



## **The effect of free play in preschoolers' language improvement: a systematic review**

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### **Abstract**

The main purpose was twofold: systematically gather and analyze the existing research literature in order to synthesize and critically evaluate the available evidence to determine the extent to which free play interventions contribute to improving language skills in preschool-aged children, and provide recommendations for practitioners and policymakers regarding the potential benefits of incorporating free play interventions into early childhood education programs to support language development. A systematic review of relevant articles was carried out using two electronic databases until October 1, 2022. From 674 studies, 8 were included in the qualitative synthesis. Most studies were observational and video observation or recording-based. Free play resulted effective for language development. Self-talk resulted both particularly relevant to develop language skills and age-dependent. Teachers should consider free-play settings for fueling language improvements. For improving these results, teacher should consider self-selected activities than alone, free-play than structured play, and during complex non-verbal cooperation contexts.

**Keywords:** unstructured play; language; cognitive; communication; development

### **1. Introduction**

Language development in early childhood is a complex and dynamic process that involves many different aspects of language, cognitive, and social development. Children's language skills during this period lay the foundation for later language development and academic success (Taylor & Boyer, 2020). Unfortunately, children who struggle with language and communication may have difficulty expressing their emotions and understanding the emotions of others, which can lead to frustration, inability to communicate needs, behavior problems and tendency to peer rejection (Hagen, 2018; Parsons et al., 2019). Likewise, young children who have difficulty engaging in social interactions and playing with peers may become isolated and withdrawn, leading to negative impacts on their social and emotional development (Parsons et al., 2019). Additionally, recent research has shown that play-based interventions that include a language component can be effective in improving language and communication skills in children with language delays or disorders (Kuhaneck et al., 2020). These interventions can also be beneficial for typically developing children who may benefit from additional language practice and support.

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In the context of language development, following the Vygotsky theory (Duncan & Tarulli, 2003; Nicolopoulou, 1993) proposed that language emerges through social interaction and is acquired through communicative exchanges with more knowledgeable others, such as parents, teachers, and peers. He also emphasized the importance of play in supporting children's language development, as it provides opportunities for children to engage in language-rich interactions with others and to practice using language in a meaningful context. Free play interventions that include a language component can be effective in improving not only play skills but also language and communication skills in children. Play-based interventions have been shown to be a useful tool for enhancing children's cognitive, social, and emotional development (Aras, 2016).

Developmentally appropriate programs in early childhood education often include a mix of structured and unstructured play activities that are carefully planned to promote learning and development across multiple domains, including language, social, emotional, and cognitive development (Kelly-Vance & Ryalls, 2020). These programs may also incorporate teacher-guided activities that promote learning and development, such as circle time, story time, and art activities. The goal of developmentally appropriate programs in early childhood education is to provide children with a safe, supportive environment that encourages exploration, experimentation, and learning through play (Ledford & Pustejovsky, 2023). Play is self-initiated and voluntary, intrinsically motivated and process-oriented where children focus on the activity itself, rather than the outcome or end result. Play is a critical component of children's development and learning. Research has shown that play promotes the development of a range of skills and abilities that cannot be taught through direct instruction alone (Stagnitti et al., 2016). These programs are designed to help children develop the skills and knowledge they need to succeed academically and socially as they grow and develop (Wasik & Hindman, 2023). By promoting play-based learning, developmentally appropriate programs in early childhood education can help children develop a love of learning that lasts a lifetime.

Language development during free play tasks in early childhood can be significant and beneficial for children. Play-based learning provides a meaningful context for language use and interaction, allowing children to practice and develop their language skills in a natural and engaging way (Brodin & Renblad, 2020). Play-based learning activities can expose children to a range of new vocabulary words and concepts, such as naming objects, describing actions, and identifying colors, shapes, and sizes (Bauminger-Zviely et al., 2020). In this context, these activities can help children become more aware of the features of language, such as sounds and syllables, and develop their phonological and phonemic awareness. Incorporating free play learning activities into early childhood education can have long-term benefits for children's language skills such as vocabulary acquisition (Yang et al., 2021), grammar development (Colliver et al., 2022), conversation skills (Yang et al., 2021), metalinguistic awareness (White et al., 2021) and pragmatic language skills (Hanish et al., 2022).

