W18	Zhang, 2014	Situations of how public children's libraries provide services to support parent-child reading. Only experiences from the author themselves.	2	2	1	1	YX	
W19	Liang et al., 2019	Issues and challenges encountered by public local libraries in promoting parent-child reading. Unclear where the data come from.	2	2	1	1	YX	
W20	Wang & Wang, 2016	How social media accounts of online children's libraries promote parent-child reading. Data draw on analysis of those social media accounts.	2	2	1	1	YX	

Appendix II: Quality assessment of the included international reviews and meta-analyses

Note: A four-point scale was adopted, with higher score indicating more relevance and higher methodological quality.

NO.	Reference	Type of literature review	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
A1.1	Reich, Yau, & Warschauer, 2016	A qualitative synthesis of studies of tablet-based eReading with young children (0-5).	3	4	3	3	YX	JG
A6.1	Boyle, McNaughton, & Chapin, 2019	Quantitative meta-analysis of shared reading interventions with children with ASD.	3	4	4	4	YX	
A6.3	Cutler & Rob Palkovitz, 2020	A qualitative review of literature focusing on fathers' involvement in shared reading with their young children.	4	4	3	4	YX	
A6.4	Fitton, McIlraith, & Wood, 2018	Quantitative meta-analysis of the effectiveness of shared reading interventions with English learners.	4	4	4	4	YX	
A6.5	Zauche, et al., 2016	A comprehensive review on the influence of language nutrition.	4	4	4	4	YX	
A7.1	Steensel et al., 2012	Quantitative review of meta-analysis on the effectiveness of family literacy programmes.	4	3	3	3	YX	
A7.2	Compton-Lilly, Rogers, & Lewis, 2012	Review of diversity scholarship in family literacy research.	1	4	4	4	YX	

NO.	Reference	Type of literature review	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
E1.1	Xie, Chan, Ji, & Chan, 2018	Synthesis of RCT studies on the effects of parent-child book reading (PCBR) on psychosocial functioning of children and parents.	4	4	4	4	YX	
E1.2	Sloat et al., 2015	Review of qualitative and quantitative research on parent-mediate reading interventions with children 0-4.	3	3	4	3	YX	
E2.1	Tang, Lyu, & Peng, 2020	Meta-analysis of how parental SES influences parental involvement and the associated academic benefits for children.	2	3	4	4	YX	
E2.2	Saracho, 2017	Review article on parent-child shared reading, no mention of systematic review methods.	4	4	1	2	YX	
E5.1	Dowdall et al., 2020	Meta-analysis of RCTs on the effectiveness of interventions delivered to caregivers to improve quality of shared picture book reading.	4	4	4	4	YX	
E5.2	Barone et al., 2019	A meta-analysis of 30 interventions using shared book reading to support children's language development.	4	4	4	4	YX	
E5.3	Flack, et al., 2018	A meta-analysis of the population effect of shared storybook reading on word comprehension.	4	4	4	4	YX	

NO.	Reference	Type of literature review	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
E5.4	Noble et al., 2019	A meta-analysis of the impact of shared reading on children's language skills, only including studies that have a control group and a pre-post intervention design.	4	4	4	4	YX	
E6.1	Heidlage et al., 2020	A meta-analysis of the effects of parent-implemented language interventions on child linguistic outcomes.	3	4	4	4	YX	
E7.1	Rie, et al., 2017	A review of implementation quality of family literacy programmes and the effectiveness.	3	4	4	4	YX	
E8.1	Anderson, Anderson, & Sadiq, 2017	A review of empirical studies that have documented the impact of family literacy programmes on young children's (birth through 8) literacy development.	2	3	2	2	YX	
E8.3	Commeyras & Ketsitlile, 2013	A review of the literature on reading in Botswana primary schools	2	2	1	1	YX	
P1.1	Dong, Wu, Dong, & Tang, 2020	Meta-analysis of 59 studies on the effects of home literacy environment factors on children's reading comprehension.	4	4	4	4	YX	
P1.2	Roux, 2021	A review of family literacy programmes in South Africa.	3	1	2	2	YX	

NO.	Reference	Type of literature review	Relevance to research questions	Conceptual /theoretical framing	Methodological rigour, transparency, ethics	Reliability, validity and trustworthiness	Review	Check
P1.3	Compton-Lilly, Ellison, & Rogers, 2019	A discussion paper drawing on previous reviews and discussing how educators can support family literacy practices.	2	2	2	2	YX	
P1.4	Pluijm, Gelderen, & Kessels, 2019	Review of papers on the effectiveness of interventions for parents with less education, to support children's oral language development.	4	3	4	4	YX	
P1.9	Higgins & Katsipataki, 2015	Meta-analysis of quantitative literature about parental engagement and involvement with schools.	1	2	3	3	YX	
P7.1	Guiberson & Ferris, 2019	A scoping review on early language interventions for young dual language learners.	1	2	3	3	YX	
P7.3	Linder, Ramey, & Zambak, 2013	A review of literature on predictors of school readiness in literacy and mathematics.	2	3	3	3	YX	
H1	Dickinson, Griffith, Golinkoff, & Hirsh-Pasek, 2012	Review article on how reading books fosters language development	2	3	2	3	YX	JG

