

# THE WHOLE CHILD DEVELOPMENT GUIDE

EDITION I

Dec. 2004  
LEGO®

©2004 The LEGO Group. All Rights Reserved.

The content is made available for individual use and shall not be reproduced or edited without permission from The LEGO Group.  
The Whole Child Development Guide is grounded in recent research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.  
Author: Prof. Edith Ackermann, Contributors: Dr. Dorothy Singer (The Learning Relevance Grid and The Complete Discovery System) and Dr. Aaron Falbel.  
[www.lego.com/parents](http://www.lego.com/parents)

Part 3.:

# Early Childhood Ages 1 – 4 Years

## PART 3.:

# Overview of Early Childhood Ages 1-4 Years

## ACKNOWLEDGEMENTS

THE MAIN SOURCES FOR THIS PART ARE:

Anselmo, S. & Franz, W. (1995) "One-to-Three-Year Olds: Cognitive Development" (Chap. 10, 342-379) in *Early Childhood Development: Prenatal through Age Eight*. (2nd ed). Englewood Cliffs, NJ: Prentice-Hall, Inc

Karmiloff-Smith, A. (1994) *Baby it's You: A unique insight into the first three years of developing babies* London: Ebury Press. An Imprint Random House.

## Being Me

### ME - USING MY BODY

The physical development that takes place in this period is gradual and significant, and opens the way to a whole variety of new activities for the toddler. A major breakthrough emerges during this time: the beginnings of upright locomotion. The toddler first, stands, then takes his first steps, and finally cruises and walks. This newfound mobility, together with a toddler's urge to manipulate whatever he comes across, allows for a great deal of learning about world, self, and others. By the time children reach their fourth birthday, they have learned to become competent walkers, to achieve a dynamic balance when running and climbing, and a static balance, which allows them to stand on one foot. They will also have learned to project themselves properly when jumping and hopping, and throwing and catching. They will also have greatly increased their body awareness, or body concept.



Changes in fine-motor skills are usually not accompanied by as much adult fanfare as are changes in large-motor skills. Yet, their role is key in helping children gain autonomy, and their development impressive. A four-year-old can eat and dress by herself, comb her hair, wash her hands and brush her teeth. She can open all kinds of closets and drawers, and manipulate remote controls. She can scribble, draw, cut, and glue. She is soon ready for kindergarten.

In what follows, average ages are given, although the range of normal development in each area is wide. Each child seems to have his own timetable.



## ME – KNOWING MYSELF

Between the ages of one to four, children begin to form a physical image of themselves, as well as an early sense of self, or self-concept, as distinct from others. A toddler's self-concept is still closely tied to her body image. Three aspects of a positive physical image include body awareness, awareness of bodily functions, and successful toilet training. As the child reaches two to three-years-of-age, she develops a sense of self, as being distinct from others, and around three to four, she has acquired a fairly good sense of identity or self-invariance: the idea that some core aspects of one's self remain unchanged over time.

**Body Awareness.** Children form a body image by observing the movements of their body parts and noting the relations of the body to other objects, in space. They learn about the two sides of the body and their difference (laterality), as well as about the body's upright position and heading (directionality and orientation). Note that even pre-school children have difficulties with tasks that require left-right discriminations.

By developing a positive and accurate body image, children will have a consistent frame of reference, themselves, to help them act and move in space. They will have an internal compass to help them orient themselves, and situate themselves in relation to others. It is in this sense that a sound body image leads to a strong sense of self.

Awareness of bodily functions also includes sexual and gender awareness, as well an ability to imagine what's inside one's body, what it means to be sick or in good health, happy or sad. Children under the age of three have only a vague idea of what's inside their body, and their views of what it means to be sick or well are limited unless they themselves become sick. Successful toilet training can give children a pleasant sense of growth, although children vary in their willingness or readiness to grow up.

Children's sense of self evolves gradually between toddler-hood and their pre-school years. Again, remember that each child is unique and grows at her own pace.

## Us – Growing Together



### US - RELATING TO OTHERS

As they reach their first birthday, infants become more and more involved in social interactions with the people around them, in particular with their

primary care-givers. Provided these relations are stable and trusting, 18-month-olds are now ready to become attached. In a nutshell, starting as early as 18 months, children begin to understand that momentary separation, say, from Mom, is OK, because they know that Mom is likely to come back. This trust in the likelihood of a happy return requires object permanence: the notion that things continue to exist even when they are out of sight. It also requires that a child be born into a reliable social environment.



As soon as this basic trust is established, the toddler is now ready and eager to discover the thrills of greater autonomy. Remember, toddlers are liable to wander off on their own. One of the side effects of this exciting new development, is that most 15 to 30-month-olds will, at times, appear rather uncooperative, to say the least, in dealing with adults and other children, as they attempt to establish a greater sense of autonomy and control over events that affect them. This being said, a “terrible” two’s urge for independence is healthy, necessary, and generally more exciting than terrible. Just think of a two-year-old as a rather sweet, small person who desperately wants to be taken seriously while still being loved.

Once basic autonomy is established, most three to four-year-old children become very energetic, curious, and eager to participate in virtually any activity. This is when pre-schoolers start asking a hundred questions. That’s also when they become ready to embark on Erikson’s next socio-psychological stage, which he referred to as building initiative.

In the next section, we shall look at how children, between the ages of one and four, deal with the thrills and hurdles that gaining autonomy and building initiative entail. In other words, how do they manage to take the risks of becoming autonomous while, at the same time, preserving the benefits of being a competent relational partner? As they mature and become more deeply involved in various endeavours and interests, how do they keep their creative spark and playful spontaneity?

## US - UNDERSTANDING OTHERS

Early on, children respond to other people’s intentions, attitudes, and emotions. As they grow older, they learn to see the world through other people’s eyes: They build their own theories of other people’s minds. This process of getting to know and influence others is often referred to as “de-centring”. The period between one and four years of age is marked by young children’s abilities to develop a sense of other, as distinct from themselves. During this time, children acquire a growing sense for what other people



think and feel. They learn to empathize, and to understand the expectations or intentions of others.

As they reach their first birthday, infants have become fairly good at responding to what other people expect from them, and at communicating what they want. They still have a way to go before they understand what other people feel and think! It is only in their third year, that children can take on the role of others in their play, and influence other children or their parents by using persuasion, deception, or humour. By their fourth birthday, most children understand not just that others think differently, but they are able to characterize these differences in thinking from their own. In the next section, we shall look at how children move from understanding that other people think different, to understanding, and empathizing with, how they may feel and think! A big leap indeed.

## World – Making Sense of it All



### WORLD – EXPLORING AND INVESTIGATING

Between the ages of one and four, children accomplish some of their most prodigious learning feats. Nowhere is this more apparent than in children's understanding of the world around them, which grows by leaps and bounds.

During these early years, children's sense organs are exercised and become extremely acute: their vision is sharp, their hearing is acute, their sense of smell and taste are sensitive, and they have a powerful urge to touch everything. Their increased mobility during their first year greatly extends their reach. It now enables them to go where they please and to investigate and explore many more things than before. Their phenomenal growth in language enables them to interact with others in more sophisticated ways and to ask thousands of questions. Their newfound (though still evolving) ability to engage in logical reasoning, classification, and to form primitive mental representations contributes greatly to their ability to think through and solve an increasing variety of problems.

These four categories: perception, mobility, language, and logical/mental representation, act as a springboard that greatly enhances the amplitude, so to speak, of children's learning and theory building during these early years. And the more the child learns, the more effective and springy the springboard becomes, enabling still more (and more sophisticated) learning and theory building.

A child's theories, at this stage, may or may not conform to accepted adult knowledge of the way the world works. Yet, the child's theories tend to be rather robust. As the child matures and develops still further (and grows still more perceptive, mobile, fluent, and skilled in reasoning), she now builds new (or revises old) theories that fit her new understanding of the world. This self-reinforcing process reveals the self-organising aspect of human intelligence, of the growth of the mind, and of knowledge itself.



### WORLD - SEEKING LOGIC

As we have seen, during the first year, a child's logic is a logic-in-action, and the first logical categories that babies establish are based on how objects—including people—resist or yield to their explorations and solicitations. After one year of age, the question arises: How does a baby turn his exploratory activity into a conceptual representation, mental model, or knowledge structure that brings order and coherence to his understanding of the world?

In the next section, we shall look at how a toddler's "logico-mathematical" capabilities (to use Piaget's term) evolve after her first year. How does the child use what she has learned in-action, to bring order into a world too bewildering and complex to be grasped?

Around the first year, toddlers start to walk, and their logic-in-action will grow even further. As they speak their first words, their logico-mathematical skills will become more apparent through their uses of words, even if the words they use are still limited.

## Creations – Realising Visions

### IMAGINING, ENACTING AND CREATING

Children are born into a world of signs, symbols and human-made artefacts, and before long, they appropriate these tools and start making their own original contributions. From speech to writing, from drawing to playing the flute, from taking a picture to building a sand castle, children learn to say it, to freeze it, and to refine and edit their expressions.



The first obvious manifestations of a child's creative expression appear around 18 to 24 months-of-age, with the apparition of the symbolic function. Yet, many precursors announce this visible achievement. Even babies can be said to express themselves creatively as they engage in "theatrical" crying



and smiling games to captivate their audience and get things their ways. This ability sets in at about 9 to 12 months.

As they reach their first birthday most infants speak their first words and become fascinated with leaving traces behind. At the age of two, they simultaneously speak, engage in pretend play, and scribble on any possible surface, and at three, they start to read, i.e. they become obsessed with deciphering and making sense of other people's traces and scribbles. Again, as soon as they talk, they become interested in writing and reading. These acts mark beginning of literacy in a broad sense. As they reach their 4th birthday, children usually speak, sing and gesture, and they learn to draw and write. Later in their lives, our creative youngsters will become ever more fluent in speaking their mind in different media, and they will continue to express themselves creatively through drama, poetry, painting, literature, design, and music to name just a few possibilities.

A child's talent and eagerness to speak in a hundred languages, using different media, and combining media to best convey what they mean or want to say, is a vital source for, and best preparation to, becoming literate in a broad sense: a much needed skill in today's digital world.

## Early Childhood by Age Year

### 1-2 Years

#### Me – Being Me

##### ME - USING MY BODY

Venture Into The World. Becoming a toddler marks the beginning of upright locomotion, or walking. Toddlers generally cruise before they take their first steps, and throw themselves, unaided, into open space. Early walkers walk a few steps and then plop themselves down. Through relentless practice, however, the toddler soon becomes steady and confident enough to wander off, pulling a duck on a string or pushing a toy vacuum cleaner. It won't take more than a few months before the toddler hops, jumps, walks up the staircase, and climbs on low furniture. Toddlers are difficult to control because they waddle off on their own without much awareness of their limitations.



The toddler's fine-motor skills develop further as well. In general, a child first controls the movements of his shoulder, followed by movements of the elbow, the wrist, and finally the fingers. During his second year, a child learns to drink from a cup using one hand, and to hold a crayon, or even a pen or pencil, though a bit awkwardly. As he reaches 18-24 months, he starts scribbling away on a piece of paper. At the day-care centre, he shows interest in pegboards, and is able to take out and put in the one-inch pegs.

##### COMPETENCIES:

*What does the 1–2-year-old naturally strive to learn?*

Much of a child's second year is marked by her relentless attempt at becoming a competent walker. And as this gets underway—through much practice—the child is now ready to venture out into the world and to explore new territory.

Toddlers are still remarkably unstable and often over-confident. They tend to throw themselves ahead, and every third step is sanctioned by a fall. It will take time before the toddler achieves the skills, strength, balance, and rhythm of a secure walker.



Not surprisingly, as a toddler becomes more mobile, his fine-motor skills increase, allowing him to achieve greater independence. As soon as they walk, toddlers will start picking up things along the way, bending or squatting at the waist. As they move toward their second birthday, toddlers become obsessed with leaving traces behind, as if to ensure that they will find their way back! They will draw with their finger in the sand, or on a steamy window, and use crayons and marking pens on paper, often making dots or circular designs.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

From 15 to 18 months, toddlers start using different techniques to move around on their own, depending upon the terrain. They may climb up stairs on all fours, slide down slopes on their bottoms, or cruise along the wall. Some children only feel secure walking if the terrain is flat and smooth. Going downstairs remains challenging at this age.

From 18 to 24 months, toddlers become fairly good at speeding up and slowing down, at changing direction, and at returning where they came from. They can stop when faced with obstacles. They become quite adept at changing from a sitting to a standing position.

Toddlers can dress themselves with some assistance, though their true forte is to get undressed! They love to pull on and off their socks, and also their coats, shoes, and pants.

Toddlers also like to build, say, a tower of three to four blocks, and then push and bang it to see it fall. It's the doing and the undoing that's the fun part.

SUPPORT:

*What can care-givers do to support this natural development?*

Let your toddler attempt new challenges (e.g. going up the stairs) but be ready behind her in case she takes a misstep and falls. Provide security, but not necessarily help or guidance. Your toddler will let you know how much help they want or will tolerate.

Games can be devised to help toddlers wander off safely and control their walking. For instance, a young child can be safely held and then asked to walk to reach another person, stationed at varying distances, who will receive him. Playing tag games can be fun too.

Another great game to play is “roll the ball”—a favourite among toddlers. Played on the floor, the game consists of rolling a ball from one person to another. The child does not always aim accurately but she participates enthusiastically.



The child also enjoys making movements to music, such as clapping and marching. Sing and dance with her!

### ME – KNOWING MYSELF

From Acting Like “Me” to Being “Me”. In their second year, toddlers evolve from “acting like me” to “being me”. At the same time, a toddler’s sense of being remains strongly tied to his body image.