Language is clearly correlated with play (Conner et al., 2014). As children's language skills develop between the ages of 24 to 35 months, their



play also becomes more complex. At this age, children begin to engage in more sophisticated forms of play, such as associative play and cooperative play, which involve more interaction with other children and require greater levels of language skills (Brodin & Renblad, 2020). During associative play, children begin to interact more with each other, although they may not be playing the same game or using the same toys. They begin to share materials, take turns, and engage in simple conversations with each other. This type of play requires children to use language to communicate with their peers and negotiate the rules of the game (Jarvis et al., 2014). As children progress into cooperative play, they begin to work together to achieve a common goal.

The main objective was twofold, systematically gather and analyze the existing research literature in order to synthesize and critically evaluate the available evidence to determine the extent to which free play interventions contribute to improving language skills in preschool-aged children and provide recommendations for practitioners and policymakers regarding the potential benefits of incorporating free play interventions into early childhood education programs to support language development.

## **2. Methodology**

### *2.1. Experimental Approach to the Problem*

This systematic review was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021) and guidelines for performing systematic reviews in sport sciences (Rico-González et al., 2022).

As information sources, systematic search of two databases (Web of Sciences and PubMed) was performed to identify articles published prior to October 1, 2022.

### *2.2. Search strategy*

The PICO (Patient, Problem, or Population – Intervention or Exposure – Comparison, Control, or Comparator – Outcome[s]) design was used to provide an explicit statement of the question. The authors were not blinded to journal names or manuscript authors. In Web of Science the language filter was applied to English and Spanish. The following search terms were used: (preschool\* OR kindergarten) AND ("physical education").

### *2.3. Eligibility criteria*

The authors independently completed the search and compared results to ensure that the same articles were identified. Then, identifying information from the papers (title, authors, date, and database) was downloaded and transferred into an Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and duplicates were removed. The remaining articles were independently screened for meeting inclusion and exclusion criteria (Table 1). Moreover, relevant articles not previously identified were also screened in an identical manner and further studies that complied with the inclusion-exclusion criteria were included and labeled as “included from external sources”.

Table 1  
*Inclusion/exclusion criteria*

<b>Item</b>	<b>Inclusion</b>	<b>Exclusion</b>
Population	Preschool children	Non preschool children
Intervention or Exposure	Preschool children participating in physical education sessions with free-play activities	Children non participating in physical education classes
Comparator	-	-
Outcome[s]	Outcomes about language skills	Results that do not assess language skills
Other criteria	Peer reviewed, original, full-text studies written in English or Spanish.	Written in another language or non-peer reviewed original full text studies.

#### 2.4. *Data extraction*

Data extraction was prepared using an Excel spreadsheet in accordance with the Cochrane Consumers and Communication Review Group's data extraction template (Group, 2016). The spreadsheet was used to assess inclusion and exclusion requirements for all selected studies. The process was independently conducted by the authors. Any disagreement regarding study eligibility was resolved in a discussion. Full text articles that were excluded from the analysis were recorded with reasons for exclusion. All records were stored in the spreadsheet.

#### 2.5. *Extracted information and variables of interest*

A list of the articles included in the data sheet and qualitative synthesis is reported in Tables 3. The following information was extracted from each article: the aim of the study, characteristics of the sample (n° of children, n° of schools involved in the research, country, mean age, level and grade), group differences (in the case of randomized controlled trials), type of study, duration, the name of the test, variables evaluated, outcomes, and conclusions.

