

Perspective

Object Substitution Play: A Leading Activity for Infants, Toddlers, and Preschoolers

Francine Smolucha

Independent Researcher, Green Bay, WI 54313, USA; fcsmolucha@gmail.com

Abstract

Object substitution play can be independent of imaginary role-play and not have a storyline. In the game “hot potato” an object is tossed from one person to another, as if it was too hot to handle. Different objects can be used: a ball, a rock, a rolled-up sock, or a crunched-up piece of paper. Object substitution play can be introduced to infants at three months by caregivers moving their hand up the baby’s chest like a mouse, with a minimal narrative of “a mouse is crawling, crawling . . . gotcha”. Object substitution play is a precursor to pretend roleplay, and when introduced by caregivers leads to more advanced pretend play at younger ages. According to Vygotsky, this leads to the development of literacy, imagination, creativity, and abstract thinking (skills important in mathematics, science, the arts, and social studies). Introducing object substitution play with autistic children advances communication skills, and could do the same for neurotypical children. Many researchers and educators have assumed that symbolic play originates from the toddler’s solitary activities. A reimagined pedagogy would explore caregiver-initiated object substitution play beginning in early infancy.

Keywords: object substitutions; fingerplay; pretend play; Vygotsky

1. Introduction

Imagine a pedagogy for early childhood where object substitution play is introduced at three months of age, and continues as guided play throughout the preschool years. This requires a conceptual reorientation in which using one object as if it were another in pretend play is not dependent on roleplay and story-telling. Caregivers in many cultures have long traditions of fingerplay with infants that use the hand as a substitute object. One example is moving the fingers like the legs of a bug crawling up the baby’s chest to tickle the baby’s neck in a “gotcha” moment. Such a reimagined play-based infant education would use object substitutions to introduce symbolic representation and to create a positive emotional bond. Studies have found that caregiver-initiated object substitution play can lead to more advanced pretend role-play at younger ages (El’Konin, 1978; F. Smolucha, 1991; Palacios et al., 2018; Kozulin, 2024). However, there are no studies of using the hand as a substitute object in early infancy.

Simple fingerplay does not require story-telling whereas more elaborate fingerplays do. In spite of the fact that fingerplays such as “Itsy Bitsy Spider” have long been part of preschool pedagogy, there have been no empirical studies of learning outcomes. There are only two ethnographic studies on fingerplay beginning in early infancy: one from Poland (Zebrowska-Mazur, 2024) and one from Slovenia (Cvetko, 2015). The Dartmouth Folklore Archive (n.d.) does not include traditional forms of the simplest fingerplay or more



Academic Editor: Vasilis Grammatikopoulos

Received: 5 August 2026

Revised: 23 September 2026

Accepted: 6 October 2026

Published: 13 October 2026

Copyright: © 2026 by the author.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

elaborate *fingerplays*. However, the [Mama Lisa's World](#) (n.d.) website lists *fingerplay*(s) from over two hundred countries, and a simple internet search will yield dozens of other web-sites with videos depicting traditional and contemporary *fingerplay*(s).

Also, with the exception of two research projects ([Palacios et al., 2025](#); [F. Smolucha, 1991](#)), there have been no studies on how *infants* respond to caregiver-initiated object substitutions using a separate object (not fingers). The prevailing paradigm, greatly influenced by Piagetian theory, has been that object substitutions emerge from the toddler's own solitary pretend play. When mothers were present in studies, such as [McCune-Nicolich \(1977\)](#) and [Lifter et al. \(2022\)](#), they were explicitly told *not* to initiate play activities with their toddlers. The vast majority of studies have looked at how toddlers or preschoolers respond to experimenter-initiated object substitutions ([Bijvoet-van den Berg & Hoicke, 2019](#)).

Both pedagogical and research paradigms need to be reimaged to take into account a phenomenon that has here-to-for been overlooked: caregiver-initiated object substitution play beginning in early infancy and continuing through the preschool years.

2. Theoretical Background

Both Piaget and Vygotsky considered the use of one object as if it was another a defining characteristic of pretend play. Contemporary researchers refer to this as object substitution such as using a wooden block as if it were a cell phone or moving a block across a tabletop as if it were a toy car. The Piagetian and Vygotskian approaches differ on fundamentals as to whether object substitutions emerge from solitary or social pretend play, and whether object substitution play has a developmental trajectory.