Between 18 and 24 months, toddlers manifest a clear ability to recognize themselves in a mirror, as evidenced in an ingenious technique devised by Amsterdam: When a toddler’s cheek or nose has been surreptitiously dabbed with rouge, and the toddler is placed in front of a mirror and asked, “See? Who’s that?”, the child now points to the red dot on her face—and not to her mirror image, as earlier. The child’s ability to locate the red spot on his own face has become a commonly acknowledged milestone, among researchers, to situate the beginnings of true self-awareness. In their initial construction of “self-as-object,” infants focus particularly on facial features.

#### COMPETENCIES PURSUED:

*What does the 1-2-year-old naturally strive to learn?*

At 15 months, children distinguish their own images from images of other babies, on photographs or non-live video. Signs of this recognition include: smiling, gazing, and pointing to one’s picture when one’s name is called, as opposed to frowning at or ignoring pictures of peers.

Fifteen-month-olds are attuned to physical features associated with their sex and age. They learn to associate certain visual cues with boys and girls (though not infallibly).

One to two-year-olds also show other conscious signs of self-recognition, such as self-admiring (strutting, preening) and embarrassed behaviour (blushing, coyness).

At 20 months, infants do have some knowledge of the bodily constituents of themselves and an awareness that these constituents are continuous over time.



#### MANIFESTATION:

*What actions will the child do to attain the competencies?*

One to two-year-olds show an increased interest in looking at pictures or photographs of other children. The use of gendered pronouns (he, she) by adults clue baby in to gender recognition. As they reach the age of two, children have identified themselves as either a boy or a girl. Although, before two, the child doesn't know what it means to be a boy or a girl.

One to two-year-olds are often not aware of the size or shape of their bodies. They may crawl through a large tire and then get stuck in a smaller one, underestimating how much space they need. Similarly, a child may sit in a chair or a toy car that is too small, misjudging the amount of space her body takes up.

#### SUPPORT:

*What can caregivers do to support this natural development?*

Read picture books that allow the child to point at or identify the main characters. Identify familiar faces: Mom, Dad, siblings, grandparents, etc. in photographs.

Through play, young children receive precious feedback from their environment about the size and shape of their body. Physical activities, like crawling, standing on one foot, etc. remain important, here, to help the child build a positive self-image.

## Us – Growing Together



### US – RELATING TO OTHERS

Exploring Autonomy. By the end of the first year, most babies have built enough trust to freely engage a wide range of strangers into ever more diversified social games. And by now, they are fairly good communicators. Ready to speak their first words, they understand more than they utter. As they reach 15 to 18 months of age, toddlers are ready to experience the thrills that becoming autonomous entail.

According to Erikson's theory of psychosocial development (Erikson, 1963, 1977, 1982), the establishment of autonomy is a needed transition in a child's personal and social development. The child usually emerges from this period

sure of herself, elated with her newfound control, and proud rather than ashamed, provided she is given the opportunity to make her own decisions.



Exploration of autonomy starts at about 18 months as toddlers develop a sense of themselves as separate individuals with unique desires (see section on Me), and it evolves up to three and a half to four-years-of-age, reaching a peak at about the age of two to three. This stage marks an important step in a child's journey toward understanding that both separation and conflicts are OK, provided a warm reunion follows, i.e. as long as taking off and wanting things one's way won't cause care-givers to abandon or punish the child.

COMPETENCIES PURSUED:

*What does the 1–2-year-old naturally strive to learn?*

As a toddler's abilities to walk and to talk increase, so do his sense of autonomy and independence and the related urge to explore the boundaries of what constitutes socially acceptable behaviour. For example, toddlers like to venture off, though with "invisible strings" attached! The name of the game is: I rush off and I look back to see if Mom is still there. If Mom doesn't pay attention, or doesn't follow me, I shout for attention. Toddlers also like to play with pull-toys that follow them, string attached, as they venture off. Such toys are comforting because they stay with our young nomad, unaltered, as the world starts revolving around them.

Between 12 and 18 months, the child's main relational worry was: "Mom goes, but will she come back?" By the time she is 18 months old, she is well on her way to understanding that "it's fine if she goes, because I know she will come back." As this gets progressively established, the child is now ready to experiment with the next relational puzzle: "I run off, but will I get back or will she get me back?" and the related concern, "I want it my way, but is she still there for me?" Whereas during the first year of her life, the infant's main developmental task was to establish a basic sense of trust in the reliability of her care-givers, she is now eager to move on and take the risks of venturing out on her own, though continuously looking back over her shoulder, so to speak. She wants to do things by herself, but yet not totally alone either.

To Erikson, a 15 to 18-month-old child's first "nos" and "me me mes" are very healthy affirmations of his emerging sense of autonomy, or power to make his own decisions. At this age, the child becomes assertive of his wishes, and he likes to be taken seriously. At other times, he still wants to remain a baby and just be cuddled.



#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

A favourite form of social play, at this stage, is to wander off and run back to Mom's lap for comfort. Toddlers now partake in joint pointing and naming games when, say, reading a book with Mom or the lap of an accepted other. At first, the child may point at pictures and the adult gives her the word. Later on, the child points and says "quack, quack," and Mom says: "Yes, a ducky!"

While early forms of relational turn-taking rituals still persist, and will for years to come, relational games become more object-mediated at this age. Building on peek-a-boo, the child now engages in early forms of hide-and-seek. She is fascinated with things that disappear and reappear, like a toy train in a tunnel or a jack-in-the-box, and she enjoys it if adults share her fascination. Toddlers can play collaborative "patty-cake" games, and they like to clap and dance.

When playing with peers, toddlers like to just watch other children, especially babies, although they don't really interact or cooperate with them at this age. In general, we see much smiling at objects, toys, and people.

#### SUPPORT:

*What can caregivers do to support this natural development?*

Parents or educators can help toddlers consolidate their budding sense of trust while, at the same time, prepare them to take the risks of experimenting with autonomy. Here are a few rules of thumb:

Take your toddler seriously in his early quests for autonomy. This is a key to helping him grow into a happy, rather than "terrible," two-year-old, and to helping him emerge from this turbulent period with a sense of pride, rather than doubt, about his own capabilities.

Give your toddler many opportunities to make her own decisions, under safe and feasible conditions. Remember: the overly controlling parent sends the message that the child can't be trusted to do anything right. The overly permissive parent lets the child manage situations that she can't, which can give her a sense that she can't do anything right!

As with younger infants, continue to play simple versions of hide-and-seek and object-mediated turn-taking games. Make an object disappear behind a tunnel,

a pillow, or a sofa, only to be found again. At this age, the child still needs to consolidate her fragile sense that indeed people and objects have permanence.



Read picture books with your child, and play pointing games while you do so. This type of participatory reading is very special, both in terms of relational bonding and in terms of learning.

## US – UNDERSTANDING OTHERS

**Understanding Mental States.** In the second year, as children acquire language, they simultaneously acquire the ability to engage in intentional communication: they can identify and name a fair range of emotional states, in themselves and in others, and by the end of their second year, they become able to reverse roles in social games. Early forms of cooperation emerge at the end of this stage, as children recognizes that other people can be different from herself, and that they too are active agents who can take initiative, and cause things to happen their ways.

“Children’s understanding of others’ feelings grows early in the second year from an “affective tuning” to the distress and amusement of others to a grasp of how certain actions lead to disapproval or anger in others, how certain actions can comfort other family members, and what actions can be a shared source of amusement with others. [...] With increasing explicitness, they show curiosity about and understanding of the causes of pain, anger, distress, pleasure, dislike, fear, and comfort in others. They play with and joke about these feelings in others and tell stories about them.” (Dunn, 1988. p. 109)

### COMPETENCIES:

*What does the 1–2-year-old naturally strive to learn?*

Around 15 to 18 months of age, during the single-word stage, some toddlers start using relational nouns, such as “Mama mad... You sad Daddy... Baby scared...” talking about a baby sibling, which indicate that infants now take into account listener’s moods. This, to many authors, marks the beginnings of children’s very early “theories of mind.”

### MANIFESTATION:

*What actions will the child do to attain these competencies?*

At around 15 months of age, most toddlers can talk about a limited range of inner states, such as hunger, thirst, fear, disgust, and they understand that



other persons have inner states too. In non-verbal relational turn-taking games, children display greater understanding of other people's expectations and interests. They can more easily change the name-of-the game, or shift the tone, speed, and pattern of a "conversation", depending on how they sense the other feels.

As they get closer to their second birthday, children become increasingly better at separating themselves from others, and by the same token, aware that other people indeed are distinct from themselves. More specifically: "Fein found that at 12-15 months, toddlers cannot yet think of others as having an ability to act independently. Between 15 and 20 months, toddlers begin to recognize that others are distinct, but they still view them as being passive recipients of their causal actions. Between 20 and 24 months, the toddler acquires the ability to recognize that others can be autonomous agents who cause independent events to occur. Ultimately, the two year old can recognize interactions as two active agents working together, and cooperation becomes possible" (Anselmo and Franz, 1995. p.325)

#### SUPPORT:

*What can care-givers do to support or enhance this natural development ?*

Reflect your toddler's emotional states with words: "I see that you're very angry about something," "You seem tired and cranky, do you need a nap?" "My, you have a lot of energy today!" "That must be frustrating" and so on. Aside from the importance of acknowledging your toddler's feelings, he will observe and note your empathy with him.

You may even help your toddler distinguish between feelings and action by acknowledging her anger while, at the same time, proposing different possible ways to deal with it. So, for example, you may say: "it really makes you mad when Timmy messes up your games, doesn't it? I remember when my little brother used to do that to me and I got really angry. Let's see if we can find something for Timmy to do that he likes so that he won't bother you".

## World – Making Sense of it All



### WORLD – EXPLORING AND INVESTIGATING

From Hands-on to Heads-in. During their second year, children's understanding of the world further expands beyond direct action and immediate perception,

“hands-on”. At the same time, many of the previously observed behavioural patterns, or competences-in-action, become internalised, “heads-in”.



Around the baby’s first birthday, he will start inventing variations around a given action. For example, he will tilt a toy to pass it through the bars of his crib, or vary the way he drops food from his high chair to see where it lands. He stacks objects in different ways and enjoys playing with blocks and toys in various shapes and sizes. In general, the baby is more mobile and inquisitive. He recognizes cause and effect and is more purposeful in his actions. He will drop things into containers and then will empty the container to do it again and again. The baby may experiment with paper to hear the sound of it crumpling or tearing. He pushes toys, pulls toys, and uses toy trucks to carry objects. At this age, babies love to open and shut things and turn handles. They get into everything and can easily get into trouble if not carefully monitored. They are systematic explorers of all objects around them.

Between 18 months and 2 years, children start to speak and to think. In other words, they can figure things out in their minds, and represent their actions and objects, using symbols “heads-in”. This indeed is a big leap.

COMPETENCIES PURSUED:

*What does the 1–2-year-old naturally strive to learn?*

For one, toddlers start to figure out how different objects behave and how they impact one another, independent of their current interactions with them. Also, toddlers understand positional relationships between the objects and other elements of the environment

More important, by their first birthday, children can decide whether to act or not, in a given situation. They can think things through in their minds. This brings about many new ways of understanding space, time, object permanence, and causation.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

If an object disappears successively in a number of places, the infant will search for it in the place where it was last seen. If it’s not there, the child may look at other places where it had been before.



When trying to solve a problem that requires the invention of a new solution, children, at this age, will often stop and think. Beyond trial-and-error, that is, they can reconsider what they have done in the light of what they want to achieve. They “think out” the problem. In sum, as they reach their second birthday, children can draw lessons from their past experience, and they can anticipate what’s to come: they can plan ahead.

**SUPPORT:**

*What can care-givers do to support or enhance this natural development ?*

At this age, children develop a passion for putting things in and out of containers, and for stacking and grouping things. That’s the time when stacking toys, nesting bowls, and shape-sorters come in handy, as well as simple blocks of different colours and sizes that babies can arrange and rearrange, at will. Let them play and, every now and then, just propose a new fun way of re-arranging.

Bath time is another privileged moment for joyful exploration and discovery. Simple bath toys, like plastic ducks, cups, tubes, can be a toddler’s favourite science tools. And if weather permits, nothing is more fun than to go to the beach to play with sand and water.

**WORLD – SEEKING LOGIC**

From Logic-in-action to Logic-in-thought. As toddlers become more competent speakers, they also start to count. At first, adults just recite the sequence of numbers to them, and they repeat it without knowing what the number-words stand for. It won’t take long, however, before the word game turns into some rudimentary form of counting game.

As toddlers become more competent walkers, they develop a practical logic of possible movement-in-space. They map locations to orient themselves in space, and in so doing, they learn about placement, about order, and about reversibility (if I can go, I should be able to come back).

As they reach their second birthday, most babies begin to move from a complex “logic in action” (what Piaget calls “le groupe des déplacements”) to a “logic in thought.”

**COMPETENCIES:**

*What does the 1–2-year-old naturally strive to learn?*

Toddlers at this stage display an affinity for sorting and classifying objects. They have learned to distinguish various properties of objects (such as colour and shape) and delight in using this new knowledge to form new groups and categories.



True cardinality begins to express itself: Nineteen-month-olds can put two toys together and say “two.”

MANIFESTATION:

*What actions will the child do to attain the competencies?*

When counting, many toddlers will go: “one, two, seven, five”. The order doesn’t matter, nor does the correspondence between word and number. All that matters is to repeat the same sing-song ritual in situations of walking stairs or finger play.