#### 2.6. *Assessment of study methodology*

On the one hand, the methodological quality was assessed using methodological index for non-randomized studies (MINORS) (Slim et al., 2003). The MINORS scale is a list that contains 8 essential points and it is expanded to 12 points when the studies to be treated are comparative. In this case, it was assessed considering 9 items (out of 18 points) due to the non-possibility to applicate (NA) three of them. The score that each section receives can be from 0 to 2, depending on the quality obtained by each point. The MINORS checklist asks the following information (2 = High quality; 1 = Medium quality; 0 = Low quality).

On the other hand, the Physiotherapy Evidence Database (PEDro) scale was used to assess the methodological quality of pre-test post-test studies with experimental (EXP) group and control (CON) groups randomly selected. The scale scores the internal study validity in a range of 0 (low



methodological quality) to 10 (high methodological quality). The score that each section receives can be from 0 (“no”) to 1 (“yes”), depending on the quality obtained by each point. Ten items are measured in the scale.

### 3. Findings

#### 3.1. Identification and selection of studies

A total of 674 original articles were initially retrieved, of which 172 were duplicates. Thus, a total of 502 unique articles were identified. After checking titles and abstracts, 118 articles were excluded because they not met inclusion criteria number five. The full text of the remaining 384 articles was then analyzed; 46 articles were excluded because they did not meet inclusion criteria number one, 269 articles were excluded because they did not meet inclusion criteria number two, and 61 articles were excluded because they did not meet exclusion criteria number four. Thus, a total of 8 articles met all the inclusion criteria and were included in the final qualitative synthesis (Figure 1).

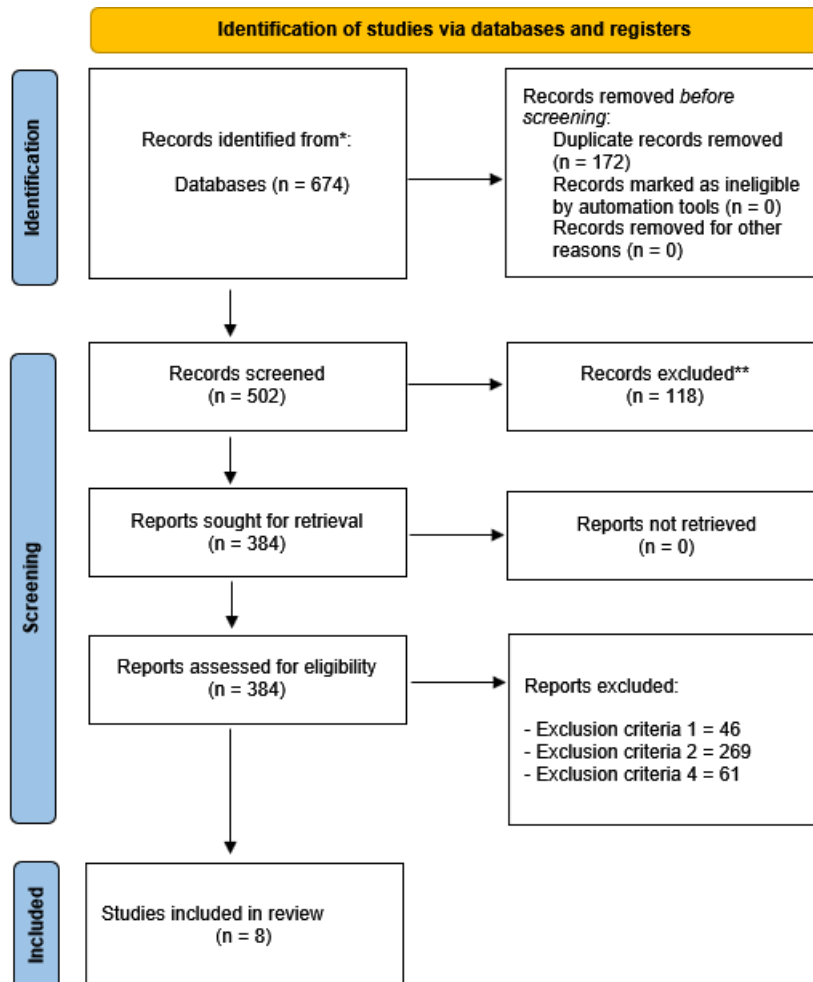


Figure 1. Flow diagram of the study

### 3.2. Quality assessment

The quality assessment for this systematic review can be found in Table 2.