Piaget used the term ludic symbol and considered it an expression of the egocentric thought of the preschool child ([Piaget, 1945/1962](#)). According to Piaget the preceding stage from birth to two years is characterized by sensorimotor exploration. This is followed by solitary pretend play that gradually becomes social pretend play around four years of age. Then pretend play, along with egocentric thought, is gradually replaced by rudimentary logical thinking at seven years of age. Piaget's theory still remains a major influence on early childhood pedagogy and play research, so much so, that the mere suggestion that infants can learn how to use object substitutions from play interactions with caregivers might seem outrageous.

However, from a Vygotskian perspective it warrants serious consideration and further investigation. Vygotsky's theory offers a very different perspective in which the verbal guidance of a more knowledgeable person during a play activity leads to a higher level of development. Guided pretend play is the basis for several preschool programs (such as *Tools of the Mind* and *Playworlds*). However, the focus in these preschool programs is on role play characteristic of more advanced sociodramatic play.

Tools of the Mind uses guided pretend play to develop self-regulation, with teachers who introduce and support object substitutions during role-play ([Bodrova & Leong, 2019](#)). In *Playworlds* the emphasis is entirely on role-play. "Playworlds can be described as a form of adult-child joint play in which adults and children create a common fantasy that is designed to support the development of both adults and children. This adult-child joint play is often structured around a piece of literature or another work of art." ([Rainio et al., 2023](#)).

However, prior to the emergence of role play ("let's pretend I am the mommy making supper") there is object substitution play such as stirring wooden blocks in a pot ([El'Konin, 1978](#); [F. Smolucha, 1991](#); [Palacios et al., 2018](#); [Kozulin, 2024](#)). In Vygotsky's seminal paper "Play and its Role in Mental Development" ([Vygotsky, 1933/1976](#)), nine of the seventeen pages discuss the importance of using one object as it were another in play (as a pivot for separating "fields" of meaning). This contrasts with only three pages, in that same paper, where Vygotsky discussed *roleplay*.

Vygotsky often used the example of a child straddling a stick as a riding horse to explain how fields of meaning can be transferred by gesture from one object to another (Vygotsky, 1933/1978c, 1929/1978b, 1930/1967). For Vygotsky, using a gesture to transfer meaning to a non-replica object is important in the early development of symbolic representation (Vygotsky, 1933/1978c, pp. 97–98).¹ Eventually abstract symbols, such as the written word, no longer require accompanying gestures.

Vygotsky considered play involving object substitutions a leading activity that advances development (Vygotsky, 1933/1978c, p. 103). This is consistent with Kozulin's leading activities model Kozulin (2024) where object-centered play, including object substitution play, precedes sociodramatic play. Object substitution play begins as early as three months when caregivers use their hands as symbolic representations in fingerplay. Fingerplay with infants is not a new concept, but has been overlooked by curricula developers and play researchers in the past century. In the 19th century, Friedrich Froebel, the founder of the kindergarten, had valued fingerplay as a type of symbolic representation introduced by mothers in their play with infants (Froebel, 1844/1878). While fingerplays, such as "Itsy Bitsy Spider", have continued in preschool programs there has not been any actual research on learning outcomes.

In a reimagined early childhood pedagogy, object substitution play would be introduced by caregivers in early infancy with fingerplay, followed by play with replica and non-replica objects, continued through toddlerhood into the preschool years. Research has shown that infants and toddlers imitate caregiver-initiated object substitutions, as well as perform novel child-initiated object substitutions (Palacios et al., 2025; F. Smolucha, 1991)². Caregivers and teachers can continue to play an active role in leading the preschool child further to explore object substitutions as used in metaphoric and literal thinking.

Infants, toddlers, and preschoolers would be allowed time for free play, with caregivers and teachers intervening at times and in ways that advance the child to higher levels of development. This is essentially Vygotsky's concept of teaching in the zone of proximal development (Vygotsky, 1934/1978a).