Children love sorting objects such as laundry or silverware. “For example, if the baby stumbles upon a fruit bowl in the kitchen, she may at first sort the pieces by colour, putting the yellow grapefruit and the yellow bananas together in one pile, and the red apple and red plums in another. Minutes later, she may sort the pieces again, but this time by shape, now placing the round grapefruit, apple and plums in one pile and the crescent-shaped bananas in another.” (Karmiloff-Smith, 1994. p. 194) This sorting and categorising ability, and especially her ability to form variations, shows the baby’s newfound logic-in-thought at work.

SUPPORT:

*What can care-givers do to support this natural development?*

Parents often count steps as they walk down the staircase with their toddlers. They also count fingers, toes, and recite finger play sing-songs.

These games are nice because they match the counting sing-song to elements in a situation, such as steps and fingers. At this stage, the baby will not understand what the numbers stand for, but he will enjoy the correspondences. Ultimately, he may learn something about matching order of recitation, order of events counted, and the action of passing through in a certain order.

Let the baby help put the silverware away or help match up the socks from the laundry. Playing with toys such as “attribute blocks” also exercise the baby’s ability to sort and categorise objects.



## Creations – Realising Visions

### CREATIONS – IMAGINING

The Emergence of the Symbolic Function. As we have seen, many precursors announce the emergence of a child’s imagination. Yet, the first compelling manifestations usually appear around 18 months, with the apparition of pretend or fantasy play, language and vocalization games, and other manifestations of the symbolic function.

As we have seen, suspension of disbelief, as exhibited in pretence and humour, is the single most important ingredient of a child’s budding imagination. Without suspension of disbelief, we remain in the realm of the rational mind: the one that reasons about if-then situations, instead of asking what if questions. Without suspension of disbelief we would not be able to appreciate a joke. Like imagination itself, pretend play and joking are non-literal. They are about make-believe.

Both pretence and humour allow a child to step back occasionally from the seriousness of a situation and approach it with a grain of unreality. Symbolic replays, through dramatization or humour, are not confusing to young children but liberating provided the context is safe. Likewise, fantasy play is not an escape from reality but helps the child understand it better. As Jerome Singer states, “The ability to deal with unreality and to generate complex sensitivity to what is fantasy and unreal may have its own rewarding value in helping to enrich the overall awareness of discovering reality and human possibilities” (Singer, J.L., 1974. p. 37).

Let’s now look at how 1–2-year-olds start to pretend and joke, tease and deceive.

### COMPETENCIES PURSUED:

*What does the 1–2-year-old naturally strive to learn?*

Pretend play: At some point in the first half of the second year, children start to engage in all kinds of make-believe activities. They drink out of empty cups, cuddle and talk to their dolls, and pretend to sleep. According to Piaget, a young child moves through two levels in her early pretend play. A first level, which he called solitary symbolic play, begins around 12–15 months of age, when toddlers start to play with absent objects. A transition to a second level sets in around 18 months, when children start to use certain objects to stand for others, like when a child rides a chair, or when she brings a banana to her ear, and speaks, as if it were a telephone.



Humour: Starting at 12 to 14 months, incongruities and exaggerations can become a source of laughter: the child knows that they are “at odds with reality,” or different from the ways things usually are. To Freud, children pass through three stages in the development of joking, or “kidding.” A first stage, which he called “play” consists of incongruous combinations of objects, words, and ideas. Some children begin to exhibit such combinations before the age of two.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

A 15 month-old may sit on the floor and line up several cups. She then pretends to drink from one, laughs—and a few days later, she may try to draw her brother’s attention to her activity (Anselmo & Frantz, 1995. p. 319).

Starting at 18 months, toddlers will use a wooden block as an ice-cream cone, cuddle and talk to their doll as they feed it, and have it be happy or sad. We also see ritual play such as picking up a toy telephone receiver and holding it to the ear. At this age, children engage in pretend play with their caregiver but not usually with peers.

Between 18 months and two years, most children engage in simple forms of make-believe activities. Yet, some children do so more than others. All children make up things in their heads. Some express their fantasies through pretend play (acting or dramatisation), others through building (creating objects or stage setting).

SUPPORT:

*What can care-givers do to support this natural development?*

Be talkative and expressive while you play with your child. Create a relaxed and safe environment, and use clear clues to signal that: “it’s OK to be silly because we are in play mode.” Especially in pretend play, play signals need to be very clear, if not exaggerated, at this age. As we have seen, for a young child, amusement easily and quickly turns into fear if the ambience is not relaxed.

Tell stories, read picture books with your child, and fantasize around the story. Offer words she doesn’t use yet but understands. Create variations around sounds and words. Let him dance, waddle like the duck in the book’s picture, or pretend to be the other animals or characters in the story. Provide flexible media, such as blocks or play-dough for the child to play with.



## CREATIONS – ENACTING AND CREATING

Say it! Show it! Draw it! Leave your marks! As they reach their first birthday, most children speak the first words, though they understand far more than they speak. In spite of their limited vocabulary, toddlers are good at using all the means at their disposal, from grunts, to gestures, to isolated words, to express themselves. And they do so creatively. They know how to keep their audiences interested and to have them participate when needed. Toddlers are also increasingly fascinated with, and engaged in, early forms of literacy. As the saying goes: No one needs to teach a one-year old to draw!

Now, what are a toddler's creative expressions and "artistic" productions like?

The first obvious manifestations of a child's creative expression appear around 18 months, with the emergence of fantasy play, language and vocalization games, and other manifestations of the symbolic function. This is when toddlers start to grab crayons to make marks, usually dots and lines at first, and when they dip fingers in chocolate cream to leave their traces on any responsive medium (from paper to walls to sand to windows). Remember, toddlers have just become mobile. It may not be chance that their desire to leave traces sets in as they start to walk their first steps.

Just as physical tools expand our capabilities, cultural tools allow us to project our imaginations outward. Humans talk and gesture about things that are concrete and visible, but they also talk and gesture about things that are invisible, abstract, or that don't exist. And early on in human history, people started to cast words in stone and keep trace of movement through writing and sketching, drawing and painting. So too with toddlers. The more active and mobile they become, the richer their experience gets and the stronger their desire becomes to express this experience in some way... and even to embellish it a little, too.

### COMPETENCIES PURSUED:

*What does the 1–2-year-old naturally strive to learn?*

One to two-year-olds may not yet speak much yet they understand quite a bit. They cannot yet produce their own jokes, but they laugh at other people's odd behaviours. They do not yet distinguish between drawing and writing, but they are relentless scribblers. Gradually their scribbles change, and researchers have shown that these changes follow a regular pattern.

Speech. A toddler's first words appear in specific contexts. He will say "car" when a car passes in front of the window, and then, he may say "car" again even as a bike or a bird passes by. Progressively, a child's use of one-word sentences refers to more abstract contexts. "Dada" stands for anything that comes, surprises, or appears, and "gone" stands for anything bad that one wishes to go away.



Reading and writing. However messy a toddler's early drawings may look to an adult observer, and however unorthodox her gripping of a pencil, a toddler takes the act of "freezing" events in the form of scribbles very seriously. At this age, the pleasure is often in the process itself. The drawing itself is less important than the fun of creating it. The drawing provides a visible record of motor coordination and shows that the foundations are being laid for more complex drawing and writing.

Toddlers also become increasingly fascinated with making sense of other people's traces, scribbles, messages, and signs. They can now "read" pictures, and they engage in pretend-reading and writing.

#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

Toddlers talk one-word sentences to qualify an object of interest in specific contexts. This leads to all kinds of over-generalizations. A child may use the word "ball" for clocks, full moon, or any round object; and she may use the word "dog" for horses and cows.

Toddlers are generally good at exploiting their mother's subtle non-verbal cues, like voice direction and even body posture, to learn what a new word refers to. They are very resourceful at expressing themselves, and making themselves understood, using a combination of words, gesturing about with the arms, pointing at things, eye contact, and following other people's gaze.

One to two-year-olds like to babble over the phone, for real and pretend. They switch on the TV, or use a remote control, and they hold a pencil to scribble apparently random dots and lines on a sheet of paper: At first, children produce dots and lines with simple, whole-arm movements. The swing of the arm determines line length, and arm movements propel the crayon in arcs across the piece of paper.

Around 18 months of age, a toddler's vocabulary suddenly expands at a greatly increased rate. This period is sometimes referred to as "naming



explosion.” At this age, toddlers start to ask “what’s that?” as they point to things, and as they reach 24 months, many children start to link words into short sentences: “Want cookies,” “Go out,” “Baby sleep.” Thoughts are openly expressed. Pivot words are used like verbs, “Bye, bye dog,” “Bye, bye baby.” or “All gone bus,” “All gone cookies.” This unprecedented “naming explosion” clearly contributes to and enhances a child’s primitive pretend play.

SUPPORT:

*What can care-givers do to support this natural development?*

Remember, literacy has its roots in early infancy (MacLane and McNamee, 1991) and becoming literate (in the broad sense of making meaning) is a natural and powerful urge for children of this age. While early forms of “emergent literacy” may not have direct effects on reading and writing, as we know them in school-age children, they constitute important milestones in a child’s later ability to express herself creatively.

Playful introduction to the joys of translating images into words, words into gestures, and gestures into traces, can only prepare your kids for the later challenges that becoming literate entail. So, read to your child; look at picture books together. When books are added to warm physical encounters, and play, the child associates pleasure with reading.

Naturally, parents and care-givers spend hours pointing and naming objects with their toddlers, both objects in the world, and objects represented in pictures and drawings.

Play in general offers a wonderful occasion to help a child express himself. Play provides a natural “stage” on which the young child becomes a good actor and narrator, a good playwright and orator. Respond to your child’s speech and gesturing.

## 2-3 Years

### Me – Being Me

#### ME - USING MY BODY

**Terrible Twos: Wanting it Their Way.** Starting at age two, our newly expert walkers are ready to venture into the world on their own steam. No more patience for unasked-for help at this age! At the same time, as they experience the thrills of running off ahead of their care-giver and experiencing newfound autonomy, two-year-olds also still want to be held, to be a baby again, to be cuddled. They often demand: “Uppy!” “Pick me up!” Not unlike teenagers, two-year-olds oscillate between two conflicting desires: Let me go, don’t let me go. This tension doesn’t come without its hardships for the child and challenges for her care-givers.



As for fine-motor skills, a two-year-old’s dexterity increases a great deal during her third year, and her ability to manipulate utensils and clothing allows her to be ever more independent. She now figures out how to open doorknobs and handles. Sometimes she can even pull out drawers and switch on the TV, which gives her access to parts of the home or day-care centre that previously required adult assistance.

#### COMPETENCIES PURSUED:

*What does the 2-3 year-old naturally strive to learn?*

Two-year-olds want to do things on their own, and they take any occasion to re-enact the “Let me go — Don’t let me go” scenario. Playful exploration of this constructive tension helps the child come to grips with the trade-off that becoming an autonomous agent entails.

During the third year, a toddler’s wobbly walk gives way to a more secure, sure-footed gait. Her balance improves and he is able (briefly) to stand on one foot. Soon the toddler can run, and thus outpace the adult. At this age, the child seems to enjoy practicing many physical skills for their own sake, and not just to reach a specific goal. He enjoys walking backwards and seems amused by the changing perspective that she gets. He climbs for the sake of climbing, and twirls and spins till he falls, dizzy but laughingly.



MANIFESTATION:

*What actions will the child do to attain these competencies?*

Two-to-three-year-olds can jump in place using both feet, and kick a large ball. When throwing a ball, they bring it behind the head, step forward, and throw it with both hands. When catching a ball, they trap it against their chest with their arms. Two-year-olds learn to walk down stairs, often still with help. Their climbing skills improve.

A toddler scoops her food with a fork, pours her juice from a pitcher into her glass, and drinks with a straw. Two- to three-year-olds demonstrate many self-help skills, such as washing their hands and face. They also like to help others, say, in the kitchen or in the workshop, provided they are taken seriously when washing the dishes, setting the table, or pitching in to repair a broken chair. Two-year-olds start to turn the pages of a book, one by one, with much care. They enjoy building towers, carefully taking up to 6 blocks, one by one, and placing them on top of one another... before smashing everything down! Other times, toddlers simply indulge in hammering pegs into holes, and making much noise. In this case, it's the noise more than the artistry that matters.

SUPPORT:

*What can caregivers do to support this natural urge?*

A first rule of thumb when it comes to terrible-twos is: respect the child's newfound autonomy. Let the child make her own "mistakes," except for those, of course, that compromise her safety. Resist the urge to step in and "help" the toddler accomplish whatever she is struggling with. By all means, give comfort to the child when she gets frustrated, as will happen often, but don't rub her nose in her own clumsiness and/or limitations.

Imagine fun scenarios in which your child can perfect his balance, sense of rhythm, and running, as well as stopping! Both of you could run up to a line (say marked with chalk on the sidewalk) but try to stop before stepping over it. Play with big, steady, soft rubber balls. Children love this, because it involves give-and-take and physical and perceptual-motor skills.

Gentle pretence alternated with rough-and-tumble play are very entertaining to 2-year-olds. Pretend to be a lion. Roar and then pretend bite her belly. Pretend to be a cuddly kitten or (and this is sure to prompt giggles) pretend to be a baby!

And of course, read aloud, and scribble, and engage in arts-and-crafts with your child: Let him fold, assemble, and cut things —with safety-scissors, of course.

## ME – KNOWING MYSELF

On the Hardships of Becoming “Me”. Being a two-year-old is all about becoming me, and forming an identity. Starting around their second birthday, children develop a growing sense of self, i.e. an understanding of what makes them distinct from others, and unique. This shows up in their urge to do things their own way, as well as in their abilities to produce self-descriptive statements (I play. I can do this.). Children, at this age, begin to make self-descriptive statements both in terms of physical attributes (“I have red hair”; “I have a big bike”) as well as capabilities (“I can tie my shoes”; “I can throw the ball”). Kagan points out that the latter category appears as a distinct attribute of self-awareness and self-understanding (Kagan, 1981).