Appendix III: List of included articles

English articles (N=16)

No.	Article
P1.1	Dong, Y., Wu, S. X.-Y., Dong, W.-Y., & Tang, Y. (2020). The Effects of Home Literacy Environment on Children's Reading Comprehension Development: A Meta-analysis. <i>Educational Sciences: Theory & Practice</i> , 20(2), 63-82. https://doi.org/10.12738/jestp.2020.2.005
P1.4	Pluijm, M. v. d., Gelderen, A. v., & Kessels, J. (2019). Activities and Strategies for Parents With Less Education to Promote the Oral Language Development of Their Children: A Review of Empirical Interventions. <i>School Community Journal</i> , 29(01), 317-362.
A1.1	Reich, S. M., Yau, J. C., & Warschauer, M. (2016). Tablet-Based eBooks for Young Children: What Does the Research Say? <i>J Dev Behav Pediatr</i> , 37(7), 585-591. https://doi.org/10.1097/DBP.0000000000000335
A6.1	Boyle, S. A., McNaughton, D., & Chapin, S. E. (2019). Effects of Shared Reading on the Early Language and Literacy Skills of Children With Autism Spectrum Disorders: A Systematic Review. <i>Focus on Autism and Other Developmental Disabilities</i> , 34(4), 205-214. https://doi.org/https://doi.org/10.1177/1088357619838276
A6.3	Cutler, L., & Palkovitz, R. (2020). Fathers' Shared Book Reading Experiences: Common Behaviors, Frequency, Predictive Factors, and Developmental Outcomes. <i>Marriage & Family Review</i> , 56(2), 144-173. https://doi.org/10.1080/01494929.2019.1683119
A6.4	Fitton, L., McIlraith, A. L., & Wood, C. L. (2018). Shared Book Reading Interventions With English Learners: A Meta-Analysis. <i>Review of Educational Research</i> , 88(5), 712-751. https://doi.org/10.3102/0034654318790909
A6.5	Zauche, L. H., Thul, T. A., Mahoney, A. E. D., & Stapel-Wax, J. L. (2016). Influence of language nutrition on children's language and cognitive development: An integrated review. <i>Early Childhood Research Quarterly</i> , 36, 318-333. https://doi.org/10.1016/j.ecresq.2016.01.015
A7.1	Steensel, R., Herppich, S., McElvany, N., & Kurvers, J. (2012). How effective are family literacy programs for children's literacy skills? A review of the meta-analytic evidence. In: B. H. Waslk (ed), <i>Handbook of Family Literary</i> , 2nd edition. London: Routledge.
E1.1	Xie, Q., Chan, C. H. Y., Ji, Q., Chan, C. L. W. (2018). Psychosocial Effects of Parent-Child Book Reading Interventions: A Meta-analysis. <i>Pediatrics</i> , 141(4), 1-12. https://doi.org/10.1542/peds.2017-2675
E1.2	Sloat, E. A., Letourneau, N. L., Joschko, J. R., Schryer, E. A., & Colpitts, J. E. (2015). Parent-Mediated Reading Interventions With Children Up To Four Years Old: A Systematic Review. <i>Issues in Comprehensive Pediatric Nursing</i> , 38(1), 39-56. https://doi.org/10.3109/01460862.2014.983279
E5.1	Dowdall, N., Melendez-Torres, G. J., Murray, L., Gardner, F., Hartford, L., & Cooper, P. J. (2020). Shared Picture Book Reading Interventions for Child Language Development: A Systematic Review and Meta-Analysis. <i>Child Development</i> , 91(2), 383-399. https://doi.org/10.1111/cdev.13225