For example, building blocks would not only be used for construction. Used as non-replica object substitutions, blocks could also introduce subjects as far ranging as geometry and social studies. For example, a flat triangle could be a slice of pizza, a pyramid, a tepee, the bottom of an ice cream cone, a shark fin, or the sail on a ship. This could lead to the exploration of pyramids as geometric forms as well as cultural artifacts, or to explore how tepees might look like triangles in a picture but are actually cone-shaped.

This is only a step away from exploring patterns in nature such as the bifurcating branches of a tree, river, lightning, the circulatory system, etc. Taken further this is the basis for studying fractals in geometry. In the visual arts and poetic writing, such isomorphic images might depict the branches of a tree as hands that could grab someone. Abstract concepts have been depicted as the family tree, Darwin's Tree of Life, or metaphysical imagery such as Yggdrasil in Norse mythology, the Sefirot Tree of Life in Jewish Mysticism, or Crann Bethadh, the Celtic Tree of Life.

3. Object Substitution Play in Early Infancy

The developmental trajectory of symbolic representation from fingerplay to using substitute objects, to drawing, and using written language involves several transitions. This can be described as the transition from an enactive representation to an iconic representation, and then to symbolic representation (Bruner, 1960). Bruner reserved the term symbol to refer to a notation that bears no resemblance to the object, idea, or experience that it represents. For this purpose, Vygotsky used the term sign rather than symbol. A further discussion of how the terms sign and symbol have been used by different semiologists can

be found in “Investigating the Development of Cognitive Symbolic Representation and Gestural Communication” (Child, 2011).

Using Bruner’s terminology, fingerplay is both an enactive and an iconic representation. The use of a separate non-replica object also involves an enactive and iconic representation. For example, moving a small rectangular block of wood along the surface of a table as if moving a replica toy car is gestural (enactive representation). It is also an iconic representation because of the shape resemblance. Verbal labels and narratives initiate the development of reading literacy. Eventually the written words that describe using a wooden block as if a toy car become sufficient to evoke a mental image.

Infants as young as three months of age can be introduced to symbolic representation by caregivers doing fingerplay. In an ethnographic study in Slovenia, Cvetko (2015) observed that fingerplay with infants furthers emotional bonding, while introducing symbolic representation. According to Kozulin (2024), object centered play is a leading activity in the transition from the emotional bonding of infancy to the sociodramatic play of preschoolers. When a caregiver moves their fingers as if their hand is a mouse crawling up the baby’s chest or arm to tickle the baby’s neck, this is accompanied by smiling and followed with laughter. At first this is sensory-motor play for the infant, but gradually the baby understands that the hand represents a mouse. This would happen when the baby has learned the conventional name for a mouse. Zebrowska-Mazur’s (2024) ethnographic study traced the origins of such creepie crawly play to an earlier Polish version where the moving fingers were a crawling crayfish. Palacios et al. (2025) found that at nine months of age, caregivers started to use separate non-replica objects in pretense, such as using a flat block as a cookie to feed a teddy bear.

Ethnographic research on **Folklore Traditions for Fingerplay in Early Infancy** is reviewed next. There are only two ethnographic studies (Zebrowska-Mazur, 2024; Cvetko, 2015). There needs to be more. Then Research on **Caregiver-Initiated Object Substitution Play with Infants** is reviewed. There are only two research projects where mothers were allowed to initiate object substitution play without restraints (Palacios et al., 2025; F. Smolucha, 1991). There needs to be more.

4. Folklore Traditions for Fingerplay in Early Infancy

There are traditional ways of playing with infants, still carried on today, that have been overlooked by scholars. I learned how to do fingerplay as an infant from my Polish mother, and continued this tradition with my own child. There are online forums such as Polish Forums (n.d.), where people ask about the fingerplay they remember from their parents and grandparents. Mama Lisa’s World (n.d.) lists fingerplay from over two hundred countries.³

Friedrich Froebel considered mother-initiated fingerplay to be important for both bonding and for the development of symbolic representation. In 1844, he published a book with elementary forms of fingerplay, as well as more elaborate fingerplays involving several gestures and a storyline. Inspired by Froebel, Poulson (1893) invented fingerplays for visually impaired children that became popular for all children. I could not find any empirical research on learning outcomes for fingerplays often used with preschoolers. The popularity of such fingerplays is evident in the multitude of videos, cartoons, and descriptions of fingerplay on the internet. Claims are made for the development of sensory-motor skills, social development, and language acquisition, but no actual research is ever cited.