### COMPETENCIES PURSUED:

*What does the 2–3-year-old naturally strive to learn?*

The words “me,” “mine,” and “no” are important and powerful words in the two-year-old’s vocabulary. Note that the emergence of self-knowledge coincides with the apparition of language, and the ability to recognize and deal with symbols, which comes as no surprise. As soon as the child can think, she can also think about who she is, and what she can do.

Two-year-olds strongly express their likes and dislikes, and they often burst into tears when contradicted, or as they see someone do something they eagerly want to do. At the same time, two-year-olds are also quite aware of their own cuteness. They know what makes them special, and in many cases, they use it to get their way.

### MANIFESTATION:

*What actions will the child do to attain these competencies?*

Two-year-olds are very curious about their own bodies, and they will explore each other’s bodies. A two-year-old will stare pointedly the first time he helps his mother change baby sister’s diaper. “What’s that??” he will ask. A two-year-old also has a better sense of the shape and size of his body, and he begins to build a self-concept based on sexual differences. Yet, he still has a rather vague notion of what’s inside his body.

The imitation impulse is very strong at this age, but frustrations run high, too. The toddler constantly runs up against her own limitations (or those imposed upon her by adults). This is infuriating for the child. (No wonder the “terrible twos” are cranky so much of the time.) She wants more than



anything to do what everyone else is doing, especially older siblings, and she finds herself constantly thwarted. She is faced with her own clumsiness, but she can't help it; she is doing the best she can.

**SUPPORT:**

*What can caregivers do to support this natural development?*

Be sensitive to your terrible-two's fragile ego, which gets bruised easily. Let him do things his way, even if it takes time, and let him help you when he decides it's time! In dealing with your child's frustrations, offer choices, show consideration, and take their needs seriously, yet don't let your child use tantrums to gain complete control over the household. Stay in control when your child is out of control. Set clear and consistent boundaries, and never make your two-year-old feel he's a bad person because of a tantrum.

Make your child feel comfortable in her body and thus proud of who she is! In this sense, gender awareness and differentiation can start early and come in response to questions about the difference between boys and girls. When explaining about her little brother's anatomical differences, Mom may say: "He is a boy. He uses it to pee with, just like you pee with what you've got."

When it comes to toilet training, 2–3-year-olds should not be asked to sit on a potty if they are in a period of strongly oppositional behaviour. If they are asked to use the potty before they are ready, they will not likely be successful. If unpleasant associations form, it can take months to undo the harm.

## Us – Growing Together



### US – RELATING TO OTHERS

"Let me do... I'm not a baby!" In their third year, children enter a new phase in their relations with others, best characterized as: "Let me do...I'm not a baby anymore." The pursuit of autonomy, begun during toddlerhood, now reaches a new peak as our so-called "terrible twos" experience for the first time the thrills of doing things on their own ("Let me do!") and of being taken seriously ("I'm not a baby anymore!"). And the less helpless they feel, the more willing they are to help others, to engage in joint activities, and to share.

Terrible twos express their quest for autonomy in several ways. They may assert their goals loud and clear ("Me do. No help!"). They may also resist

the adult, either directly (making loud “no” responses), indirectly (leaving the room) or passively (staring silently) (Haswell, Hock, and Wenar, 1982). In all cases, “the children act as though they have the power and authority of important adults in their lives, even if they do not always know precisely what they want at the end of the struggle. For example, in a given situation, children may even say ‘no’ to going to the park, to staying home, and to every other feasible alternative” (Anselmo and Franz, 1995, p.306).

Tantrums set in as young children lose any ability to negotiate further with an adult or deal with a situation over which they have no control. Tantrums can provide a way to release tension in a child’s desperate attempt to win a confrontation. The screaming, kicking, thrashing, and hitting are all-consuming. After a tantrum, children are often happy to do what they have just refused, or accept what they can’t do. They may just want the reassurance that, though they have “lost it,” their caregivers are still strong, holding, and loving.

Self-assertive behaviour is a normal part of a toddler’s need to establish autonomy, and his saying “no” is a healthy sign of good development. If parents respond with consideration to a child’s legitimate quest for autonomy, children are quick to learn that they can be themselves and still belong. That’s when our terrible two-year-old will be very happy to respond to an adult’s request, and spontaneously help out. That’s when se becomes caring and sociable.

#### COMPETENCIES:

*What does the 2–3-year-old naturally strive to learn?*

Two-year-olds often want to do things on their own, without any help from parents or care-givers: any attempt at unasked-for help is received with strong vocal refusals. At the same time, two-year-olds enjoy helping others, mostly adults, in achieving everyday tasks. They like to partake. Not unlike “terrible teens,” “terrible-tuos” so relentlessly seek autonomy that it doesn’t come without its share of turmoil. By their third birthday, most children grow out of the TT crisis, freed and enriched. They have learned to express and, to some extent negotiate, their wants: They are now ready to play.

#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

Again, two-year-olds want it their way, and the sound of “NO” rings through the house or the grocery store if Mom tries to impose her unasked-for help.



At the same time, terrible twos are also sweet and sociable. They enjoy bringing you objects you request, and they help you open the door, put the pillow on the bed, etc. They also enjoy helping in household tasks, like putting laundry in the basket, washing dishes, etc. They do say “No!” a lot, and, although they may share with their parents, they may not be willing to share with other toddlers.

In a child’s relentless quest for autonomy, it is not surprising that this is a time when children develop special attachments to objects, such as blankets, rag dolls, towels, teddy bears, and pieces of satin fabric. These objects are familiar things that provide comfort. Psychologists call them “transitional objects” because they can temporarily substitute for a parent or caregiver as an object of affection. If parents are not close at hand, transitional objects can give children a sense of security.

Terrible twos can be both helpless and omnipotent. Two-year-olds also become aware of what it means to care for another person (or perhaps a pet).

**SUPPORT:**

*What can caregivers do to support this natural development?*

Two-year-olds want to be taken seriously: So abandon Motherese, and talk to them in your regular adult voice. Let them feel strong while setting boundaries when omnipotence becomes dangerous, annoying, or destructive. Even if you have to be firm, allow your child to “save face.” Never make her feel inappropriate.

You can help your child as he struggles for autonomy by offering choices: “Let’s see what you want to wear today? Which shirt (show alternatives)? Do you want to eat with a spoon or a fork?” This way, the child can assert her will within a structure that is feasible and acceptable to him and to his parents.

Two-year-olds start to engage in fantasy play, so play with them! Engage with them when they begin role-playing fantasies. Let them play out their omnipotence. Let them bring along their transitional objects. When mothers are constructively engaged in play, the children are more likely to help with requests (say, to clean-up), and they feel good about themselves when they help.

Should things get out of control, show your child that you consider her needs by giving her time. Research (Haswell, Hock, and Wenar, 1981) shows

that the strongest opposition from children usually comes within seconds after adults make a request. If you can just wait at least 10 seconds before repeating a request or taking further action, children will often comply all by themselves – and feel good about it! Even very young children know how to appreciate your patience.



If a child gets into a desperate temper tantrum, the best advice is to remain calm. It is important for the child to know that, though he may be out of control, his parents are in control of themselves and the situation. Once the tantrum is over, give your child much special affection: He needs to know that discords are repairable, that you appreciate his come-back, and that he is still loved—unconditionally.

### US – UNDERSTANDING OTHERS

From Understanding to the Beginnings of Empathy. During the third year, the child's ability to converse about inner states, feelings and moods, grows by leaps and bounds, and is used in attempts to influence, persuade, and cajole others. At they reach age of 3, another big breakthrough occurs as children start teasing, joking, pretending, and deceiving; all abilities that demonstrate a clear practical grasp of what may upset, amuse, or confuse a particular person. Sharing a joke, for example, implies an expectation that another person will also find some "distortion of the expected" absurd or comic.

#### COMPETENCIES:

*What does the 2–3-year-old naturally strive to learn?*

Two-year-olds like to display, discuss, and reflect upon emotions, intentions, desires, and thoughts. They understand mood-related non-verbal cues, and they can tell by the expressions on the face of their caregivers when they have been naughty. Children's grasp of how others respond to blame, pretence, or deception is at first rather practical and instrumental: it is used to reach their own ends (e.g. avoiding punishment). Yet, two-year-olds are also able to respond empathically to other people's distress, for example by cajoling them or offering them comfort.

It has been observed that two-year-olds will talk to babies in a different way from how they talk to adults. In fact, their tone and inflection resembles "Motherese". No doubt, some of this is pure imitation of what they see and hear adults do, but it also entails an ability to take into account that different people possess different levels of understanding. Similarly, two-year-olds



brought up in bilingual households can sort out which language gets spoken to whom—they rarely get mixed up.

MANIFESTATION:

*What actions will the child do to attain these competencies ?*

Early in the third year, children in dispute with an older sibling may seize or remove their sibling's favourite toy, or attempt to destroy or hide something that has special significance for the sibling.

As they reach their third birthday, children involved in disputes may blame another sibling for something they have done, and which they know Mom won't like ("Phillip bite!"). They may also use excuses to avoid something unpleasant ("No soup. Belly aches!"), or when they have done something outrageous ("I pretended...").

Some kids crack their first jokes, often scatological, as early as 24 months—more likely around 36 months.

In their pretend play, two-year-olds frequently divide up their animals or dolls or even ordinary objects into Mommies, Daddies, and Babies. They try on these roles in order to explore these relationships. When playing with a friend, it is not uncommon to overhear: "Now I'm the Mommy and you're the Daddy."

SUPPORT:

*What can caregivers do to support this natural development?*

Engage with your child when she initiates dialogues about emotions. Help resolve disputes between toddlers without lecturing. It is better to ask questions and let children come up with their own solutions. They may surprise you by their ability to do this.

## World – Making Sense of it All



WORLD – EXPLORING AND INVESTIGATING

Hands-on, Heads-in, and Back! — a Cognitive Dance. In the third year, children become ever more skilful explorers and, beyond that, they use their newly acquired ability to think, or manipulate things in their heads and to plan ahead. Like young scientists, they engage in systematic trial and error.

Yet, not everything has to be acted out, right here and right now! In other words, 2 to 3-year-olds start to move back and forth between “hands-on” and “heads-in,” or between action and representation. This lends them a whole new angle to figure things out. Their learning accelerates dramatically, as their own deliberate actions give them new food for thought, which in turn leads to further actions, and so on.



Two-year-olds cannot wait to act on their newfound competences. They want to join in with whatever anyone else is doing, especially older siblings. They dislike being told that they can’t do something (even if they can’t)!

COMPETENCIES:

*What does the 2–3-year-old naturally strive to learn?*

Children’s practical understandings of space, time, and causation are fairly developed at this stage. Two-year-olds start to map locations to orient themselves as they move about in space. They no longer attempt to sit where they cannot fit. Their sense of time is at first limited to understanding words such as “later,” “soon,” “morning,” “night.” Later, they begin to use the past tense (though not correctly or idiomatically). The future is hazier: they can understand “tomorrow,” but not much beyond that. At this age, children also understand that the physical world follows laws, such as gravity.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

In their third year, children perfect the art of mindful exploration. Whether they play with sand, water, and clay, or with blocks, they come to realize such things as: water “likes” to go down, sand changes shape like a chameleon. Wooden blocks can be stacked up to a certain point, but beyond that point they will fall down.

Their increased mobility enables them to move all over, learning concepts such as up and down, under and over, in and out, and far and near, and so on, increasing their spatial understanding.

Two-year-olds may try to sit into a small chair or box because they have just put their teddy bear into it. They gradually acquire a sense of scale.

SUPPORT:

*What can care-givers do to support this natural development?*



Provide an even wider array of materials and tools including, puzzles, blocks, crayons, sand, water, clay, finger-paints, etc. Let them participate, when safe to do so, in activities going on around them, even if the child cannot yet do so competently.

### WORLD – SEEKING LOGIC

Logic and Numbers. In the third year, children develop their logical reasoning powers and take further strides in developing a more mature concept of number.

In terms of logic, children develop what Piaget terms “transductive reasoning.” According to Anselmo and Franz, transductive reasoning “shows some or all of the following characteristics: it moves from effect to cause (e.g., a child kicks the tricycle after skinning his knee from falling off of it), focuses on only one of several variables (e.g., the child assumes that all four-legged animals are dogs), confuses general and specific cases (e.g., the child assumes that because his father has a beard, all fathers must have beards), and makes analogies to past events (e.g., the child assumes that because the family happens to be driving on the road that leads to the airport, Daddy is going out of town).” (Anselmo 1995, p. 349).

In terms of number, children, perhaps due to their sense of rhythm, develop a sense for order in counting (i.e. they have mastered the sing-song of counting) and also understand the principle of one-to-one correspondence. Yet, cardinality still is difficult, perhaps because, in this pre-conservational stage, the child is still too easily “governed by appearances.” Amounts are still seen as flexible and change according to appearance. The same applies to number in terms of its standing for a definitive amount. Accordingly, a child might say, “I know that Daddy is older because he is bigger,” concentrating on one aspect of cardinality but not another. (Anselmo, 1995. p. 349).

### COMPETENCIES:

*What does the 2–3-year-old naturally strive to learn?*

To count successfully, requires that one respect some implicit rules. “Don’t count any object twice (one-to-one principle); always say the numbers in the same order (stable–order principle); and finally, let the last number reached stand for the total number of objects counted (cardinality principle).” (Karmiloff-Smith, 1994. p. 175).