E5.2	Barone, C., Chambuleyron, E., Vonnak, R., & Assirelli, G. (2019). Home-Based Shared Book Reading Interventions and Children's Language Skills: A Meta-Analysis of Randomised Controlled Trials. <i>Educational Research and Evaluation</i> , 25(5-6), 270-298. https://doi.org/https://doi.org/10.1080/13803611.2020.1814820
E5.3	Flack, Z. M., Field, A. P., & Horst, J. S. (2018, 07/01/). The Effects of Shared Storybook Reading on Word Learning: A Meta-Analysis. <i>Developmental Psychology</i> , 54(7), 1334-1346. https://doi.org/10.1037/dev0000512
E5.4	Noble, C., Sala, G., Peter, M., Lingwood, J., Rowland, C., Gobet, F., & Pine, J. (2019). The impact of shared book reading on children's language skills: A meta-analysis. <i>Educational Research Review</i> , 28, https://doi.org/10.1016/j.edurev.2019.100290
E6.1	Heidlage, J. K., Cunningham, J. E., Kaiser, A. P., Trivette, C. M., Barton, E. E., Frey, J. R., & Roberts, M. Y. (2020). The effects of parent-implemented language interventions on child linguistic outcomes: A meta-analysis. <i>Early Childhood Research Quarterly</i> , 50, 6-23. https://doi.org/10.1016/j.ecresq.2018.12.006
E7.1	de la Rie, S., van Steensel, R. C. M., & van Gelderen, A. J. S. (2017). Implementation Quality of Family Literacy Programmes: A Review of Literature. <i>Review of Education</i> , 5(1), 91-118. https://doi.org/https://doi.org/10.1080/03004430.2016.1211119

Chinese articles (N=16)

No.	Article
C1	Lu, S., Guo W., Li, Y., Jiang, J., Wang, Z., & Xing, X. (2018). The Effect of Family Socioeconomic Status on Child Word Comprehension: Analysis of the Multiple Mediating Effects [In Chinese]. <i>Journal of Psychological Science</i> , 41(6), 1359-1365. DOI:10.16719/j.cnki.1671-6981.20180611
C3	Kang, C., & Wu, J. (2018). Research on Strategies of Parent-Child Picture Book Reading Promotion Service in Public Libraries: Based on the Status of Family Parent-Child Picture Book Reading in Yuelu District, Changsha City [In Chinese]. <i>Library Work and Study</i> , 11, 116-123. DOI:10.16384/j.cnki.lwas.2018.11.020
C6	Hua, B. (2014). Reading Cultivates Childiness: An investigation of 3-10 years olds' reading in Yangzhou, Jiangsu [In Chinese]. <i>Library Work and Study</i> , 223(9), 120-122. DOI:10.16384/j.cnki.lwas.2014.09.033
C2.1	Cheng, W., & Wang, J. (2015). Comparison of Reading Print and Digital Picture Books from the Perspective of Parent-child Shared-book Reading [In Chinese]. <i>Library and Information Service</i> , 59(22), 64-71. DOI: 10.13266 /j.issn.0252-3116.2015.22.010
W3	Sun, H., & Zhang, J. (2017). An empirical study on paren-child reading environment for young children in urban and suburban areas in Nanjing [In Chinese]. <i>Mass Reading</i> , 11, 42-45.
W4	Ma, L., & Ming, J. (2020). Types of Scaffoldings and Its Influence Factors on Shared-reading of Picture Books [In Chinese]. <i>Library Forum</i> , 40(3), 131-138.
W5	Yao, H., Li, J., Zhou, L., Wang, N., & Wang, R. (2017). Analysis of the effect of parental accompanying reading on early literacy ability of

	kindergarten children [In Chinese]. Chinese Journal of School Health, 38(4), 519-522. DOI: 10.16835 /j.cnki.1000-9817.2017.04.012
W6	Feng, C., Hu, X., Yang, J., Liu, Z., Zou, L., Niu, L., Min, J., & Shao, H. (2018). Study on the Status of Parent-child Reading and Its Relationship with Mental Health of Some Children aged 0~3 in Shenzhen [In Chinese]. Journal of Guizhou Medical University, 43(11), 1292-1296. DOI:10.19367/j.cnki.1000-2707.2018.11.010
W7	Chen, J., & Chen, H. (2012). How parents ask questions in early parent-child reading? An empirical study in Fujian [In Chinese]. Education Research Monthly, 10, 99-101.
W8	Wang, Y., & Fan, J. (2013). Research and recommendations of Parent-child reading concept [In Chinese]. Journal of Jilin Institute of Chemical Technology, 30(2), 42-45.
W9	Wang, Y. (2014). An Analysis of the Current Situation of Parent-Children Reading Material and Factors Related [In Chinese]. Journal of Jilin Institute of Chemical Technology, 31(4), 36-39.
W10	Zhao, S. (2015). Analysis of the Influence of Effect on Children's Early Reading Accompanied by Their Parents [In Chinese]. New Century Library, 7, 43-46.
W11	Xie, H., Li, J., Yang, Y., Wang, W. (2020). The Relationship between Family Income, Maternal Education Level and Literacy Environment for Infants and Toddlers: The Mediating Effect of Maternal Reading Beliefs [In Chinese]. Chinese Journal of Special Education, 236(2), 76-82.
W12	Chu, D., Zhang, L., & Luo, W. (2013). A Comparative Study of the Early Family Reading between Hearing-impaired and Normal-hearing Children [In Chinese]. Chinese Scientific Journal of Hearing and Speech Rehabilitation, 11(6), 422-424. doi:10.3969/j.issn.1672-4933.2013.06.004
W13	Sun, X. (2019). Primary Research on Parent-child Reading Behavior Pattern of Preschool Children [In Chinese]. Publishing Science, 27(1), 55-61.
W16	Yi, H., & Wang, Z. (2012). Analysis of Implementation of Parent-Child Shared Reading in Public Library [In Chinese]. Journal of Sichuan Library, 190(6), 91-94.