Moving your fingers like a spider is simple fingerplay, while “Itsy Bitsy Spider” is an actual finger play (acting out a story with hand gestures). In the case of the fingerplay that I learned as a child, I was fortunate to find a recent ethnographic study conducted in Poland (Zebrowska-Mazur, 2024). Described below are two generic fingerplay activities used with infants, and their origins in Polish folklore.

Creepy Crawly: The caregiver moves their fingers like a bug or a mouse crawling up the baby's chest or arm, to suddenly jump up to the baby's neck to tickle the baby in a "gotcha" moment. This is done while smiling, evoking a playful mood for having fun. For the caregiver the movement of the hand is a symbolic representation of a bug or a mouse, but it is sensory-motor stimulation for the baby. Gradually the baby will make the connection between the hand and a bug (or mouse), and even learn the play name. As a child, I always thought it was a spider named "Bobalezya" (something my mother said in Polish that I must have misunderstood). In online [Polish Forums](#) (n.d.) and in ethnographic research, it is referred to as a crayfish that is crawling to bite the baby (a little pinch). Nursery fingerplay, like nursery rhymes and fairy tales in their original forms, often have a darker side. As they become modernized, the darker theme is overridden with less a threatening image. For example, the movements of the fingers might mimic the two legs of a Teddy Bear running up the baby's arm coming to give the baby a kiss (called "Teddy Bear in the Garden").

The Magpie: This is fingerplay using the baby's fingers, as well as the fingers of the caregiver's hand that flutter like a bird. The caregiver's hand is the mother bird feeding each of her chicks, represented by the five fingers of the baby's hand. The mother's hand touches each one of the baby's fingertips in succession, until she reaches the littlest finger and then making a twirling motion and sound—the mother bird flies away. The original story is that the magpie (a type of small crow) does not have enough food for the smallest chick, so she twists its neck in a mercy killing (a harsh life lesson). As I child, I thought the mother bird just flew off to get more food. There are many references to the *Magpie* on the internet that refer to it under its Russian name *Copoka* (pronounced *Soroka*).⁴ There is also a Polish version called *Timodawa*.⁵ In another variation "This Little Pig Went to Market", there is not enough food for all the pigs and the littlest one "Cries Wee! Wee! Wee! All the Way Home".

A recent study from Slovenia "The Value of Fingerplay as a Form of Cultural Heritage in the Curriculum of the First Age Period" concluded fingerplay furthers the attachment bond between caregiver and infant, as well as introduces symbolic representation ([Cvetko, 2015](#)). More extensive cross-cultural research is needed on fingerplay. While the [Dartmouth Folklore Archive](#) (n.d.) includes child-to-child hand clapping play among African children and the Aborigine in Australia, it does not include cultural traditions of caregiver-initiated fingerplay.

Other Types of Fingerplay

Using the hand to make shadow puppets such as a duck's head or a rabbit's head is another type of fingerplay with infants. Both the hand and the shadow are animated and given play names, introducing early symbolic representation. Finger puppets can be placed on fingertips to represent characters. A sock can be placed over the hand and animated by moving its mouth (object substitution) or a replica hand puppet can be placed over the hand and animated.

Other Parts of the Body as Substitute Objects

There are other types of object substitution play that use the entire body or parts other than hands. "Dandling" involves sitting the baby on your knee while *gently* bouncing them up and down as if riding a horse, perhaps to gently drop the baby downward between the open legs (while still holding onto the baby's upper torso). This is often accompanied with a riding song, such as "Dance for your Daddy" in Scotland or "Ride a Cock Horse" in England. When bouncing my four-month-old son on my knee, I would sing the theme song from the TV Western *Bonanza*. Dandling might be a forerunner of the child's later use of a stick as if riding a horse.