Recent research suggests that two- to three-year-olds may readily grasp the one-to-one and stable-order principles: They count each object only once, and they always count in the same order. Yet, they don't grasp the cardinality principle. So, for example, if two to three-year-olds are asked, "How many toys are there? [you show 3 toys], they may be able to succeed in counting "one, two, three." Yet, if you asked "Give me three toys," they will just take a handful without counting. (Karmiloff-Smith p. 175–6)



MANIFESTATION:

*What actions will the child do to attain the competencies?*

Two- to three-year-olds may recognize numbers written from one to ten, and count numbers out of sequence (one, two, five, seven). Yet, their understanding of number is still limited. They know what "two" or "three" is, but not much beyond that. They may be able to count by rote, but with not much understanding.

Toddlers can recognize some colours and attempt to sort by colour and shape, although they are not always successful.

Two to three-year-olds may see a herd of cows in a field and exclaim, "See cows!" She may then pass a group of horses grazing and say, again, "See cows!" (Cows = four-legged animals standing in a field.) This is another example of transductive reasoning.

SUPPORT:

*What can care-givers do to support this natural development?*

Two- to three-year-olds enjoy shape boxes and stacking and nesting toys. They love to open handbags, boxes, drawers, and cabinets. Don't be alarmed if your child makes "mistakes" in counting; he will get the hang of it. Children at this age also enjoy classifying blocks or other objects according to size or shape or colour. Again, don't be put off by "mistakes", you don't need to correct them.

## Creations – Realising Visions

### CREATIONS – IMAGINING

Playful Fantasy and the Beginnings of Humour. In their third year, children's ability to pretend expands to include other people, and an early sense of





humour sets in as children start teasing and tricking others. Again, a child who laughs or is amused when pretending or observing incongruous events acknowledges the “unreality” (the impossibility or absurdity) of the events imagined. Events are humorous because they are at odds with reality.

Piaget, Garvey, and others have observed that curiosity and exploration generally precede play with incongruous objects, sometimes referred to as Stage 1 humour (McGhee 1979). In other words, a child will first visually examine and manipulate an object to understand it. There is no playfulness during this period, although some authors refer to this as “exploratory play.” The focus is on learning. The mood is serious rather than humorous. Only as the nature and function of the toy or object are pretty well understood, will the child start to pretend and be amused as she gets an object to do something that she knows is nonsensical, absurd or impossible. This capacity usually sets in toward the end of the stage, as the child approaches her third birthday.

Between 2 and 3, many children also engage in self-speech, and in solitary or collective monologues. They may do so in their crib before sleeping, but also during the daytime as they play, alone or with other children. Piaget referred to this form of self-speech in the presence of others as “collective monologues.” Nelson, Bruner and others have written an entire book on the “crib monologues” of a little girl named Emily (Bruner, 1983). Emily’s soliloquies are a 2-year-old’s free-associative “reveries” or daydreams. They are poetic and humorous, revealing in their “unreality.”

Self-speech, or solitary play with words, is not incompatible with the fact that the child, at the same stage, also interacts with others during pretence, and shares her first vocal and verbal humour (which is often scatological in nature!). In effect, starting between age 2 and 3, a second level of pretend play sets in, which Piaget called collective symbolism: That’s when children begin to incorporate and interact with peers in their pretend play, and converse with imaginary companions.

#### COMPETENCIES PURSUED:

*What does the 2–3-year-old naturally strive to learn?*

As they reach their second birthday, most children engage quite heavily in make-believe activities, from fantasy play to producing and appreciating exaggeration, absurdity, and nonsense. As we have seen, a child cracks his first “jokes” as early as 24 months of age.



It is not by chance that these abilities set in at a time when a child most needs them, developmentally speaking, because she enters in the process of individuation, and builds a fragile sense of self. This is another instance of the adaptive nature of human behaviour. Through pretence, a two-year-old gets a chance to dramatize many intriguing events, sometimes changing the original event's outcome, which helps her come to grips with the hardships that identity-formation entails. Piaget noted, for example, that at 23 months of age, his daughter, Jacqueline, "put a shell on the table and said "sitting," then put another shell on top of the first, adding delightedly "sitting on the potty". Quite an enactment! Through amusement and humour, exaggerations and nonsense, a two-year-old can distance herself from the seriousness of everyday life, while capturing its essence through fictionalizing. Her use of humour cleverly relieves some of the tension from what might be a stressful situation (toilet training). Isn't it why we all like comedy and slapstick humour? It injects a sense of levity or ridiculousness into an otherwise serious situation.

Pretence. Initially, pretend activities are restricted to the invention of objects in their absence. Yet as the child moves toward his third birthday (the exact timing varies much according to children), a second level of pretend play sets in, which Piaget called "collective symbolism." That's when children begin to incorporate and interact with peers in their pretend play,

Humour. A 2 to 3-year-old child's sense of humour corresponds to Stage 1 humour, as defined by McGhee. For example, a 30-month-old girl may say "comb" or "comb hair" while going through hair-combing motions with a ruler, and laugh. Overt physical activity is still needed, in Stage 1 humour to create incongruities. Words alone won't do.

Stage 2 humour sets in toward the end of Stage 1 (McGhee). Referred to as vocal and verbal humour, it operates in the absence of any overt physical act. So, for example, a 30 month-old will distort the sounds of words. He may begin sounding out a real word and then gradually change it to the point that it has little resemblance to the original word (e.g. watermelon, fatermelon, schmaterbelon). The child may also simply mislabel objects or misname or distort a correct name (as in poo, shoe, floo) (McGhee, 1979. p. 129).

These forms of humour start at the end of this stage but remain popular until the age of five or so.



#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

By the age of two, children talk to adults, to their toys, and to each other. They use pretence interactions, such as mock disapproval, and they engage in “deferred imitation.” That is, they re-enact scenes from the past, and they play out all kinds of variations of these scenes. They make their toys carry out actions on other toys, such as Teddy bear feeds Dolly, or they pretend they are parents, “Naughty Dolly!” In their play, two- to three-year-old children pretend to be their parents, kings, “ninjas,” or characters from a favourite TV program. They may call their stuffed dog “dumbhead” in play, working through their earlier confrontations with a parent. They can also turn disobedient subjects into stone toads, or dazzle the world with magical powers. Children, at this age, may have some implicit rules that govern their play, but these rules are set by the players themselves and not by anyone outside. Two to three-year-olds also engage in crib-monologues (self-speech) or collective monologues, where children sit side-by-side and appear as if talking to each other, but neither expecting nor pursuing a response from the other.

#### SUPPORT:

*What can care-givers do to support this natural development ?*

Be a play partner in children’s pretend play. By all means, let the child be in control, but don’t be afraid to interject your own humorous embellishments as well.

Children at this age still love physical, slapstick humour. They also think it is hilarious when grown-ups call things by the wrong name, or use objects the wrong way. Call the dog a cat (or vice-versa). Put your socks on your ears to keep them warm.

Give very clear “play signals” when engaging in pretend play with your child. Both play and humour call for relaxed and safe environments in which to develop.

Accept your child’s first attempts at scatological humour. Don’t make a big deal over it. This, too, shall pass.

#### CREATIONS – ENACTING AND CREATING

Traces That Mean : Drawings Show, Writings Tell, Trails Record. In the third year, children engage in fantasy play. They like to dance, to sing songs, and they

continue to be fascinated by the traces their leave behind, say, as they walk in the sand, or as they hold a crayon against a wall. Unlike toddlers, 2–3-year-olds also start to distinguish between drawing and writing, and their scribbles become more controlled. The child now carefully watches the movement of the crayon as they form more intricate patterns of loops and swirls.



Two to three-year-olds start to string words together as they speak. At first, they combine an action word with an object word (as in “put sock” or “baby juice”). And often one word will be used as a pivot, around which other words are attached, as in “all-gone baby, all-gone dog” or in “no-going nighty-night, no-going bath.”

Needless to say, two-year-olds most enjoy to use words as commands, as in “more juice,” “more teddy,” or “shoe me,” “sock me,” “apple me,” “juice me,” to get what they want, or to avoid getting what they don’t want. They also use words to enhance and enrich their play, or to give meaning to a scribble. As mentioned before, young children speak in many different languages, and they use the progress they make in one as a lever to enrich their expressivity in others.

#### COMPETENCIES:

*What does the 2-3 year-old naturally strive to learn?*

Two to three-year-olds start to produce scribbles that may still appear random to adults, but that mean different things to the child who created them. “Experiments have shown that at 2 to 3 years of age, children who are asked to mimic drawing will often make large movements, keeping their crayon down on the paper while they are drawing. By contrast, when they pretend to be writing, they tend to make smaller scribbles, and keep lifting the crayon off the paper as they do so. In other words, they go about “drawing” and “writing” in very different ways, even if what finally ends up on the paper looks much the same to the adult”. (Karmiloff Smith, 1994. p. 130).

Toward the end of this period, children have little difficulty in matching photographs, or drawings, with the objects they represent. They still attribute many properties of the real objects (like being alive) to their photographic, or pictorial, representations, which Piaget refers to as “iconic realism.” In his book *The child’s construction of the world*, Piaget mentions the case of a 2-year-old who believed that not only were pictures and statues alive, but they could think and see. According to this child “one was not alone so long as there was a picture in the room” (Piaget, 1929. p.103)



#### MANIFESTATION:

*What actions will the child do to attain the competencies?*

By the age of two, most children speak about 50 words and they understand many more. They engage in monologues (talking to themselves) or in collective monologues (where they sit side by side and do much as-if talking with another, but neither expecting nor pursuing a response from the other. Two to three-years-olds also enjoy pretence interactions, such as mock disapproval. They make their toys carry out actions on other toys (like teddy feeds dolly), or talk to one another (like teddy says “goodnight” to dolly). The children themselves “speak” in songs, simple dance games and finger games. They like to recite and listen to rhymes, and they love pop-up books for surprise.

When “scribbling”, a 30 months-old child may draw a circular line and say ‘it’s a cat!’ She likes to watch adults write her name on a page in large letters, naming the letters as they appear. In general, during this period, children like to “act” on a book as much as they like to look at it, or “read” from it (Murphy, 1978). The book, in other words, is treated as a flat miniature décor, filled with many intriguing objects to be pointed at. Pop-up books are popular among many children of this age because they allow manipulation of flaps to open hidden “doors” and find surprises.

Two to three-year-olds like to match pictures and objects, and they often treat the pictures as if they were the “real thing”: They will touch the face of a baby on a picture, or fear the photo of a dog, refusing to touch it. They may also just pretend to be frightened!

#### SUPPORT:

*What can care-givers do to support or enhance this natural development ?*

Play with your child. Read to your child. Engage your child in naming and pointing games, in books, and in the “real world”. Sing and dance with him. Use a Polaroid camera to take photos of everyday objects. Make a nice picture book together, or stick the photos on the fridge. Let your child take his own pictures. He will love it!

Other kinds of recording or “scribbling” games can be imagined. You may tell your child ‘let’s draw a tiny little kitty cat. Then a BIG cat. Then a sleeping cat’. See what she does. You may tell her: ‘Let’s write a shopping list’. Children, at this age, like to watch others write, and some children even start to pretend-write. You may also simply go for a walk in the sand or in

the snow, or bike in the mud. Make her attentive to yours and her foot prints. Let her now walk with a stick. Look together at the continuous line that gets traced. Come back to your starting point following the line.



©2004 The LEGO Group. All Rights Reserved.

The content is made available for individual use and shall not be reproduced or edited without permission from The LEGO Group.  
The Whole Child Development Guide is grounded in recent research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.  
Author: Prof. Edith Ackermann, Contributors: Dr. Dorothy Singer (The Learning Relevance Grid and The Complete Discovery System) and Dr. Aaron Falbel.  
[www.lego.com/parents](http://www.lego.com/parents)

## 3-4 Years

### Me – Being Me

#### ME – USING MY BODY

Active Age: Jump, Swing, Slide, and Ride! At this age, children are pretty much done with attempting to perfect their walking and running techniques. Once mobile, a 3–4-year-old’s new challenge, or developmental task, is to become agile. Indeed, 3–4-years-olds are budding gymnasts! This new urge manifests itself in a growing interest in local playgrounds, where they wish to explore all the equipment, such as slides, climbing towers, see-saws, and rope-ladders—a child’s version of our gyms!



Obviously, children don’t consciously strive to become gymnasts or athletes. Instead, they do all the right things to perfect their physical agility: Three- to four-year-olds spend hours on swings, slides, and climbing-structures. And, they become good at it rapidly. Note that gymnastics is not just a matter of large-motor skills. It also involves a great deal of dexterity, a strong, secure grip, focused attention, and body awareness, as well as a sense of rhythm and balance.

#### COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*

At this age, children have become rather competent walkers and runners. Their walk is well-balanced, and when they run, their legs and arms are well-coordinated. Their arm movements alternate.

Three- to four-year-olds are now ready to focus on perfecting their athletic skills. They enjoy jumping on the trampoline and climbing up rope ladders. They can use the swings at the playground if someone gets them started, and they can climb up the ladder and slide down the six-foot slide if given assistance.

As mentioned before, gymnastics requires both agility and dexterity. It also requires a good balance—static and dynamic. More importantly, being a gymnast, like being a dancer, involves increased perceptual-motor integration (i.e., being able to produce, or imitate, a gesture one sees someone else doing), body awareness (i.e., body concept, laterality



or right-left discrimination, and directionality) and temporal-perceptual awareness, or sense of rhythm.