Appendix IV Overview of Chinese empirical studies

RQs	No.	Authors	Title	Year	Type	Methods	Sampling	Location	Category	Results
RQ 1	W5	Yao, et al.	Analysis of the effect of parental accompanying reading on early literacy ability of kindergarten children	2017	Quantitative	Survey & Scale (literacy section of the Chinese 3-6 Child Development Scale & story retelling)	Children: N=389 (213 boys, 176 girls); 3-7 years old; Mothers: 62.98% with high diploma or degree level qualifications, 19.28% with secondary school qualifications or below, 17.74% with postgraduate qualifications; Fathers: 66.58% with high diploma or degree level qualifications, 12.85% with secondary school qualifications or below, 20.57% with postgraduate qualifications	Shanghai	Impact	Children score higher in early reading skills if their parents participate in accompanied reading
RQ 1	W10	Zhao	Analysis of the Influence of Effect on Children's Early Reading Accompanied by Their Parents	2015	Randomised Control Trial (RCT)	Assessment on children's knowledge about a story, emotional identification, rote memory, and imagination	Children: N=96 (48 boys, 48 girls); 2-6 years old; grouped into nursery, low-grade, middle-grade, and high-grade classes; from a public and a private kindergarten Three categories:	N/A	Impact	Children aged 4-6 are less likely than those 2-4 to be influenced by the different categories of reading, showing a certain level of independent reading skills; Parent-child reading supports children's comprehension of the books, especially when parents engage with rich emotions.

							independent reading, reading with parents who have rich emotions, & reading with parents who have no emotions			
RQ 1	C2.1	Cheng & Wang	Comparison of Reading Print and Digital Picture Books from the Perspective of Parent-child Shared-book Reading	2015	Qualitative	Observations (15-20 minutes) of parent-child reading using print and digital books respectively	Children: 5-6 years old; N=19 (9 boys and 10 girls, including 2 pairs of twins); 17 mothers	N/A	Digital Reading/ Process	Digital reading is less interactive than reading with print books; The interactions are important in developing children's language skills.
RQ 1	W7	Chen & Chen	How parents ask questions in early parent-child reading? An empirical study in Fujian	2012	Qualitative	Observations	18 parent-child dyads (children aged 3-6 years old, half boys and half girls), with high SES	Fuqing, Fujian	Process	During parent-child interactions, parents asked a lot of questions, but those questions are random and lack purposes; The interaction focuses on the book rather than the child, reflecting an outcome-oriented purpose of reading.
RQ 2	W8	Wang & Fan	Research and recommendations of Parent-child reading concept	2013	Mixed	Survey (on attitudes towards parent-child reading); Interviews (with selected parents)	Parents of children aged 3-6 years old: N=474 (their children attend kindergartens charging different levels of fees)	Jilin	HLE	Parents focus much on outcomes such as gaining knowledge and intellectual development, ignoring the social and emotional benefits.
RQ2	W9	Wang	An Analysis of the Current Situation of Parent-Children Reading Material and Factors Related	2014	Mixed	Survey (on the materials available in parent-child reading);	Parents of children aged 3-6 years old: N=474 (their children attend kindergartens charging different	Jilin	HLE	The materials used by parents in parent-child reading are influenced by children's gender, age, family SES, and parent education and occupations.

						Interviews (with selected parents)	levels of fees)			
RQ 2	W16	Yi & Wang	Analysis of Implementation of Parent-Child Shared Reading in Public Library	2012	Quantitative	Survey	Parents of children aged below 7: N=2780	Chongqing	HLE	Parents have misunderstanding of parent-child reading; Parents invested a lack of time; Inappropriate choices of reading materials; Inappropriate reading strategies.
RQ 2	W12	Chu, Zhang, & Luo	A Comparative Study of the Early Family Reading between Hearing- impaired and Normal-hearing Children	2013	Quantitative	Survey (on family reading in early childhood)	Parents (N=109) of children with hearing impairments (N=67) and without (N=42), aged 2-6 years old	Beijing	HLE & SEND	Children with hearing impairments (CHI) start reading later; Parental choices of reading materials for CHI are limited; Parents of CHI need more guidance on instructing children's reading.
RQs 1 & 2	W4	Ma & Ming	Types of Scaffoldings and Its Influence Factors on Shared-reading of Picture Books	2020	Qualitative	Video observations on parent- child reading interactions using English and Chinese picture books; interviews with parents on factors affecting scaffoldings	8 families with children aged 3-6 years old	N/A	Process/HLE	Multiple strategies of scaffolding were used by parents. The strategies are influenced by HLE including parents' strategies, self-efficacy, parenting style, and children's language and comprehension skills.
RQs 1 & 2	W13	Sun	Primary Research on Parent-child Reading Behavior Pattern of Preschool	2019	Quantitative	Survey; Observations; Assessments	Parents of children aged 3-6 years old: N=300 (138 boys, 162 girls); 68% with high diploma or	Changzhou	Process/HLE	Parents mostly find parent-child reading positive, but have difficulties in choosing the appropriate reading modes;