Table 2.  
*Methodological assessment of the included studies.*

Reference	1	2	3	4	5	6	7	8	9	10	11	12	Score
Using MINORS Scale													
Hart & Risley (1974)	2	2	2	2	2	2	0	0	-	-	-	2	14/18
Winsler et al. (2000)	2	2	2	2	2	2	0	0	-	-	-	2	14/18
Fekonja et al. (2005)	2	2	2	2	2	2	0	0	-	-	-	2	14/18
Chen et al. (2009)	2	2	2	2	2	2	2	0	-	-	-	2	16/18
Piker (2013)	2	2	2	2	2	2	0	0	-	-	-	2	14/18
Vriens-van Hoogdalem et al. (2016)	2	2	2	2	2	2	0	0	-	-	-	2	14/18
Schwartz et al. (2021)	2	2	2	2	2	2	2	0	-	-	-	2	16/18
Using PEDro Scale													
Kirk et al. (2014)	1	1	1	0	0	0	1	1	1	1	-	-	7/10

**Note:** NA = non applicable. **The MINORS checklist** (2 = High quality; 1 = Medium quality; 0 = Low quality): Clearly defined objective (item 1); Inclusion of patients consecutively (item 2); Information collected retrospectively (item 3); Assessments adjusted to objective (item 4); Evaluations carried out in a neutral way (item 5); Follow-up phase consistent with the objective (item 6); Dropout rate during follow-up less than 5% (item 7); Prospective estimation of sample size (item 8); Adequate control group (item 9); Simultaneous groups (item 10); Homogeneous starting groups (item 11); and, appropriate statistical analysis (item 12). **The PEDro checklist** (0 = No; 1 = Yes): subjects were randomly allocated to groups (in a crossover study, subjects were randomly allocated an order in which treatments were received) (item 1); allocation was concealed (item 2); the groups were similar at baseline regarding the most important prognostic indicators (item 3); there was blinding of all subjects (item 4); there was blinding of all therapists who administered the therapy (item 5); there was blinding of all assessors who measured at least one key outcome (item 6); measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups (item 7); all subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by "intention to treat" (item 8); the results of between-group statistical comparisons are reported for at least one key outcome (item 9); the study provides both point measures and measures of variability for at least one key outcome (item 10).



### 3.3. Study characteristics

The characteristics of studies were extracted and clustered into Tables 3.

Reference	Aim	Sample	Intervention				Results		Highlights
			Group differences	Type of study	Duration	Test instrument	Variables	Results	
Hart & Risley (1974)	Ecologically investigating “incidental teaching” (viz., within-free play teaching) effects on language development in disadvantaged preschool children	N° children: 12 Schools: 1 Country: USA (Mean age 4 yrs) Level: preschool Grade: n/a	EXP (n = 12)	Observational study	8 mos	Ecological observations	Used nouns, adjective-noun combinations and compound sentences count	Incidental teaching improves only children related language aspects but not their interactions with teachers or their play behavior	Incidental teaching is effective only in the phase of discovery of new play material
Winsler et al. (2000)	Ecologically investigating the contexts in which preschool children use self-talk and such contexts’ age-related changes	N° children: 28 Schools: 1 Country: USA (Mean age 51 mos) Level: preschool Grade: n/a	EXP (n = 28)	Observational study	10 weeks	Naturalistic observations	Self-talk use time-sampling	Children use self-talk more during self-selected activity when alone. Older children use self-talk more during sustained and focused goal-directed activity	Self-talk is used systematically in preschool children and older children use it more selectively than younger
Fekonja et al. (2005)	Ecologically investigating preschool children’ language	N° children: 60 Schools: 3 Country: Slovenia (Mean age 4.5 yrs) Level: preschool Grade: n/a	EXP (n = 60)	Observational study	n/a	Ecological audio-video recorded observations	Fraction of different language functions and utterances in the speech of the children	Children speak more, use more multi-word utterances, interrogative and negative clauses and use more often language’s symbolic and regulatory function during free play than having breakfast and teacher-guided activity	At preschool, free play is an proper context for children’ language development