During "piggyback" rides on an adult's shoulders, the adult might move their shoulders up and down slightly to mimic riding an animal. Another variation would be to give

a “horsey ride” and mimic a gentle gallop. The term “piggyback” as a symbolic reference to riding a pig came into use in the early 1800s as a “folk etymology alteration of colloquial pickapack, pick pack (1560s) meaning to carry a pack on your back (Harper, 2026).

5. Research on Caregiver-Initiated Object Substitution Play with Infants

5.1. Fingerplay and Fingerplays

There are no empirical studies on learning outcomes from caregiver-initiated fingerplay with infants. Also, there are no empirical studies on the more elaborate fingerplays done in preschool (such as Itsy Bitsy Spider). Considering the long history of fingerplays in kindergarten, the absence of empirical research is surprising. Raderstrong’s book *Fingerplays and the Science of Reading in Early Childhood* (Raderstrong, 2025) claims fingerplays promote sensory-motor, linguistic, and social development, but no actual studies are cited. Fingerplay involves using the hand as a substitute object, an important distinction from action rhymes that involve the entire body in a re-enactment of a story. Fingerplay could be considered a special sub-category of action rhymes introduced in early infancy. Also, teaching infants to use hand gestures to convey literal meanings is different from using the hand as a substitute object in play. Specifically, using a hand sign to designate and communicate the word “bug”, is different from moving your fingers as if your hand was a bug crawling up the baby’s chest.

5.2. Object Substitution Using a Separate Non-Replica Object

The only empirical studies of mother-initiated play with infants and toddlers using a separate object (other than hands) are those of Palacios et al. (2025) and F. Smolucha (1991). While there is extensive research literature on the development of object substitutions, those studies did not allow for mother-initiated play and did not include infants. When mothers were present in studies, such as McCune-Nicolich (1977) and Lifter et al. (2022), they were explicitly told not to initiate play activities with their toddlers. In the McCune-Nicolich (1977) study when mothers did not follow the instructions, those sequences were excluded from the data. The majority of studies are of toddlers and preschoolers in lab settings without the mother present, often responding to experimenter-initiated object substitutions (Bijvoet-van den Berg & Hoicke, 2019).

It is important to note that the studies conducted by Palacios et al. (2025) and by F. Smolucha (1991) were designed to **see if** caregivers introduce object substitutions in play and **to see how** infants and toddlers respond. Both Palacios et al. (2025) and F. Smolucha (1991) found that some mothers spontaneously initiated object substitutions that were imitated by the youngest children (aged 9 to 18 months), followed by novel child-initiated object substitutions after two years of age.

Palacios et al. (2025): This research project, derived from a Neo-Piagetian approach, the “Pragmatics of the Object”, investigated ways that caregivers show infants how objects can be used (how to shake a rattle, how to drink from a cup, how to play with replica toys such as dolls, and how to use one object as if it was another object in play). This contrasts with the assumption in Piagetian theory that infants discover how to manipulate objects from their own sensorimotor exploration, and that object substitutions originate during toddlers’ solitary pretend play. It also shows the influence of Vygotskian theory on Neo-Piagetian theory, as acknowledged by the researchers.

Palacios et al. (2025) report on two studies of parent—child interactions (from 9 to 18 months) and a study of peer dyads from age 9 months to 21 months. Mothers and fathers were included in their studies. Two studies were conducted in Spain (Palacios & Rodriguez, 2015; Yuste, 2020, as cited in Palacios et al., 2025), and the other in Mexico (Palacios et al., 2018). The researchers observed caregivers initiating sensorimotor play

with objects, conventional use of objects, play with replica toys, and object substitutions as early as nine months of age. Yuste (2020, as cited in [Palacios et al., 2025](#)) found peers rarely played together using substitute objects, playing instead with replica toys.

F. Smolucha (1991):

After translating Vygotsky's three papers on imagination and creativity ([Vygotsky, 1930/1967, 1931/1984, 1932/1960](#)), Smolucha designed a longitudinal study that allowed for both caregiver-initiated and child-initiated object substitutions.⁶ Would object substitutions first appear in the toddler's solitary pretend play as Piaget claimed? If mothers did introduce object substitutions, how did the toddlers respond? The subjects were six mother-child dyads observed bimonthly from 14 to 28 months of age. Beginning at 16 months of age, the toddlers were also observed bimonthly playing with a same-aged peer in the study group. Replica toys were provided as a stove, a kitchen sink, a refrigerator, table, chairs, and beds for 12-inchscale dolls (an adult male and female, and a baby doll). Non-replica objects were available such as wooden blocks, stacking cups, a handkerchief, and small boxes. The moms were just asked to bring their child over to play.