			Children				degree-level qualification			<p>Different reading modes affect children's abilities to retell the story;</p> <p>Parent education, length of reading, and the age of when reading starts have impacts on children's story retelling abilities.</p>
RQs 1 & 2	C6	Hua	Reading Cultivates Childiness: An investigation of 3-10 years olds' reading in Yangzhou, Jiangsu	2014	Quantitative	Survey: attitudes, frequency, etc.	Parents of children 3-10 years old: N=480	Yangzhou (Urban)	HLE	<p>Children's reading time decreases as they grow older, possibly due to more time spent on extracurricular activities.</p> <p>Parent-child reading time is limited due to other commitments (e.g. work).</p> <p>Limited expenditure on purchase of books.</p>
RQs 1 & 2	W3	Sun & Zhang	An empirical study on parent-child reading environment for young children in urban and suburban areas in Nanjing	2017	Quantitative	Survey: social and home environments (including parents' attitudes, frequency of reading, and choices of materials).	Parents of children aged 0-3 years old: N=327 (141 boys, 186 girls); 46% with high diploma or degree level qualifications, 32% with secondary school qualifications, and 14% with postgraduate qualifications; mostly workers or self-employed.	Najing (Suburb)	HLE & SES	<p>Limited public services to support parent-child reading.</p> <p>Lack of an appropriate HLE, and parents do not have habits of reading themselves.</p> <p>Lack of guidance on the choice of reading materials and the process of reading.</p>
RQs 1 & 2	W11	Xie, et al.	The Relationship between Family Income, Maternal Education Level and Literacy	2020	Quantitative	Survey (Parental Reading Beliefs Inventory,	Mothers of children aged 0-5: N=259 (116 boys, 143 girls)	Beijing	HLE & SES	<p>Family income and mothers' education can predict the HLE for young children. This is connected by mothers' reading beliefs;</p>

			Environment for Infants and Toddlers: The Mediating Effect of Maternal Reading Beliefs			PRBI; reading environment survey)				Family income does not predict parent-child reading activities; but mothers' education can, and it also connects with mothers' reading beliefs.
RQs 1 & 2	C1	Lu et al.	The Effect of Family Socioeconomic Status on Child Word Comprehension: Analysis of the Multiple Mediating Effects	2018	Quantitative	Surveys: 1. Family information, including SES and exposure to digital media; 2. Family reading environment (Umek, 2005); 3. The Peabody Picture Vocabulary Test, PPVT-IV	Children: N=278 (130 boys, 141 girls, 7 unknown); 3-5 years old; Parents: 2/3 with a bachelor or above; 58% mothers and 79.5% fathers earning over 6000 RMB.	Beijing (Urban)	SES; Digital Reading	Children's word comprehension is positively affected by home literacy environment (HLE), and HLE is influenced by SES; Digital use is not a mediator between SES and children's word comprehension, but is between SES and HLE; Digital use and HLE are mediators between mothers' education and children's word comprehension.
RQs 1, 2 & 3	W6	Feng et al.	Study on the Status of Parent-child Reading and Its Relationship with Mental Health of Some Children aged 0~3 in Shenzhen	2018	Quantitative/ RCT	Survey (on frequency of parent-child reading, content, and children's interests); Interventions (including guidance for parents and parent-child reading on children); Scales pre-	Parents of children aged 0-3 years old: N=1064 (558 boys, 506 girls); Intervention groups of families: N=140 (with children aged 1-2 years old)	Shenzhen	Impact, HLE, & Intervention	The interventions improved parents' choice of reading materials and fathers' participation; The interventions also improved children's social and emotional development in certain aspects.