MANIFESTATION:

*What actions will the child do to attain the competencies ?*

A 3–4-year-old's balance has greatly improved. Children now tip-toes and walk on a beam using alternate foot stepping. And they love to march in parades that they themselves orchestrate, either with real or imaginary friends. Throwing, jumping, and kicking have likewise improved. They begin to walk upstairs using alternating feet on subsequent steps. Walking downstairs becomes possible, although still not easy, without an adult's help

At this age, a child will ask over and over again to visit the park or playground, to use the trampoline, to perfect her novel urge to becoming a gymnast or athlete. She loves to be amidst other kids of her age, who manifest the same enthusiasm. This being said, at this age, moms and dads are still most welcome to “give a hand” when needed!

At this age, children begin to enjoy carousels, and they can't wait to ride their first tricycle. Motion and activity are the catchwords of this age.

Fine-motor Skills. 3 to 4-year-olds eat by themselves, using forks and spoons. They may still need some help in cutting their food into bite-size pieces. They are able to dress themselves, brush their teeth, and comb and brush their hair.

At the day care centre, children of this age develop an interest in puzzles, and they engage in all kinds of arts-and-crafts activities, which require much dexterity: children even cut out things, and start to colour and draw and scribble. Note that at age three, a child spends twice as much time on a drawing than at age two. Three-year-olds can copy simple shapes, such as circles, though, of course, not perfectly.

SUPPORT:

*What can care-givers do to support this natural development?*

Play “Simon says” or similar games that help promote perceptual-motor integration.

Dance with your child, clap with the beats of the music, march in a parade with the children to help sharpen their sense of rhythm.

To conclude, some general rules of thumb, as suggested by Anselmo and Franz, (1995) for making motor activities appropriate for one to four years olds:



For throwing, striking, and kicking activities: utilize over-sized targets. Minimize emphasis on accuracy. For catching activities: use large colourful, soft-textured balls. For jumping activities: emphasize variations of big jumps, whether vertically, horizontally, or up and over. For Balancing activities: you may take advantage of existing beams, or(in a day-care centre) use special planks of wood [balance beams] and vary the width, height , and angle of incline. In all cases, hold the child's hand while she walk on a beam, or barrier, and when you feel she's in good balance, let go for little while, and then hold again .(Anselmo and Franz, 1995. p.272)

In all of these activities, caregivers assume a role as play partners. They encourage and model motor skills. If done in a joyful way, this will lay the foundation for a child's positive self-concept and pleasant feelings toward such activities.

#### ME – KNOWING MYSELF

Curious Threes! Who am I? Where do I Come From? In their fourth year, children's body image and self-concept further evolve.

That's also the age when our curious three-year-old start to ask a hundred questions about who they are, where they come from, and what they will be like when they are older. They wonder how babies are made, where they were before they were born, what's in their bodies, why people die, and what's after death... among other things.

While they ask all these questions, three-year-olds simultaneously form their own robust views, or theories, about their origins, their well-being or health, and their destiny, as well as about their qualities as persons, and strength and weaknesses as learners.

Curiously, children this age understand the "self" as if it were a body part. As Damon and Hart observe, "The self is believed to be a part of the body. Usually this means the head, although other body parts are also cited, including the whole body. Accordingly, the child confuses self, mind, and body." Similarly, since the self is a body part, anything that has body parts is also said to have a self and a mind, "including animals, plants, and dead people." (Damon & Hart 1982, p. 849) This leads the child to identify "self" with physical attributes or aspects of appearance, and this is in accord with Piaget's categorization of "preoperational" or perceptual-driven thinking at this age.



COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*

By the age of three children become aware of gender differences and variations in people's skin colour and other racial or ethnic clues. That's when parents own stereotypes can influence a child's natural tendency to categorize people.

Also, a three-year-old's understanding of what happens inside her body becomes more sophisticated, and so does her views on what it means to be healthy or sick, happy or sad, alive or dead.

Finally, the child begins to distinguish between feelings and actions. He starts to understand that while certain emotional reactions may be unwanted and hard to control, our actions in reaction to emotions can, and maybe should, be controlled.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

Three-year-olds develop their own views (sometimes referred to as magical, or phenomenalist) how they came to be, about sickness, contagion, and causes of death. A three-year-old will often blame an outside event as causing sickness ("I got sick because Mom got mad at me," or "because I fell down") Contagion, at this age, occurs through proximity.

When upset, scared, or uncomfortable, a thumb can provide reliable comfort to many three-year-olds as naptime approaches. So can transitional objects, like a favourite toy or blanket.

Three- to four-year-olds still have difficulties with tasks that require left-right discriminations, yet their body awareness is more accurate.

SUPPORT:

*What can care-givers do to support this natural development?*

Help your child differentiate between feelings and actions. If she wants to hit a peer whose actions upset her, acknowledge her feelings: "It really makes you mad when Timmy messes up your game, doesn't it? I'd get angry too. Let's see if we can find something for Timmy to do so he won't bother you for a while."

Help your child understand and accept his physical characteristics as well as his similarities to, and differences from, others. Many fun games can be imagined,

such as “Me and my shadow” (a projection of kids’ shadows against a wall) or “Body drawings” (ask kids to lay on large sheets of paper spread on the floor; draw contours of their bodies; set out crayons and paint for decoration), and self-portraits.

Don’t reinforce gender stereotyping with statements like: “Boys don’t cry or play with dolls,” “Girls don’t run around and dirty their pretty dresses.” Such comments can limit children’s self-development. Instead, let girls play with blocks, and boys with dolls. Nothing bad will happen!

Don’t address a three-years-old’s normal awareness of racial differences by playing ostrich or trying to ignore the fact. This is one instance where “colour blindness” is not helpful. Instead, acknowledge that people come in many shades and shapes. And help her understand that diversity makes for richness.

A three-year-old’s sex education comes in response to questions about how babies are born, and where she was before she was born. Forget about the stork. Such questions should be answered simply but accurately. There is no need to go into any more anatomical details than the child asks for.

## Us – Growing Together

### US – RELATING TO OTHERS

The Play Age— Taking Initiative. According to Erikson, a third developmental breakthrough in a child’s relational life occurs during the “play age,” or preschool years (from about 3 1/2 to entry into formal school). During it, the developing child learns: (1) to imagine, to broaden his skills through active play of all sorts, including fantasy; (2) to cooperate with others; and (3) to lead as well as to follow.



Erikson’s theory of psycho-social development further states that, starting around age 3 (and up to 5), children are faced with a new developmental challenge. In his words: They either take initiative, or they suffer the effects of guilt! Initiative adds to autonomy a quality of planning and taking on tasks for the sake of being active that, in his eyes, needs to be nurtured.

Children’s sense of initiative is validated when adults respect and encourage their interests, and when they genuinely respond to their frequent questions, which are indicators of their intellectual initiative. If initiative is not encouraged, children may lack a sense of purpose that helps them find success in future endeavours.



#### COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*

Three- to four-year-olds show a vigorous, imaginative, and playful unfolding. They use toys to recreate past experience, anticipate future roles, and play out possible scenarios. They are eager to learn, to work with other children, and to plan and build. They listen to teachers, and model the behaviour of admired figures. They are curious and easily engaged in the excitements of new undertakings. Their initiative extends to include social relations.

Curious three- to four-year-olds have tremendous amounts of energy and a great desire to take initiative. However, they also need some help in directing their surplus of energy in positive ways, and in using good judgement. Otherwise, the child may venture too often into forbidden activities, and this may lead to guilt-inducing negative behaviours, according to Erikson..

While 3–4-year-olds are generally different from 2–3-year-olds, many three-year-olds are still seeking autonomy even as they begin to take initiative. In other words, the two stages, autonomy and initiative, overlap. As a consequence, many of the natural urges described in the previous section are still relevant here, even if to a lesser extent. A three-year-old still likes to be taken seriously, He still likes to be appreciated for doing things on his own. He still wants to feel strong and potent.

Three- to four-year-olds engage in associative play with peers. They participate together in small groups, and start to form privileged relations with individual friend, with whom they play differently than with other children. These early relations are remarkably stable, and foster positive interactions. Special friendships can also be marked by conflict, which is an important part of learning about social processes. In fact, at this age, conflicts occur mostly among friends, over frustration about play equipment and toys. Three-year-olds can still be impatient, they have trouble waiting their turn. They are still learning to share and will offer another child a toy. They are learning to say “Please,” “May I,” “Thank You,” and “Excuse Me.” They like to play group games and begin to follow simple rules.

#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

Object-mediated turn-taking games, such as playing ball, as well as symbolic (or fantasy) play are much appreciated at this age. Through playing ball,



children enact some of the benefits of sharing, or taking turns, although this can still be difficult. Through role play, children can explore how it feels to be another character, and play out many intriguing social scenarios. Children may boss others around. They may cuddle their baby dolls or attempt to teach or scold their teddy bears. In general, 3- to 4-year-olds are very sociable. They like to please and they are friendly now to most adults. They like to talk to them.

At this age, children who watch TV (which many do) are as likely to imitate the actions of people and characters on TV as they are of people present in the room (McCall, Parke, and Kavanaugh, 1977). In this sense, TV can be a powerful socializing force in the lives of even very young children.

SUPPORT:

*What can care-givers do to support this natural development?*

Parents and care-givers can support pre-schoolers' social development in many ways.

One way is to let them play with other children. Today, children spend more time than ever before in the company of peers in child-care centres, family care homes, and other programs. Peer relations in early years give children important opportunities to practice social skills, and to learn new ones. Research shows that even very young children interact with their peers and pick their own special friends. What's more, these early privileged relations persist over time (Ross and Lollis, 1989).

Another way is to help them share what they do at school, see on TV, or read in a book. Let your child watch children's television programs (e.g. Sesame Street, Little Robots, Blue's Clues). Play out what they have seen after the show is over. Tell them about the characters. Expand the game. Read books about what they see on TV. Invite other children to role-play. In general, make a connection between the surreal, two-dimensional world of the TV screen and the real world they see and experience around them.

Children at this age love to play games in groups, but may have a hard time if they lose in a competitive game. Various cooperative, non-competitive games are available for this age group—or make up your own!

Children also love to play with objects associated with the adult world: pots and pans, tools of all sorts, and especially money! Play going-to-the-store



or –bank or –restaurant with real (or play) money. Create scenarios around cooking, or fixing things, and so on, where the child can play with these objects and pretend to be the competent person who saves the day! Children love to be helpful, and if they can't always participate and help out in real activities, fantasy activities may be almost as thrilling and fulfilling.

Three-year-olds love nursery rhymes, and want to hear stories repeated endlessly. They ask countless questions...show them, tell them, play with them. Also, verbal variants of peek-a-boo, Ride-a-Cock-Horse, This-is-the-Way-the-Ladies-Ride are still popular. Such activities not only build relationships, but also help the child de-center and consider her partner in game-playing.

### US – UNDERSTANDING OTHERS

Learning to Wear the Other's Shoes. In the fourth year, children develop an increasingly "disinterested" curiosity about how other people feel and think. This relates to their growing ability to understand the focus of others' interests. They become able to recognize the nuances of more complex social emotions, like embarrassment, shame, or guilt, and to understand that people may have mixed feeling about things (Harris, 1989).

#### COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*

"From three years onwards, the child can attribute to others thoughts and feelings that are different to her own. It's an important intellectual and conceptual leap." (Karmiloff-Smith 1994, p. 224)

As the 3-year-old gains more and more autonomy, she also devises ways to manipulate her caregivers so as to trick them into letting her do what she wants to do. This involves the ability to predict someone's reaction to a situation before it occurs—quite a sophisticated mental task! The three-year-old also begins to show genuine remorse when he hurts or offends others, entailing that he can feel what others are feeling.

However, children of this age have difficulty in attributing false or incorrect beliefs to others. For example, children who discover that there is actually candy inside the crayon box will assume that other children will know this too, even if they themselves originally thought the box contained crayons.

Children of this age are also fascinated by small animals, and by babies—in fact by anything smaller and weaker than themselves.

MANIFESTATION:

*What actions will the child do to attain the competencies ?*



At this age, children can interrupt and contribute to a conversation among adults by bringing something relevant to the topic being discussed.

After a certain amount of prompting, they learn the importance of saying “Please, May I, Thank you,” etc.

SUPPORT:

*What can care-givers do to support this natural development?*

Show empathy for your child’s feelings, and she will learn to show empathy toward you and others. Allow them to help care for pets or for younger siblings, with supervision, of course. They love being trusted to care for others after they have shown they know how to be gentle. Engage in your child’s pretend and role-playing activity (if invited to do so).

## World – Making Sense of it All

### WORLD – EXPLORING AND INVESTIGATING

From Explorers to Wonderers and Questioners. In their fourth year, children start to ask hundreds of questions that leave many adults perplexed: “Why does the sun go to sleep at night? Where does the moon go during the day? What makes the rain? How do airplanes fly?” These typical questions from 3-year-olds capture a special feature of human intelligence: we don’t just notice what happens. We strive to understand why things happen. In Karmiloff-Smith’s words: “At this age, when their ideas about the laws of physics are violated, children tend to ignore the counter-examples. Like some scientists, babies look to the world to confirm their theories about it—not to falsify them!” (Karmiloff-Smith, 1994, p. 189)



COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*

Three-year-olds become fascinated with the origins of things, including themselves. They are curious about how things work and how people behave. They wonder about the passage of time, and about changes over time. They build their own theories of how things are created, and why they



look the way they do. They ask many questions about how people are born and how they grow, age, and even die.

The child's understanding of causality is more complex as he can predict outcomes of actions before they occur. At the same time, the child's explanations remain essentially "animistic": He explains the world in terms of what he knows about himself. He explains the whereabouts of things in terms of how he understands of people.

MANIFESTATION:

*What actions will the child do to attain these competencies?*

Three-year-olds know the present time and tell you what is past, but the future is still more difficult to comprehend. They have trouble telling how long an incident lasts: they can either overestimate or underestimate time. Three-year-olds have a better sense of size relationships, but they still think the taller person is the oldest.