The findings showed when mothers initiated object substitutions at 14 months of age, their toddlers began to repeat those object substitutions by the next session (2 months later). At 16 months the peer sessions began, where two same-aged toddlers were paired together in play sessions bimonthly until 28 months, while mother-child sessions continued.

The mothers who initiated object substitutions at 14 months continued to do so throughout the study, but the object substitutions became more complex (standing two beds upright to be used as a walk-in shower). Their children soon began imitating the object substitutions, and by 24 months the children began initiating their own novel object substitutions. By 28 months of age, the children, whose mothers had initiated object substitutions, were now as proficient as their mothers were.

The mothers who did not initiate object substitutions at 14 months never did throughout the study with one exception. One mother repeated an object substitution following a session in which she had seen her child perform the same substitution—her child having observed a peer playmate perform that object substitution and the peer having seen her mother perform the same object substitution in several earlier sessions. Some mothers and their children did not use object substitutions but relied on replica toys.

[F. Smolucha \(1991\)](#) found parallel play prevailed throughout the same-aged peer sessions, consistent with the observations of [Palacios et al. \(2025\)](#). The children who learned how to do object substitutions from their mothers continued to do so during peer sessions, and by the end of the study were initiating their own novel object substitutions. In a study of three and four year olds, [Bijvoet-van den Berg and Hoicke \(2019\)](#) observed novel child-initiated object substitutions, following a period of imitating experimenter-initiated object substitutions. The designation of 'novel' object substitution simply means it appears anew in the course of the study. There is always the possibility that the child observed an object substitution outside of the research sessions.

The findings by [Palacios et al. \(2025\)](#) are consistent with Smolucha's findings (1991). In the conclusion of their paper, [Palacios et al. \(2025\)](#) called for infant educators to be more active in modeling and supporting play with objects:

These results show that there is a gap between the curricular proposals in early infant education and the daily activities that arise from these proposals and then occur within the classroom. These results also suggest that offering infants one or another type of object implies promoting different learning. With replica objects, symbolic productions would be promoted from an earlier age than indicated by the literature and curricular proposals. With artifact objects, more symbolic productions would be promoted. It would therefore be necessary to rethink the materials and organization in the classrooms of the first year

of early infant education (level 0–1 years), where only exceptionally infants' symbolic productions are promoted (Palacios et al., 2025, p. 128).

6. Conclusions

It is time to reimagine early childhood education with object substitution play beginning in early infancy. This requires recognizing that object substitution play does not require roleplay or an extensive narrative. It can be introduced by caregivers to infants as young as three months of age in the form of fingerplay. Research is needed on the potential benefits of caregiver-initiated fingerplay for infants, toddlers, and for preschoolers. This is long overdue considering the tradition of finger games in kindergarten began in the 1800s. Caregiver-initiated play with infants using one object as if it were another also warrants further investigation as indicated by the work of Palacios et al. (2025) and F. Smolucha (1991).

There is also a need for cross-cultural and ethnographic studies on traditional ways of playing with babies. Studies from Poland and Slovenia of cultural fingerplay traditions (Zebrowska-Mazur, 2024; Cvetko, 2015) can serve as a prototype. There are examples from hundreds of countries on the *Mama Lisa's World* (n.d.) website that have not been studied by researchers, neither ethnographic studies nor empirical research on learning outcomes.

Another future direction for research and curriculum design is object substitution play with neurodiverse infants, toddlers, and preschoolers. This would build on the pioneering work of Lee et al. (2021, 2017) with autistic children and Cardenas et al. (2025) with children with down syndrome. Lee et al. (2017) used the term object substitution symbolic play skills in their research with autistic children. This is an important conceptual breakthrough because learning to use object substitutions in a playful way does not require pretend roleplay or story-telling. A caregiver's suggestion to feed a baby doll a "cookie" (that is actually a large button) initiates mother–baby role play, before the toddler thinks of herself as the 'mommy'.