						and post-intervention (Scale for Chinese Children's Social and Emotional Development Aged 12-36 months; Scale for Chinese Child Behaviours Aged 2-3)				
RQs 1, 2 & 3	C3	Kang & Wu	Research on Strategies of Parent-Child Picture Book Reading Promotion Service in Public Libraries: Based on the Status of Family Parent-Child Picture Book Reading in Yuelu District, Changsha City	2018	Quantitative	Survey: 37 questions on parents' understanding of parent-child reading, choices of books, location and time arrangements, strategies of instructions, effects, and social support	Parents of children (3-6 years old): N=363 (199 fathers, 164 mothers); 17.36% below secondary school qualification; 30.85% with high diploma; 38.02% with a bachelor; 13.77% with postgraduate qualifications	Changsha (Urban)	HLE	<p>Parents recognize the importance of parent-child reading on developing good reading habits and parent-child relationships, developing children's observation, memorizing, and imagination skills, and developing language skills such as listening, speaking and reading.</p> <p>There are issues in regard to frequency and strategies in parent-child reading.</p> <p>Public libraries can play a role in promoting and supporting parent-child reading.</p>

Appendix V: Overview of international reviews and meta-analyses

RQs	No.	Authors	Title	Year	Type	Period	No. of articles	Sampling	Category	Results	Limitations
RQ 1	E5.4	Noble et al.	The impact of shared book reading on children's language skills: A meta-analysis	2019	Quantitative meta-analysis	1880-2017	54	Children aged below 7 (typically developing)	Impact	<p>While there is an effect of shared reading on language development, this effect is smaller than reported in previous meta-analyses;</p> <p>The meta-analysis also indicates no differences between type of language outcome, no effect of SES, and no significant effect at follow-up;</p> <p>Current evidence for the effectiveness of shared reading interventions is much weaker than was previously thought and may reflect non-specific effects.</p>	<p>Higher dosage shared reading interventions are needed to further evidence the impact;</p> <p>Longitudinal studies needed;</p> <p>Using active control groups;</p> <p>Inclusion of a range of outcome variables and measurements;</p> <p>Inclusion of children from a range of SES backgrounds.</p>
RQ 3	E1.1	Xie et al.	Psychosocial Effects of Parent-Child Book Reading Interventions: A Meta-analysis	2018	Quantitative meta-analysis	1999-2017	18	Children aged 0-3 (n=1856) & 3-6 (n=1408); 44% were members of ethnic minorities, majority in at-risk situations	Interventions	<p>The length of the study and dosage of PCBR intervention were not predictive of psychosocial effectiveness;</p> <p>Shared reading as a meaningful interaction between children and parents, rather than specific reading techniques, might be the key to the positive psychosocial effects of PCBR interventions.</p>	<p>PCBR is not only a process of communicating information or learning skills but also a socially created, interactive process. Using validated scales to assess its effects on parent-child relationships may improve our</p>

											understanding about the dynamics of PCBR interactions; Only a limited number of the reported PCBR interventions involved fathers.
RQ 3	E1.2	Sloat et al.	Parent-Mediated Reading Interventions With Children Up To Four Years Old: A Systematic Review	2015	Quantitative	1996-2000	4	Children aged under 4 (US) with low SES backgrounds	Intervention	<p>Four studies clearly demonstrate that interventions aimed at mediating an increase in the amount of time parents spend reading interactively with their children do yield positive and highly effective results;</p> <p>Paediatric primary care providers and clinic-based healthcare providers can deliver simple and inexpensive yet highly effective emergent literacy reading interventions aimed at increasing time parents spend reading interactively with children 4 years of age and under;</p> <p>The provision of reading materials along with support materials and encouragement from paediatricians has the potential to be an effective intervention.</p>	Few studies were included, all from the US
RQ 3	E5.1	Dowdall, et al	Shared Picture Book Reading Interventions	2020	Quantitative meta-analysis	1988-2018	20	Children aged 0-5	Interventions	Shared reading interventions targeted at parents have a small positive effect on both the expressive (d = 0.41) and receptive language (d = 0.26) of children;	The paucity of follow-up assessment of children (beyond immediate post

			ons for Child Language Development: A Systematic Review and Meta-Analysis						<p>Book-sharing interventions can be equally effective when targeted at caregivers with low and high levels of education;</p> <p>Young and older preschool children benefit equally from these interventions;</p> <p>There is a dose effect, with brief interventions being unlikely to result in improvements in children's language abilities.</p>	<p>interventions assessments);</p> <p>Limited report on implementation fidelity;</p> <p>Wide range of languages measures used in different studies;</p> <p>Clinical and statistical heterogeneity were present within included studies.</p>	
RQ 3	E5.2	Barone et al.	Home-based shared book reading interventions and children's language skills: a meta-analysis of randomized controlled trials	2019	Quantitative meta-analysis	1988-2018	19	Children aged 0-6 (typically develop)	Interventions	<p>The mean effect size of SBR interventions not involving dialogic reading methods (0.06) is very close to a null effect; therefore dialogic reading is an effective approach to fostering language development;</p> <p>However, dialogic reading is less effective among low-socioeconomic groups;</p>	<p>Experiments carried out on disadvantaged groups more often target younger children and more often have immediate post-tests;</p> <p>Limited range of outcomes measured in existing RCTs. The dominant focus is on receptive or expressive vocabulary;</p>