Their fine-motor skills are refined. They love using real tools, or smaller replicas of adult tools, such as hammers, scissors, and screwdrivers. They put pegs into boards, and they love cutting and gluing and taping things.

SUPPORT:

*What can care-givers do to support this natural development?*

Answer your child's questions and, more important, ask them about their own theories: You may be surprised and enchanted by the poetics and consistency of their worldviews. Don't impose your adult knowledge! Enjoy your child's abilities to find clever explanations to the most difficult philosophical questions. Also, don't go to great lengths to prepare your children for school. Instead, foster their natural curiosity. This will help them prepare for life and, indirectly, for school.

## WORLD – SEEKING LOGIC

The Logic of Time and Space. Whereas two- to three-year-olds live chiefly in the present, three- to four-year-olds are able to conceptualise and refer accurately to events in the past, present, and future. Even though most three-year-olds cannot yet tell time by the clock, they use and understand words and phrases such as yesterday, last night, last year, tomorrow, tomorrow night, next week, later, etc. They know when



lunch time and dinner time are, in part by judging their own bodily feelings of hunger. They understand about the seasons of the year (that it's hot in the summer and cold in the winter) though they may not know which season follows which. Similarly, three- to four-year olds may use the words week, month, and year accurately even though they may be unclear about the precise duration of these time-related concepts. In other words, they intuit the logic of time before they can determine exact durations.

The three-year-old's understanding of space develops further from early navigational abilities to include spatial descriptions and spatial relationships among objects. The child can now understand under, over, through, on top of, front, back, inside, outside, corner, middle, edge, etc. The three-year-old can recognise the streets near her house and can tell when she's "almost home." When asked, "Where do you sleep?" a two-year-old might say "In my house," but a three-year-old may give a more spatially refined answer of "In my bed, in my room." A three-year-old understands that left and right are opposite directions but may not be able to say which way is which. They can follow instructions to put something "next to" something else or "between" two other objects.

COMPETENCIES:

*What does the 3-4 year-old naturally strive to learn?*

Time and space concepts at this stage are never far removed from concrete events: time for lunch, time for bed, tomorrow we'll go to Grandma's house, the ball rolled under the car, you can pedal your tricycle backward, etc. As the child approaches his fourth birthday, he can increasingly use time and space constructs to describe events not immediately occurring before him.

MANIFESTATION:

*What actions will the child do to attain the competencies?*

At this age, children can competently play the game of Hide and Seek. They know how much time they have to hide by listening to the person counting and can take the perspective of the seeker sufficiently to know whether or not their entire body is hidden. (A younger child may "hide" simply by covering her eyes or by hiding her head under a pillow.)

A child can judge relative sizes of things and can line up blocks or other objects in size order. She can also assist with such spatial tasks as setting the table or putting her clothes away in the proper drawers.



#### SUPPORT:

*What can caregivers do to support this natural development?*

In order to help children understand the concept of day, week, month, etc., mark up a big calendar by crossing off each day as it goes by. This can enable a child to view the passage of time spatially.

Play Hide and Seek or play “Hot and Cold” to guide the child to a hidden object (“You’re getting warmer... Oh, now your getting colder.”)

Play a game where the child (or the adult) tries to guess how long a minute is, or ten seconds, or some other duration. Or combine space and duration by asking, “How long do you think it will take you to run to that tree and back again?” Try it with a stopwatch or digital kitchen timer.

## Creations – Realising Visions



#### CREATIONS – IMAGINING

From Solitary Make-believe to Tricking and Teasing Others. In the fourth year, children often create imaginary companions, with whom they converse at length, and their pretend play becomes ever more elaborate and social: Children play for longer times, plots become intricate, and they engage in lengthy negotiations with peers on how to stage each and every pretend scenario. At this age, kids “go meta,” meaning, they go to the meta-level and talk about their pretend play. They spend more time in negotiating pretence (“Let’s pretend I’m the mother”... “No, you can’t be the cook!”) than in pretending! They are busy figuring out who gets permission to pretend to be which character, and what objects stands for what.

While children rarely get confused between pretence and reality, holding the border between fiction and non-fiction can still be tenuous, even for a 3- to 4-year-old (Harris, 1989).

Three- to four-year-olds also continue to indulge in vocal and verbal humour, as defined by McGhee: Once familiar with the correct name of something, it becomes very funny to a 3- to 4-year-old to misname and distort words. More readily than before, they will share their silliness with others, and tease others, using humour (sometimes of a doubtful taste to the recipient, or caregivers) They will call a boy a girl, or their grandma “poopoo” —and then, turn around to declare, “I was only joking.”

#### COMPETENCIES:

*What does the 3–4-year-old naturally strive to learn?*



According to Piaget, a new form of symbolic play emerges around age 3, in which the child identifies one object as another, or identifies herself as another person or thing. For example, Piaget's daughter, Jacqueline, at 27 months pointed to a big rough pebble: "It's a dog. Where's his head? There (a lump in the stone). And its eyes? They've gone!"

Humour: starting at age 3, children feel the urge to share incongruities, and they enter a stage that Freud called "jesting". [Ref. Freud's stage of the development of humour]. That's also the age at which McGee's Stage 3 humour starts, while stage 2 humour still continues (McGhee, p.72) Overt physical activity is no longer needed to create incongruities. One very popular form of sound play humour, at this age, is "silly" rhyming.

Three- to four-year-olds love to produce such rhymes as "itsy, bitsy, mitsy.." They walk up to adults using their favourite "taboo" words, and they get into contagious giggling as they talk in squeaky voice.

Toward the end of this stage, a child will be able to tell someone "I was only joking," (or "I was kidding") if he went too far.

#### MANIFESTATION:

*What actions will the child do to attain these competencies?*

A three- to four-year-old might take great delight in calling someone "poop" or "kaka." and indulge in producing silly rhymes ("teenie, meanie, beanie"). Another variation, at this age, is to add nonsensical endings or beginnings to words (pajoodles instead of pajamas.), or, more extreme, "trying to speak with the lips held spread wide and rigid or talking in a squeaky or gruff voice" (Garvey 1977, p. 63).

In general, at this age, Language skills are increasing and so are the child's abilities to fantasize, making up all kinds of "unrealities" in their head". During make-believe play the 3 to 4 year-old often change their voice to become another character. They like to imitate each other's words and actions, and to tease. They use self-guiding speech such as "Can I do that" or "I'll build this". This speech has a quality of planning, which differentiates it from monologue. Many children transcend early forms of monologues, or self-speech by creating and conversing with imaginary companions. Some



even have imaginary places (I come from chia chia land) in chia chia people are green etc.

SUPPORT:

*What can care-givers do to support this natural development?*

Fantasy and socio-dramatic play are generally well-suited to boost the intellectual and social skills of a 3-year-old (Satz, Dixon, & Johnson, 1997, Sutton, Smith & Roberts, 1981). So, let your child play, and play with your child.

Children interact more with their peers than they have before, so arrange play dates with one or two friends. Provide dress-up clothes to aid their fantasy play (though this is not strictly necessary). Be on hand to referee fights or arguments (if necessary), but otherwise stay out of the way.

Children at this age greatly enjoy nonsense words (glorkel, zwimpy, vorp) — especially when “serious” adults use them.

Scatological, and other taboo words have probably been sources of humour for young children for as long as parents have shown signs of concern about their expression. Explain to the child that some words are best not used in public, but don’t labour the point. (McGhee, 1979)

### CREATIONS – ENACTING AND CREATING

Emerging Literacy: Children Narrators, Notators, Performers... During the fourth year, a child’s expressive repertoire (vocabulary) further expands, and so does her abilities to think and imagine “what’s not”. The child is now ready to tell her own wonderful and funny stories (short stories), and s/he becomes ever more engrossed with casting the word in stone. At this age, the child scribbles for longer periods of time, and she uses all kinds of “arts” materials to give form to her imagination: From play-dough to glue and scissors, from crayons to finger paints. 3-4 years olds love to sculpt and scribble and cut and paste!

Besides becoming better narrators and notators, 3-4 years olds also perfect the art of “theatre” and performance: They now set the stages and build the props that enable them to enact many intriguing scenarios, and they take on many roles and voices to play out their parts. At this age, children also like to give voices and roles to their dolls or puppets, which they orchestrate from behind the scene.



In sum, 3-4 years old children start to speak their imagination in more than one way, even within a given medium, like acting or telling: They now express themselves in first person (their own voice) or in second person (through dolls and puppets). And they do so in situ (like an actor on stage) or remotely (like a puppeteer). Like a puppeteer, a 3-4 years-old can disappear behind her avatars and speak/act through them! Children, at this age, also like to freeze each and every act, or keep a trace, which allows them, and others, to revisit and “edit” the acts, at a later time.

#### COMPETENCIES PURSUED:

*What does the 3-4 year-old naturally strive to learn?*

To a 3 years old, it is not very different to enact a scene, to mimic a character, or to tell a story. In their pretense play, children set the stages and build the props that enable them to revisit, recast, and play out their fears and fancies. Children also like to tell and listen to stories and, before they know to read or write, become fascinated with the marks they leave behind and the signs around them. Preschoolers scribble and recite, and they treasure their first books for the stories they conceal (Ackermann & Archinto, 2001)

While children love to mix-and-match media and to speak in a hundred languages, they are no fools! At this age, they start to know the difference between, say a word and a picture, or between a drawing and a piece of writing, and they develop on their own theories on what it takes for a mark to be a word, and icon, or a digit (Ferreiro, 1988). This doesn't entail that we, adults, will be able to tell the difference when we look at a child's productions, or that the child herself won't use word and image side by side, to augment their expressive power.

At first, the finished drawings of a 3-4 years-old may still appear random to the unadvised adult, but the process has changed. Children now consistently watch the movement of the crayon carefully as they form a scribble. They seem to have visual control over the crayon and produce a more intricate pattern of loops and swirls. The wrist is more flexible and crayons are held in a fashion closer to the adult grip. The scribbles themselves become differentiated.

Some children begin to make open and closed figures with attempts at representing objects and people. Most children show interest and stirrings of pleasure and pride as they survey their completed drawings. “See what I have made!” is a common exclamation (Anselmo and Frantz, 1995. p. 269-70).



Again, the actual productions of a 3-4 years old may still look in-penetrable to the adult. Yet, to the child himself, certain curvy curly lines stand for drawings, while others stand for letters, words, numbers, or sentences. So, when asked what a certain scribble stands for, a 3-4 years olds may tell you, rather impatiently “Can’t you see”, it says: “the cat”. It doesn’t show a cat, it says: “the cat” (Karmiloff-Smith, 1992).

MANIFESTATION:

*What actions will the child do to attain the competencies?*

By the age of three, children generally spend twice as long on their drawings as they did at age two—an average of two minutes. In spite of big maturational differences, 3-4 years olds’ fine-motor skills are refined enough so that they can hold a crayon or a marker comfortably. Many children like to use pencils to trace around objects.

Both their manners of scribbling and the intents behind a scribble change, at this age: From random scribbles to controlled, differentiated scribbles, and from pretend-scribbles to early attempts at representational scribbles.

During make-believe play, 3 to 4 year-olds love to change their voice to become another character. They like to imitate each other’s voices, words, and actions. Language, art, music, dance are all used as means for creative expression.

3-4 years-olds also use a variety of art materials to express themselves. They build complex structures with a snap-together construction set and learn to roll play-dough into balls and sausage shapes and seems to gain satisfaction from pounding and shaping. Some children even like to partake in “puppet shows,” especially if they have older siblings who let them play simple roles!

SUPPORT:

*What can care-givers do to support this natural development?*

Let the child scribble, write, and do arts-and-crafts. Let her use safe kids scissors to snip and cut papers, and teach her to use them. She will love it! Give her crayons, finger paints, play-dough. More importantly, play with her, draw with her, read with her. Bake with her. Dance with her.

At this age, children like to partake in simple forms of puppet-show. Give them accessories, scripts, and simple roles. If your child puts on a show with

peers or older siblings, be a good audience and write entry tickets for the show.



Again, don't hurry your child! Especially when it comes to literacy, 'sometimes adults are tempted to hurry children along from scribbling to representational drawing, or even writing. However, as Whitener and Kersey (1980) have asserted, scribbling is to drawing what babbling is to talking. In these authors' view, trying to teach young children to draw before they have moved naturally through the scribbling stage is just as inappropriate as it would be to ask infants to talk before they babble" (Anselmo and Franz, 1995. p. 270).

©2004 The LEGO Group. All Rights Reserved.

The content is made available for individual use and shall not be reproduced or edited without permission from The LEGO Group.  
The Whole Child Development Guide is grounded in recent research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.  
Author: Prof. Edith Ackermann, Contributors: Dr. Dorothy Singer (The Learning Relevance Grid and The Complete Discovery System) and Dr. Aaron Falbel.  
[www.lego.com/parents](http://www.lego.com/parents)

# Bibliography

Abelson, H., & diSessa, A. (1984). *Turtle Geometry*. Cambridge, MA: MIT Press.

Ackermann, E. (1991). "From Decontextualized to Situated Knowledge: Revisiting Piaget's Water-Level Experiment". In Harel, I. & Papert, S. (Eds) *Constructionism*. Norwood, N.J.: Ablex Publishing Company. Part 3, Chap. 9, 269-295.

Ames, L.B., Haber, C.C. (1985) *Your seven-year-old: Life in a minor key*. New York: Delacort Press.

Annany, M. (2001) *Telling Tales: Supporting written literacy with computational toys*. Unpublished Master Thesis. The M.I.T. Media Laboratory, Cambridge, MA [about Tell-Tale].