Reference	Aim	Sample	Intervention				Results		Highlights
			Group differences	Type of study	Duration	Test instrument	Variables	Results	
Chen et al. (2009)	Comparing the habitual speaking pitch (frequency) featuring free play and structured speech activities of normally developing preschool children	N° children: 10 Schools: 1 Country: USA (Mean age 55 mos) Level: preschool Grade: n/a	EXP (n = 10)	Observational study. Investigating to what extent preschoolers vary their vocal pitch among different speech environments	Three sessions	Throat microphone and voice analysis software	Pitch	Faster pitch during free play than during structured speech. No difference among different structured speech activities	Preschoolers' vocal usage more effortful during free play than during structured speech activities. Young children's voice should be evaluated during both free play and structured speech activities
Piker (2013)	Investigating how play among preschool-aged dual language children can foster English language learning	N° children: 4 Schools: 1 Country: USA (Mean age 4 yrs) Level: preschool Grade: n/a	EXP (n = 4)	Observational study using an ethnographic approach	One academic year	Observation and video recording	Interactions of Spanish-speaking children with same-language and English-speaking peers	During play, Spanish-speaking children's oral English language supported or hindered	Play is an avenue for supporting English language learning at preschool
Kirk et al. (2014)	Investigating a 6-month, low cost, teacher-directed academic program taught using physical activity on free play physical activity and early literacy in preschool children	N° children: 72 Schools: 2 Country: USA (Mean age 3.8 yrs) Level: preschool Grade: n/a	EXP (n = 51) Academic program taught using physical activity CON (n = 21) Regular	Two-group, quasi-experimental design	6 mos	Ecological observations. System for Observing Fitness Instruction Time Preschool Literacy Individual Growth and Development Indicators (Picture Naming, Rhyming and Alliteration). Child and Adolescent Trial	Correctly named pictures, correctly-identified rhymes and correctly identified alliterations count. Teacher perceptions of physical activity program implementation in the classroom	Free play physical activity significant increase and early literacy (Picture Naming and Alliteration) significant improvements vs. non-exercising control group	Academic lessons taught using physical activity improve physical activity and early literacy in preschoolers



Reference	Aim	Sample	Intervention				Results		Highlights
			Group differences	Type of study	Duration	Test instrument	Variables	Results	
			academic program				for Cardiovascular Health Physical Education Observation Form		
Vriens-van Hoogdalem et al. (2016)	Investigating the relationship of language ability and metacommunication to the complexity of cooperation in preschool children	N° children: 24 Schools: 2 Country: The Netherlands (Mean age 61 mos) Level: preschool Grade: 1-2	EXP (n = 24)	Observational study. Free play and construction task	n/a	Video observations and language tests	Language ability and metacommunication (e.g., non-verbal cooperation)	In free play but not in construction task, high language ability related to more complex non-verbal cooperation	Role of language ability and metacommunication depends on the context of behavior
Schwartz et al. (2021)	Theorizing the role of free play as a social and language learning activity that stimulates a productive phase in second language (L2) progress in preschool (Arabic and Hebrew-speaker) children	N° children: 8 Schools: 1 Country: Israel (Mean age 4 yrs) Level: preschool Grade: n/a	EXP (n = 8)	Observational study using an ethnographic approach	2 yrs	Video-recorded observations, interviews with teachers and field notes	L2 use count and characterization	Free play creates a fruitful language-conducive context for daring to use L2 (even with mistakes), peer language mediation, creative repetition, self-talk, focus on language form and corrective feedback for others' incorrect usage	Teachers need to consider planning for more opportunities for free play.  Most of the children who show productive L2 skills during free play are Arabic speakers