											The evidence outside the US or other Anglo-Saxon countries is just too scant.
RQ 3	E7.1	Rie, Steensel, & Gelderen	Implementation quality of family literacy programmes: a review of literature	2017	Mixed	2000-2013	46	Children with preschool and primary school ages	Intervention	<p>Limited research on implementation quality of family literacy programmes;</p> <p>Certain aspects of receipt and enactment received more attention than others (no assessment of child outcomes);</p> <p>Researchers usually observed an increase of targeted behaviours during programme activities within the intervention period and higher frequencies of targeted behaviours in experimental vs control groups;</p> <p>Parents overall increased their use of the learned techniques outside of programme time and also applied such techniques more often than their control counterparts.</p>	<p>More frequent use of direct measures of behaviour in addition to self-reports needed;</p> <p>More comprehensive studies of implementation effects;</p> <p>Limited studies on long-term effects on enactment;</p> <p>Difficult to draw conclusion on the relationship between programme implementation quality and parental SES.</p>
RQs 1 & 2	A6.5	Zauche et al.	Influence of language nutrition on children's language and	2016	Integrated review	1990-2014	103	Children aged 0-3	Impact/HLE	<p>This review highlights the importance of language nutrition for a child's developmental and educational trajectory;</p> <p>Parents and caregivers have the potential and the power to mitigate the influences of various</p>	This review looked specifically at language and cognitive development of children and did not consider the

			cognitive development: An integrated review						<p>circumstances that threaten to limit their child's success simply by making their child their conversational partner early and often;</p> <p>The use of imperatives and other types of directives that change the focus of child's attention were found to be negatively associated with children's language development;</p> <p>Social interaction is an essential ingredient to language nutrition;</p> <p>In all of the studies that were reviewed, less than 10% considered the contributions of fathers to their child's early language and learning environment.</p>	<p>influences of language nutrition on children's socioemotional development, self-regulation, and other developmental domains.</p>	
RQs 1 & 2	A6.1	Boyle, McNaughton, & Chapin	Effects of Shared Reading on the Early Language and Literacy Skills of Children With Autism Spectrum Disorders : A Systematic Review	2019	Quantitative meta-analysis	2004-2017	11	Children aged 3-14	Impact/SE ND	<p>Shared reading activities can have a positive impact on early language and literacy skills for children with ASD;</p> <p>Positive effects were observed across a variety of ages, indicating the impact of shared reading interventions was similar for participants ranging in age from 2 to 14 years;</p> <p>The impact of shared reading was most clearly observed on outcome measures of listening comprehension, participation (noncommunicative), and combination outcomes that included communicative and</p>	<p>Effects of maintenance and generalization not clear;</p> <p>Limited studies included after quality review.</p>

										noncommunicative acts; small effect sizes were observed for measures of expressive communication.	
RQs 1 & 2	A6.4	Fitton, McIlraith, & Wood	Shared Book Reading Interventions With English Learners: A Meta-Analysis	2018	Quantitative meta-analysis	1981-2017	54	Children aged below 12, at least 80% English learners (N=3,989; average age=6.33)	Impact/EL	<p>Shared book reading interventions may facilitate modest amounts of growth in EL's language and literacy skills. The effect sizes were robust to several design characteristics and were moderated only by children's developmental status as typical or disordered;</p> <p>Children with developmental disorders exhibited smaller amounts of growth from shared reading interventions than children who were typically developing.</p>	<p>EL participants are mostly Spanish natives and from low SES backgrounds;</p> <p>Lack of details or rigor in some included studies.</p>
RQs 1 & 2	E5.3	Flack, Field, & Horst	The effects of shared storybook reading on word learning: a meta-analysis	2018	Quantitative meta-analysis	1990-2017	38	Children aged 2-10	Impact	<p>Children were able to comprehend just under half of the new words to which they were exposed in shared reading;</p> <p>Reading style and use of dialogic techniques (such as pointing, providing definitions or asking children questions as you read) significantly influences the number of new words children learn from shared storybook reading;</p> <p>Increasing the number of tokens provides children with greater opportunity to learn and consolidate new words;</p> <p>Children's word comprehension does not appear to be influenced by whether a story is read by a familiar teacher or a researcher the child has</p>	N/A