Anselmo, S, Franz, W. (1995). *Early childhood development: Prenatal through age eight*. Englewood Cliffs, NJ: Prentice-Hall [First edition was published in 1985. New York: Merrill/Macmillan].

Anselmo, S. & Franz, W. (1995) "One-to-Three-Year Olds: Cognitive Development" (Chap. 10, 342-379) in *Early Childhood Development: Prenatal through Age Eight*. (2nd ed). Englewood Cliffs, NJ: Prentice-Hall, Inc

Astington, P.L., Harris, P., and Olson, D. (Eds) (1988) *Developing theories of mind*. New York, Cambridge University Press.

Astington, J. (1991). "Intention in the child's theory of mind". In D. Frye & C. Moore (Eds.), *Children's Theories of Mind: Mental States and Social Understanding*. Hillsdale: Lawrence Erlbaum Associates.

Bamberger, J. (1992) *The mind behind the musical ear*. MIT Press,

Bauer, D. H. (1976), "An exploratory study of developmental changes in children's fears". In *Journal of Child Psychology and Psychiatry*, 17. 69-74

Baumrind, D. (1977, March). "Socialization determinants of personal agency". Paper presented at the biennial meetings of the Society for Research in Child Development, New Orleans.

Beilin, H., and Pearlman, E. (1991) "Children's iconic realism: Object versus property realism" In Reese (Ed) *Advances in Child development and Behavior*. Vol 23. New York: Academic Press. 73-111

Beilin, H., & Pufall, P. B. (1992). *Piaget's theory: Prospects and possibilities*. Hillsdale, NJ: Lawrence Erlbaum Assoc.

- Bernstein and Cowan, (1981). "Children's conceptions of birth and sexuality". In Ribace & Walsh (Eds.) *Children's conceptions of health, illness, and bodily functions*. New Directions for Child development. San Francisco: Jossey-Bass.
- Bernstein, A. C. and P. A. Cowan. "Children's Concepts of How People Get Babies." In *Child Development* 46(1975).77-9 1.
- Brazelton, T.B. (1981). *On becoming a family: The growth of attachment*. New York: Delacorte/Seymour Lawrence.
- Bretherton, I. & All. (1981) "Early person knowledge as expressed in gestural and verbal communication: When do infants acquire a 'Theory of mind'? In Lamb and Sherrod (Eds.) *Infant social cognition: empirical and theoretical considerations*. Hillsdale: N.J.: Lawrence Erlbaum.
- Brittain, W.L. (1979), *Creativity, art, and the young child*. New York: MacMillan.
- Bruckman, A. (1999) *MOOSE Crossing: Construction, community, and learning in a networked virtual world for kids*. PhD Dissertation, The MIT Media Laboratory, Cambridge, MA.
- Bruner, J. (1983). *Child Talk*. New York: Norton.
- Bruner, J., (1984) "Language, mind, and reading". In *Awakening to literacy* (Goelman, Oberg, & Smith. Eds.), Heinemann Educational Books, Oxford. Chap. 15. 193-201.
- Butterfield, S.A. and Loovis, M. (1993) "Influence of age, sex, balance, and sport participation on development of throwing by children in grades K-8". In *Perceptual and motor skills*, 76, 459-464.
- Condon , R.G. (1979). "Inuit Youth: Growth and Change in the Canadian Arctic". In *American Psychologist*, v. 34, 827-833.
- Damon, W (1977) *The social world of the child*. San Francisco: Jossey-Bass.
- Damon, W. (1980) "Patterns of change in children's social reasoning: A two-yea longitudinal study". In *Child Development*, 51. 1010-1017.
- Damon, W. and Hart, D. (1982). "The development of self-understanding from infancy through adolescence" In *Child Development*, 53, 841-864.
- Davidson, L. and Scripp, L. (1988) 'Young Children's Musical Representations: Windows on Music Cognition', in Sloboda (Ed.) *Generative Processes in Music*, New York: Oxford University Press, 195–230.
- Dixon, J. C (1957) "Development of self-recognition". In *Journal of General Psychology*. 91, 256-58.

- Donaldson, M. (1984) "Speech and writing and modes of learning". In Goelman, Oberg, & Smith. (Eds.) *Awakening to literacy*. Oxford: Heinemann Educational Books, 174-185.
- Druin, A., and Hendler, J. (2000) *Robots for Kids*. (Druin & Hendler, Eds). Morgan Kaufmann Publishers. An Imprint of Academic press, New York, Boston, San Francisco.
- Dunn, J. (1988). *The beginnings of social understanding*. Cambridge, MA: Harvard University Press.
- Dunn, J. (1991) "Young children's understanding of other people: Evidence from observations within the family". In Frye & Moore (Eds.), *Children's theories of mind* 97-114. Hillsdale, NJ: Erlbaum.
- Dunn, J., Brown, J., & Beardsall, L. (1990). "Family talk about feeling states and children's later understanding of others' emotions". In *Developmental Psychology*, 27, 448-455.
- Elkind, D. (1970) "Erik Erikson's eight ages of man". In *New York Times magazine*, April, 81-86.
- Erikson, E. H. (1963). *Childhood and society* (Second Edition) New York: W.W. Norton.
- Erikson, E.H. (1977) *Toys and reasons: Stages in the ritualization of experience*. New York: W.W. Norton.
- Erikson, E.H. (1982) *The life cycle completed*. New York: W. W. Norton.
- Ferreiro, E., Teberosky, A. (1982) *Literacy Before Schooling*. New Hampshire, UK: Heineman.
- Flavell, J.H., Flavell, E.R., & Green, F. L (1983). "Development of appearance-reality distinction". In *Cognitive psychology*. 15, 95-120.
- Freud, S. (1960) *Jokes and their relations to the unconscious*. New York: W. W. Norton.
- Gilliom, B.C.(1970) *Basic movement education for children: Rational and teaching units*. Reading, MA: Addison-Wesley.
- Goodman, N. (1978) *Ways of Worldmaking*. Indianapolis: Hackett Publishing Company
- Harris, P. L. (1989) *Children and emotions*. Oxford, UK: Blackwell.
- Harris, P. L. and Gross, D. (1988). "Children's understanding of real and apparent motion". In Astington, P.L., Harris, P., and Olson, D. (Eds) (1988) *Developing theories of mind*. New York, Cambridge University Press.

- Haswell, K.L., Hock, E., and Wenar, C. (1982) "Techniques for dealing with oppositional behavior in preschool children" In. *Young Children*, 37, 13-18.
- Holt, J. (1983) *How Children Learn*. New York: Delacorte Press
- Kagan, J. (1981) *The second year*. Cambridge, MA: Harvard University Press.
- Kamii, C. (1982) *Number in preschool and kindergarten*. Washington, DC: National Association for the education of Young Children.
- Karmiloff-Smith, A. (1994) *Baby it's You: A unique insight into the first three years of developing babies*. London: Ebury Press. An Imprint Random House.
- Koestler, A. (1964). *The act of creation*. New York: Dell.
- Lanham, (1993). *The electronic world: Democracy, technology and the arts*. Chicago and London: University of Chicago Press.
- Lewis, M. and Brooks-Gunn, J. (1979) *Social cognition and the acquisition of self*. New York: Plenum.
- Lipman, M. (1981, 1982, 1984). *Pixie (1981), Kio and Guss (1982), Philosophy for Children (1984)* Montclair, NJ: First Mountain Foundation.
- Mc Call, R.B., Parke, R.D., and Kavanaugh, R.D. (1977) "Imitation of live and televised models by children one to three years of age". In *Monographs of the society for research in Child Development*. 42 (5), Serial N0. 173.
- McGhee, P. (1979) *Humor: It's origin and development*. San Francisco: Freeman & Company
- McGhee, P. (1984) "Play, Incongruity, and humor". In Yawkey and Pellegrini (Eds.) *Child's play: Developmental and applied*. Hillsdale, NJ: Lawrence Erlbaum.
- Malaguzzi, L. and Al .(1987) *I cento linguaggi dei bambini: Narrativa del possibile. Proposte di bambini delle scuole comunali dell'infanzia di Reggio Emilia*. Catalog for an exhibit. Reggio Emilia, Italy.
- Mehler J., Dupoux, E. (1994) *What infants know: The new cognitive science of early development*. Cambridge, MA & Oxford, UK: Blackwell.
- Montangero, J. (1996). *Understanding changes in time: The development of diachronic thinking in 7 to 12 year old children*. Exeter, UK. Taylor and Francis. Experiments by Montangero, J. and by Pons, F. cf. Pons, F., Montangero, J. (1999).
- Montemayor, J., Druin, A., Hendler, J. (2000) *PETS: A personal electronic teller of Stories*. In *Robots for Kids*. (Druin & Hendler, Eds). Morgan Kaufmann

Publishers. An Imprint of Academic press, New York, Boston, San Francisco. pp. 73-107.

Bernstein, A.C. and Cowan P.A. (1981) "Children's conceptions of birth and sexuality". In Ribace and walch (Eds) Children's conceptions of health, illness, and bodily functions. New directions for child development. San Francisco: Jossey-Bass.

Ong, W. (1982) *Orality and literacy*. New York: Routledge.

Owens, R.E. (1984) *Language development: An introduction*. New York: Merrill/Macmillan.

Papert, S. (1980). *Mindstorms: Children, Computers, and Powerful Ideas*. New York: Basic Books.

Papert, S (1993) *The children's machine; rethinking school in the age of the computer*. New York: Basic books.

Perner, J., and Wimmer, H. (1985) "John thinks that Mary thinks that...": Attribution of second-order beliefs by 5- to 10year-old children". In *Journal of Experimental Child Psychology*. 39, 437-471. (Note: Joint paper published in 1983 cf. Wimmer and Perner).

Piaget, J. (1950) *The psychology of intelligence*. London: Routledge & Kegan Paul VIII [originally published in French in 1947: *la psychologie de l'intelligence*]

Piaget, J. (1960a) *The child's conception of physical causality*. Totowa: NJ: Littlefield Adams (originally published in 1926).

Piaget, J., (1960b) *The child's conception of the world*. Totowa, NJ: Littlefield, Adams Inc (originally published in 1926)

Piaget, J (1962). *Play, dreams, and imitation in childhood*. New York: Norton (first English edition by London: Routledge, 1951).

Piaget, J., (1964). *Judgment and reasoning in the child*. Totowa, NJ: Littlefield, Adams Inc (originally published in 1924).

Piaget, J., and B. Inhelder. [1948, 1956] 1967. *The Child's Conception of Space*. Trans. F. J. Langdon and J. L. Lunzer. New York: W. W. Norton [1956 edition was published by NY: Basic books].

Piaget, J., & Inhelder, B., translated by H. Weaver. (1969). *The psychology of the child*. New York: Basic Books.

Pierce, J.W. (1990). "The more they ask, the more they remember: Variables related to preschoolers' memory for answers to their own questions". In *Child Study Journal*, 20. 279-286.

Pons, F., Montangero, J. (1999). "Is diachronic thought a specific reasoning ability?". In *Swiss Journal of Psychology* 58, (3), Bern, CH: Verlag Hans Huber. 191-200.

Reggio-Emiglia Schools (1998) In Edwards, Gandini, and Forman, (Eds) *The Hundred Languages of children: The Reggio Emilia Approach*. Greenwich CN: London, UK: Ablex Publishing Corporation.

Ross, L.S. and Lollis, S.P. (1989). A social relation analysis of toddler peer relationships. In *Child Development*, 60. 1082-1091.

Sanford, A.R. and Zelman, J.G. (1981) *Learning accomplishment profile*. Winston Salem, NC: Kaplan.

Shantz, C.U. (1975). "The development of social cognition". In Hetherington (Ed.) *Review of child development research*. Vol.5.. Chicago: University of Chicago Press.

Selman, R.L. (1980) *The growth of inter-personal understanding*. New York: Academic press.

Selman, R.L. (1981) "The child as friendship philosopher". In Asher & Gotttman (Eds.) *The development of children's friendships*. Cambridge: Cambridge university Press.

Shaffer, D. R. (1988). *Social and personality development* (2nd edition). Pacific grove, CA: Brooks/Cole.

Sigel, I.E. and Cocking R.R. (1977). *Cognitive development from childhood to adolescence: A constructivist perspective*. New York: Holt, Rinehart, and Winston.

Singer, D.G. and Singer, J.L. (1977) *Partners in Play; A step-by-step guide to imaginative play in children*. New York: Harper and Row.

Singer, D. G., & Revenson, T A. (1997). *A Piaget primer: How a child thinks*. Revised Edition. Madison, CT: International Universities Press, Inc.

Smith, C.A. (1982). *Promoting the social development of young children: Strategies and activities*. Palo Alto, CA: Mayfield Publishing.

Stinnett, N., Sanders, G., and DeFrain, J. (1981). "Strong families: A national study". In Stinnett, DeFrain, King, Knaub, & Rowe (Eds.). *Family strengths 3: Roots of well-being*. Lincoln: University of Nebraska Press.

Strichartz, A. and Burton, R.V. (1990) "Lies and truths: A study of the development of the concept". In *Child development*, 61. 211-220.

Sullivan, M. W. (1982a) *Feeling strong, feeling free: Movement exploration for young children*. Washington D.C: National Association for the education of young children.

Sutton-Smith, B. (1975, 1979). *The study of games: An anthropological approach*. New York: Teachers College Developmental Studies (1975). *Play and Learning*. New York: Gardner (1979)

Werner, H.J (1957). "The conception of development from a comparational and organismic point of view". In Harris (Ed.) *The concept of development*. Minneapolis, MN: University of Minneapolis Press. 125-148

Wimmer, H. and Perner, J. (1983) "Beliefs about beliefs: representation and constraining function of wrong beliefs in young children's understanding of deception". In *Cognition*. 13, 103-128.