#### 4. Discussion

The main objective was twofold, systematically gather and analyze the existing research literature in order to synthesize and critically evaluate the available evidence to determine the extent to which free play interventions contribute to improving language skills in preschool-aged children and provide recommendations for practitioners and policymakers regarding the potential benefits of incorporating free play interventions into early childhood education programs to support language development.

Eight articles were found that have evaluated free play's effects on language improvements (see Table 3). Between them, six studies analyzed the effects of free-play in children's mother tongue. For example, Fekonja et al., (2005) divided 60 children from three preschools, and through audio-video recorded observations, analyzed different language functions and utterances in the speech. The results showed how children speak more, use more multi-word utterances, interrogative clauses and negative clauses. In addition, children use more often language's symbolic and regulatory function during free play than during teacher-guided activity (Fekonja et al., 2005). In the same way, Kirk et al., (2014) evaluated a teacher-directed academic program taught using physical activity on free play and early literacy. The authors divided 72 children in the academic program (experimental group, EXP) and in a regular academic program (control group, CON). The results showed how free play physical activity significantly increases early literacy (picture naming and alliteration) during free play than non-exercising CON (Kirk et al., 2014). But, although a third study also found positive effects of free-play teaching in language-related aspects, the authors did not find more interactions with teachers or in their play behavior, declaring free-play teaching as effective only in the phase of discovery of new material (Hart & Risley, 1974). Therefore, free-play is a suitable methodology to enhance language skills in preschoolers.

Beyond, aiming to fueling these language improvements, three studies have showed the effect of free-play in self-talk (Winsler et al., 2000), pitch frequency (Chen et al., 2009), and overall language ability (Vriens-van Hoogdalem et al., 2016). First, Winsler et al., (2000) investigated the context in which preschool children use self-talk and such contexts' age-related changes. The authors recruited 28 children and highlighted that children use self-talk more during self-selected activity when alone and that the older children use self-talk more during sustained and focused goal-directed activity (Winsler et al., 2000). Second, Chen et al., (2009) compared the habitual speaking pitch frequency during free-play and structured speech activities of normally developing preschool children. After three sessions, the results highlighted faster pitch during free-play than during structured speech, while no difference among different structured speech activities. Third, Vriens-van Hoogdalem et al., (2016) involved 24 children in an investigation through which the authors highlighted the influence of complex non-verbal cooperation during free-play, but not during construction task.

Interestingly, the effects of free-play remain when teaching a second language (Piker, 2013; Schwartz et al., 2021). First, Piker (2013) investigated how play among dual language preschoolers (Spanish speaking children) can foster English language learning. The results showed how free-play is an



avenue for supporting the second language (i.e. English language) learning at preschool. The second study, Schwartz et al., (2021) investigated the role of free play as a social and language learning activity that stimulates a productive phase in second language progress in eight preschool children. The results showed that the free play creates a fruitful language-conducive context for daring to use the second language (even with mistakes), peer language mediation, creative repetition, self-talk, focus on language form and corrective feedback for others' incorrect usage. Therefore, the authors declared that teachers should consider to plan more opportunities for free-play (Schwartz et al., 2021).

However, although free-play teaching showed positive effects in preschool-aged children both mother tongue and foreign language improvements, these results should be considered with caution cause the number of articles included in the present systematic review.

### **5. Conclusions and practical applications**

Teachers should consider free-play settings for fueling language improvements. For improving these results, teacher should consider self-selected activities than alone, free-play than structured play, and during complex non-verbal cooperation contexts. However, caution is necessary to interpret these results due to the low number of articles found.

#### **Conflict of interest/Competing interest**

No conflict of interest has been declared.

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