										<p>just met;</p> <p>Age impacts are trivial in word learning skills;</p> <p>Both the number of new words introduced and how often they are heard are clearly important. The effects of story repetitions, word novelty and word type are more variable.</p>	
RQs 1 & 2	P1.1	Dong et al	The Effects of Home Literacy Environment on Children's Reading Comprehension Development: A Meta-analysis	2020	Quantitative meta-analysis	1998-2018	59	Children aged 5-12	Impact/HLE	<p>A positive moderate correlation between HLE factors (including parent literacy involvement) and children's reading comprehension;</p> <p>None of the potential moderators (grade, sampling area, HLR types, and parental activities involvement approach) showed significant effects in the relationships between HLE and reading comprehension;</p> <p>PLI had a significantly more positive relationship with children's reading comprehension than HLR had.</p>	<p>Different measurements/ operationalisation of variables across studies;</p> <p>Studies with participants with physical disabilities not included.</p>
RQs 1 & 2	A1.1	Reich, Yau, & Warschauer	Tablet-Based eBooks for Young Children: What Does the Research Say?	2016	Qualitative synthesis	Before 2016	11	Children aged 0-5	Digital reading	<p>eReading has equivalent or better benefits on preschool-aged children only when it is well designed with scaffold learning;</p> <p>Children younger than 3 years old benefit more from face-to-face interactions than screen time.</p>	No studies on children with non-typical development identified;
RQs 1 & 2	A6.3	Cutler & Palkovitz	Fathers' Shared Book	2020	Qualitative review	Before 2018	N/A	Children aged up to 4	Process/Father	Fathers' engagement in shared book reading represents a sub-category of father-child relationship quality that	Most of the studies addressing early

			Reading Experiences: Common Behaviors, Frequency, Predictive Factors, and Developmental Outcomes							<p>contributes to variability in child development outcomes;</p> <p>Preliminary evidence suggests that stylistic differences in mothers' and fathers' approaches to and behaviors during shared book reading may contribute unique variability to children's emerging linguistic abilities;</p> <p>Predictive factors influencing father-child reading include the culture and ethnicity of fathers, fathers' linguistic ability, sex of the child, and book genre.</p>	<p>childhood shared book reading, unless specifically designed to investigate low-income or minority populations, focused on middle-upper class Caucasian fathers;</p> <p>Existing father-child shared reading literature is primarily focused on dyads consisting of fathers and their young (pre school) children.</p>
RQs 1 & 3	E6.1	Heidlage et al.	Quarterly The effects of parent - implemented language interventions on child linguistic outcomes : A meta-analysis	2020	Quantitative meta-analysis	1992-2016	25	Children aged 0-8	Impact/Intervention	<p>Across populations and types of outcome measures, the pooled effect size estimates indicate a positive relationship between parent-implemented intervention (including shared book reading) and child expressive language outcomes;</p> <p>Positive relationship between parent-implemented intervention and expressive vocabulary for interventions that taught specific strategies in a shared book reading context;</p>	<p>Limited information on training provided to parents or parent implementation;</p> <p>Fewer than half of studies (28%) assessed the fidelity of parents' implementation of the language intervention and only five</p>

										Shared reading intervention improves expressive language outcomes for children with primary LI and at-risk for LI due to low SES, but the effects for children with or at-risk for ASD were relatively smaller.	quantified parents' fidelity; Only one study included children with or at-risk for developmental disabilities and one study included children with hearing impairment; No identified studies examined the long-term effects of early language and communication intervention including parents.
RQs 1 & 3	A7.1	Steensel, et al.	How effective are family literacy programs for children's literacy skills? A review of the meta-analytic evidence	2012	Quantitative meta-analysis	1990-2010	8	Covering children aged 2-6 and beyond	Impact/Intervention	On the whole, the outcomes paint a fairly optimistic picture of program effects: All reviewers except Piasta and Wagner (2010) find overall mean effect sizes that are positive and statistically significant ; There are substantial differences in mean effect sizes. With the exception of Van Steensel, et al. (2011), the reviews that combine a focus on specific types of programs with a focus on specific categories of skills show larger mean effect sizes than the reviews that either include a large variety of programs in	N/A

										<p>combination with very specific categories of effect measures or focus on a specific type of intervention and base their conclusions on an aggregate of diverse effect measures;</p> <p>Moderator analyses also suggest the effects of children's age, types of effect measures, program setting, and (non)standardisation of effect measures.</p>	
RQs 1, 2, & 3	P1.4	Pluijm, Gelderen & Kessels	<p>Activities and Strategies for Parents With Less Education to Promote the Oral Language Development of Their Children: A Review of Empirical Interventions</p>	2019	Mixed	2000-2016	28	Children aged 2-8	Impact/SES	<p>The use of talk and play activities is most effective for parents with less education;</p> <p>Less evidence was found for the effectiveness of shared reading for parents with less education and their children;</p> <p>Delivery seems most effective when it is flexible and adapts to specific backgrounds and personal experiences of families, especially when interventions are adapted to activities that occur in families' homes;</p> <p>Delivery of activities and strategies can be more effective for parents with less education when parents and children are involved in the training.</p>	<p>More research specifically target group of parents with less education;</p> <p>Limited research on parental literacy skills as an indicator to define the target group;</p> <p>It is important to pay attention to precise descriptions of the investigated activities and strategies.</p>