Continuing the use of object substitution play using geometric shapes (blocks) through the preschool years should also be studied as a way of introducing mathematics and social studies. Object substitution play has the potential to further the development of literacy, metaphorical thinking, imagination, and creativity. This paper has provided a starting point by reimagining early childhood education through caregiver-initiated object substitutions from infancy through toddlerhood. However, to adequately reimagine object substitution play from toddlerhood through the preschool years would require writing an additional paper. And then perhaps, another paper on object substitution play as part of brainstorming exercises to stimulate creative problem-solving from the elementary school years through adulthood.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Conflicts of Interest: The author declares no conflict of interest.

Notes

- ¹ For the reader's convenience, page numbers are given to the translation of "Play and its Role in Mental Development" published in 1978 in *Mind in Society*. The 1978 translation is a slightly abridged version of the 1976 translation.
- ² The graphs showing developmental trajectories from Francine Smolucha's dissertation were published in L. Smolucha and F. Smolucha (1998).
- ³ Retrieved on 5 July 2026 <https://www.mamalisa.com/?t=ec&c=70>.

- ⁴ Retrieved on 5 July 2026 <https://polishforums.com/life/children-game-babcia-grandkids-87603/>. See Note 3.
- ⁵ Retrieved on 5 July 2026 https://teacher.scholastic.com/writewit/mff/folklore_finpop.htm Notice this forum entry begins with someone from Puerto Rico describing a tickle game played with infants.
- ⁶ For a review of Vygotsky's writings on play, imagination, and creativity refer to L. Smolucha and F. Smolucha (2022).

References

- Bijvoet-van den Berg, S., & Hoicke, E. (2019). Preschoolers understand and generate pretend actions using object substitution. *Journal of Experimental Child Psychology*, 177, 313–334. [CrossRef] [PubMed]
- Bodrova, E., & Leong, D. (2019). Making play smarter. *American Journal of Play*, 12(1), 37–53.
- Bruner, J. (1960). *The process of education*. Harvard University Press.
- Cardenas, K., Rodriguez, C., Mirand-Zapata, E., & Palacios, P. (2025). First symbolic uses of objects in children with Down syndrome between the age of 12 and 21 months: A longitudinal study in the context of triadic interactions: Child-adult-object. *European Journal of Psychology of Education*, 40, 138. [CrossRef]
- Child, S. (2011). *Investigating the development of cognitive symbolic representation and gestural communication* [Doctoral dissertation, University of Manchester].
- Cvetko, J. (2015). The value of fingerplay as a form of cultural heritage of the first age period. *Skolski Viesnil*, 64(3), 411–423.
- Dartmouth Folklore Archive. (n.d.). Available online: <https://journeys.dartmouth.edu/folklorearchive/> (accessed on 5 July 2026).
- El'Konin, D. B. (1978). *Psikologiya igri* [Psychology of play]. Izdatel'stvo Pedagogika.
- Froebel, F. (1878). *Mother-play and nursery songs*. Norwood Press. Available online: <https://dn720204.ca.archive.org/0/items/motherplaynurs00fro/motherplaynurs00fro.pdf> (accessed on 1 August 2026). (Original work published 1844) (In German)
- Harper, D. (2026). *Origin and history of piggyback*. Online Etymology Dictionary. Available online: <https://www.etymonline.com/word/piggyback> (accessed on 19 September 2026).
- Kozulin, A. (2024). *The cultural mind*. Cambridge University Press.
- Lee, G., Feng, H., Xu, S., & Jin, S. (2017). Increasing “object substitution” symbolic play in young children with autism spectrum disorders. *Behavior Modification*, 43(1), 82–114. [CrossRef] [PubMed]
- Lee, G. T., Qu, K., Hu, X., Jin, N., & Huang, J. (2021). Arranging play activities with missing items to increase object-substitution symbolic play in children with autism spectrum disorder. *Disability and Rehabilitation*, 43(22), 3100–3211. [CrossRef] [PubMed]
- Lifter, K., Mason, E., Minami, T., Cannarelle, A., & Tennant, R. (2022). Emergent patterns in the development of young children's object play. *Acta Psychologica*, 224, 103524. [CrossRef] [PubMed]
- Mama Lisa's World. (n.d.). Available online: <https://www.mamalisa.com/?t=ec&c=70> (accessed on 5 July 2026).
- McCune-Nicolich, L. (1977). Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. *Merrill-Palmer Quarter* 17, 33(2), 89–99.
- Palacios, P., Cardenos, K., & Yuste, N. (2025). The development of first symbols in triadic communication contexts. In C. Rodrigues, P. Palacios, I. Moreno-Llanos, & I. Guevara (Eds.), *The social life of objects in early development: New perspectives on the pragmatics of the object* (pp. 103–138). Springer.
- Palacios, P., & Rodriguez, C. (2015). The development of the symbolic uses of objects in infants in a triadic context: A pragmatic and semiotic perspective. *Infants and Child Development*, 24, 23–43. [CrossRef]
- Palacios, P., Rodriguez, C., & Mendez-Sanchez, C. (2018). Communicative mediation by adults in the construction of symbolic uses by infants. *Integrative Psychological and Behavioral Science*, 52(2), 209–227. [CrossRef] [PubMed]
- Piaget, J. (1962). *Play, dreams, and imitation in childhood*. W.W. Norton & Company. (Original work published 1945).
- Polish Forums. (n.d.). Available online: <https://polishforums.com/life/children-game-babcia-grandkids-87603/> (accessed on 5 July 2026).
- Poulson, E. (1893). *Fingerplays for nursery and kindergarten*. Lothrop, Lee, and Shepard Company.
- Raderstrong, M. (2025). *Fingerplays and the science of reading in early childhood*. Routledge.
- Rainio, A., Ferholt, B., & Lecusay, R. (2023). Play pedagogy and playworlds. In R. E. Tremblay, M. Boivin, & P. K. Smith (Eds.), *Encyclopedia on early childhood development*. Encyclopedia on Early Childhood Development.
- Smolucha, F. (1991). *The origins of object substitutions in social pretend play* [Doctoral dissertation, University of Chicago].
- Smolucha, L., & Smolucha, F. (1998). The social origins of mind: Post-Piagetian perspectives on pretend play. In O. Saracho, & B. Spodek (Eds.), *Multiple perspectives on play in early childhood education* (pp. 34–59). State University of New York Press.
- Smolucha, L., & Smolucha, F. (2022). Vygotsky's theory in-play. In R. Evans, & O. Saracho (Eds.), *The influence of theorists and pioneers on early childhood education*. Routledge.
- Vygotsky, L. S. (1960). *Voabraseniye i yeva ravitie v destkom vozraste* [Imagination and its development in childhood]. Prosvescheniye. (Lecture from 1932, first published in 1960).
- Vygotsky, L. S. (1967). *Voabraseniye i tvorchestvo v destkom vosrate* [Imagination and creativity in childhood]. Prosvescheniye. (First published 1930).

- Vygotsky, L. S. (1976). Play and its role in mental development. In J. Bruner, A. Jolly, & K. Sylva (Eds.), *Play—Its role in development and evolution* (pp. 537–554). Basic Books. (First published 1966) (In Russian)
- Vygotsky, L. S. (1978a). Interaction between learning and development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society* (pp. 79–91). Harvard University Press. (First published 1935) (In Russian)
- Vygotsky, L. S. (1978b). The prehistory of written language. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society* (pp. 105–119). Harvard University Press. (First published 1935) (In Russian)
- Vygotsky, L. S. (1978c). The role of play in development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society* (pp. 92–104). Harvard University Press. (First published 1966) (In Russian)
- Vygotsky, L. S. (1984). Voabraseniye i tvorchestvo v podrostka [Imagination and creativity of the adolescent]. In *Собрание сочинений Л. С. Выготского* [The collected works of L.S. Vygotsky] (Vol. 4, pp. 199–219). Izdatel'stvo Pedagogika. (First published 1931).
- Zebrowska-Mazur, B. (2024). Traditional Polish finger games. *Folklore*, 135(2), 229–249. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.